Annual Report

Archaeological Survey and Mitigation:
Donnelly Training Area, Fort Wainwright, Alaska 2007

2008

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Aaron C. Robertson, Julie Esdale, Molly Proue, Scott Shirar, C. Kanani Paraso, and Christopher Ciancibelli

Copy Edited by: Molly Proue

Prepared by:
Center for Environmental Management of Military Lands
Colorado State University
Ft. Collins, CO 80523-1500

Meg Thornton
Conservation Branch
Directorate of Public Works
U.S. Army Garrison Alaska
Fort Richardson, AK

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Donnelly Training Area Crew

Christopher Ciancibelli*
Shayna Cordle
Alex Cory
David Cory
Andrea Frantz
Robert Gerber
Phoebe Gilbert
Patrick T. Hall*
Christopher Houlette
Maureen P. Howard
Jessie Larson
Joanne Minerbi
Jennifer Murrell
C. Kanani Paraso
Molly Proue*
Joshua Ramsey
Scott Shirar*
Deborah White
Jonathan Wilson
* Archaeology field crew leader

Figure 1. 2007 DTA Field Crew

1.0 Introduction

In 2007, the U.S. Army Alaska (USARAK) and United States Army Garrison, Alaska (USAG Alaska) undertook the development of several proposed projects which triggered an archaeological and cultural resources analysis of proposed areas of potential effect. This report details the archaeological review and analysis that was conducted for each undertaking on lands at Donnelly Training Area, Fort Wainwright (Figure 1). The survey was conducted by the USAG Alaska and the Center for Environmental Management of Military Lands (CEMML, Colorado State University).

Survey and sub-surface testing were conducted following procedures defined in USAG Alaska archaeological methodology (Robertson and Proue 2006) and Integrated Cultural Resources Management Plan (ICRMP; Office of History and Archaeology 2001). Where archaeological sites were identified within a project's area of potential effect (APE), evaluative testing was conducted to determine eligibility for listing in the National Register of Historic Places (NRHP), based on National Register Criteria detailed in 36 CFR 79, and pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR 800).

Archaeological field crews, comprised of employees of CEMML, Colorado State University, conducted surveys of areas potentially impacted (both directly and indirectly) by proposed undertakings and conducted the testing to determine eligibility for listing in the NRHP. Four archaeological survey crews, each consisting of four archaeologists, conducted the work in the Donnelly Training Area.

1.1 Setting

The Donnelly Training Area (DTA) is located in central Alaska, north of the Alaska Range in the Tanana River valley. The Post lies 120 miles south of the Arctic Circle near the city of Delta Junction. The DTA consists of the West and East Training Areas and three outlying training sites: Gerstle River Training Area, Black Rapids Training Area, and Whistler Creek Rock Climbing Area. For the purposes of this report, only the DTA East and West are discussed. The DTA West is an 894 square-mile parcel bounded by the Delta River to the east and the Little Delta River to the west. It covers approximately 571,995 acres. The East Training Area is an 81 square-mile parcel stretching east of the Delta River to Granite Creek. It covers approximately 51,590 acres.

The DTA has the northern continental climate of interior Alaska, which is characterized by short, moderate summers, long, cold winters and low precipitation and humidity. Weather is influenced by mountain ranges on three sides that form an effective barrier to the flow of warm, moist maritime air during most of the year. Surrounding upland areas tend to aid drainage and the settling of cold arctic air into the Tanana Valley lowlands (Natural Resources Branch 2001).

The Alaska Meteorological Team (AMT) at the Central Meteorological Observatory, Fort Greely and Donnelly Training Area, monitors weather at the post. Average monthly temperatures range from -6.4ºF in January to 60.0ºF in July, with an average annual temperature of 27.4ºF. The record low temperature is -63ºF, and the record high is 92ºF. The average frost-free period is 95-100 days (based on 27 years of AMT data).

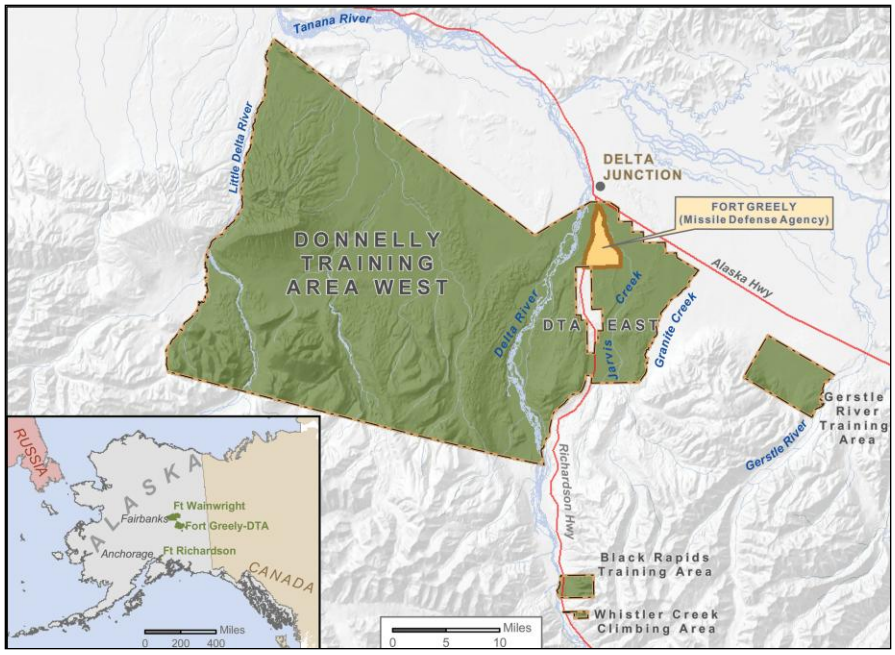

Figure 2. Location of Fort Wainwright's Donnelly Training Area

Prevailing winds are from the east-southeast from September through March and from the west, southwest, or south from April through August. Average wind velocity is 8.2 miles per hour (mph). The greatest wind speeds occur during winter, with a high of 104 mph recorded in the month of February. Winds are 5 mph or less only 13.6 percent of the time and wind speeds greater than 60 mph have been recorded in every month. Thunderstorms are infrequent and occur only during summer (based on 20 years of AMT data) (Natural Resources Branch 2001).

Average annual precipitation is 11.12 inches, which falls over 90.4 days, mostly during summer and early fall. Average monthly precipitation ranges from a low of 0.24 inches in April to a high of 2.38 inches in June. Average annual snowfall is 40.5 inches, with a record 99.7 inches in 1945 (based on 27 years of AMT data) (Natural Resources Branch 2001).

2.0 Literature Review

2.1 History

The DTA lands fall within an area occupied at the time of Euro-American contact by Lower-Middle Tanana Athabaskan s (Andrews 1975:177; McKennan 1981:564; Mishler 1986). Traditional settlement patterns were focused on a widely mobile seasonal round, with the fall caribou hunt playing a pivotal role in subsistence preparations for the winter, while summer activities were focused at fish camps and in berry and root collecting and sheep hunting (McKennan 1981:565). These activities frequently had a communal focus, 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 lifestyles of local Athabaskan 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 advent of missionary activities in the Interior of Alaska profoundly affected traditional social organization. The introduction of mission schools for Native children and the doctrine of new religious beliefs contributed to an erosion of traditional settlement patterns and practices (McKennan 1981).

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.

Development in the Alaskan interior increased dramatically with the advent of World War II and the 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 26 miles southeast of Fairbanks (Eielson Air Force Base). These locations began as lend-lease bases and cold weather testing centers, but soon expanded with the increased need for military support during World War II and later, the Cold War.

2.2 Prehistory

As noted by John F. Hoffecker (1996), Beringian archaeology is in an early phase of development, with archaeologists on both sides of the Bering Strait still working on the construction of cultural chronologies. That being said, it should come as no surprise that there is a lot of debate involved in the creation of a prehistoric chronology for Interior Alaska. This section offers a brief comparison of two different views on the chronology: the chronology present in Alaskan archaeology in some form since the 1960s that has been modified over the years and one proposed by eminent Alaskan archaeologist Charles Holmes in the mid-1990s.

Traditional chronologies of Alaskan prehistory divide time into periods based on tool forms. The broadest classification divides Alaskan prehistory into three traditions: the American Paleoarctic

Tradition, the Northern Archaic Tradition, and the Athabaskan Tradition. Because of the almost continuous flux involved with the many subcategories of an Alaskan prehistory, this section will discuss the broadest classification.

- The American Paleoarctic Tradition (12,000-6,000 BP). This tradition includes the Denali Complex, originally defined by West (1967), includes distinctive microblade cores, core tablets and their derivative microblades, large blades, biconvex bifacial knives, certain end-scraper forms, and burins. West (1981) later stated the Denali Complex is a regional variant of the American Paleoarctic Tradition defined by Anderson (1970). Also included within this Tradition is the Chindadn Complex (so-named by Cook (1969) from the Athabaskan word for "ancestor"). The defining characteristic of the Chindadn Complex is the presence of Chindadn points—bifacially flaked triangular or tear dropped shaped projectile points. The Nenana Complex has frequently been used interchangeably with the Chindadn Complex. Both complexes are thought to lack microblade material. Scholars have at times (e.g. Dixon 1999) situated the Nenana Complex before the American Paleoarctic Tradition in terms of chronology, however there is some debate as to whether or not the Chindadn Complex definitely predates the Denali Complex. For simplicity's sake they are both included in the American Paleoarctic Tradition.

- The Northern Archaic Tradition (6,000-2,000 BP). This tradition encompasses middle Holocene age archaeological sites containing side-notched projectile points, notched pebble tools, abundant end scrapers, and bifacial knices (Anderson 1968b). The notched projectile points showed resemblances to similar-aged tools in Archaic cultures of the Great Plains and Anderson suggested a relationship between archaeological cultures of Alaska and those in the lower 48 states during this time period (Anderson 1968a,b). It is uncertain, however, that any of the Northern Archaic traits, other than most likely the side-notched points, originated outside of the western subarctic region (Clark 1992). Traditionally the Northern Archaic was seen as a bifacial tool industry completely lacking microblade technology. Discoveries of archaeological sites in the interior containing both notched points and microblades have led many researchers to broaden the definition of the Northern Archaic Tradition (Esdale 2007).

- The Athabaskan Tradition (2,000 BP-1880 AD). The Athabaskan Tradition includes cultures generally believed to be the ancestors of the Athabaskan tribes who occupy Interior Alaska today. The Athabaskan Tradition includes a reorganization of raw materials, which de-emphasized stone tool making and increased the emphasis on the manufacture of items from native copper and organic materials (Dixon 1985).

An intermediary period known as the Late Denali Complex was once suggested (e.g. Dixon 1985) as taking place after the Northern Archaic Tradition, during which microblades reappeared. However, it is now generally accepted that the Northern Archaic Tradition includes microblade technology.

Holmes (1995, 2001) has proposed an alternative chronology for the Tanana valley. Holmes avoids some of the complications of earlier attempts to create a chronology, in that he does not focus solely on artifact form. Instead, the time periods he suggests are arranged chronologically and "divided according to environmental and cultural criteria" (Holmes 2001:156). These periods are: the Beringian Period, the Transitional Period, the Early Taiga Period, the Late Taiga Period and the Athabaskan Period (Holmes 1995). Holmes' periods encompass the traditional typologies and situate them within an environmental framework to create a chronology for Interior Alaskan prehistory.

- During the Beringian Period (>11,000 years BP) a land connection existed between Alaska and Siberia and steppe-tundra dominated the vegetation (Guthrie 2001). Some artifact assemblages from this period lack microblades; others have them. This difference may be attributable to differences in site environment, function, or seasonality. Holmes proposes the term "East Beringian Complex" to describe these earliest assemblages.

- The Transitional Period (11,000 to 8,500 yr. BP) is marked by major environmental changes. The land connection to Siberia disappeared, many genera of megafauna became extinct, substantial climatic changes occurred, and forestation began. By 9,000 BP, spruce-birch forest had replaced the shrub tundra in interior Alaska (Edwards et al. 2001).

- The Early Taiga Period (8,500 to 5,000 BP) marks the full establishment of the boreal forest. During this period, the American Paleoarctic Tradition gives way to the Northern Archaic Tradition.

- The Middle Taiga Period (5,000 to ca. 2,500 yr. BP) sees a continuation of the artifact types of the Northern Archaic Tradition, which includes microblades and burins.

- The Late Taiga Period (ca. 2,500 yr. BP to modern) encompasses the disappearance of microblade technology from the archaeological record. It is also during this period that we see the beginning of the Athabaskan tradition in Alaska, which leads to the technology shift outlined above and to ethnically recognizable Athabaskan groups.

This combination of chronological, environmental, and cultural criteria provides flexibility that is lacking in more traditional chronologies, which are divided according to artifact types.

2.3 Archaeology

Twenty-four archaeological investigations have been conducted on DTA since 1963, identifying approximately 400 sites to date (Table 1). Twenty of these sites comprise the Donnelly Ridge Archaeological District, which is within DTA East. The majority of the archaeological surveys conducted in DTA have been limited to DTA East, which comprises 25 percent of the entire Donnelly Training Area.

Frederick West conducted the first regional survey of the Alaska Range foothills in the 1960s (West 1967). His survey at DTA included the Donnelly and Delta moraine physiographical areas. West located the 12 sites that comprise the Donnelly Ridge Archaeological District. This collection of sites has played a significant role in defining the Denali Complex of the American Paleoarctic Tradition.

In 1978, a reconnaissance-level survey was conducted in various areas of Fort Greely and DTA, resulting in the discovery of 62 sites (Holmes 1979). A 1979 survey located four sites (Bacon and Holmes 1980). Northern Land Use Research, Inc. conducted limited archaeological surveys in various areas of DTA during the summer of 1998, resulting in the identification of 16 additional sites (Higgs et al. 1999). Other smaller surveys have also been conducted for specific project areas. All of the sites that have been identified have been located in one of three physiographic settings: high points, bluffs or terraces overlooking a major river or site drainage,

or lake margins. There is an inherent bias in these findings, however, as archaeological investigations have frequently focused on high probability settings such as these.

USAG Alaska began archaeological surveys of large blocks of land within DTA East in 2002 to address proposed infrastructure construction on DTA East. Unlike previous surveys, these provided 100 percent pedestrian coverage of areas under consideration and an aggressive sub-surface testing strategy. These surveys (conducted 2002-2007) covered 61,000 acres and identified over 290 new sites, of which approximately 110 have been evaluated for eligibility for listing in the NRHP. These sites are primarily prehistoric, but the total includes one site that may be from the Athabaskan Tradition or Early Contact period, which has been determined eligible for the NRHP, and one historic era site (possibly relating to Transportation and Infrastructure) that has not yet been evaluated for eligibility.

The lands within DTA have likely supported human populations for 10,000 to 12,000 years. Because it was ice-free during the Wisconsin glaciation, interior Alaska contains the oldest verifiable prehistoric remains in the state and is significant in understanding the peopling of the New World. The oldest radiocarbon date for any item found on DTA is 8,555 (± 380) years BP, from charcoal at site XMH-00297. Some undated material resembles artifacts dating back to 12,000 BP.

Table 1. Archaeological survey of DTA East [1]

Year	Researcher	Survey Location	Result
1963-64	West	Various locations on DTA	25 archaeological sites found
1977	Rabich and Reger	XMH-00253	1 site investigated
1979	Bacon	XM-1 Tank Range	No archaeological sites found
1979 [2]	Holmes	Various locations on DTA	62 archaeological sites found
1979 [2]	Bacon and Holmes	Various locations on DTA	6 archaeological sites found
1980a	Steele	Bison Trail DTA East	3 archaeological sites found
1980b	Steele	Squad Assault Range DTA East	No archaeological sites found
1980	Bacon	Cantonment	No archaeological sites found

Year	Researcher	Survey Location	Result
1982	Steele	Various locations on DTA	No archaeological sites found
1982	Steele	Donnelly Dome Quarry Site	No archaeological sites found
1983	Steele	Texas Range Powerline	1 archaeological site found
1985	Kotani	XMH-00297	1 site investigated
1988	Reynolds	Donnelly Dome WACS	1 archaeological site found
1992	Staley	Various locations on DTA	No archaeological sites found
1995 [2]	Gamza	Sullivan's Roadhouse	1 site investigated
1998 [2]	Higgs et al.	Various locations on DTA	16 archaeological sites found
2002	Goodman	Powerline on DTA East	No archaeological sites found
2002	Hedman et al. 2003	Texas Range, Donnelly DZ, Eddy DZ	110 archaeological sites found [3]
2003	Robertson et al. 2004	Eddy DZ	104 archaeological sites found [3]
2004	Raymond-Yakoubian and Robertson 2005	North Texas and Eddy DZ	10 archaeological sites found
2005	Robertson et al. 2006	Texas Range, DTA Training Areas	39 archaeological sites found
2006	Robertson et al. 2007	DTA Training Areas	26 archaeological sites found

[1] Less than 1 percent of the surveyed area represented in this table was conducted on DTA West.
[2] A portion of this survey was conducted on DTA West.
[3] Some of these sites represent previously reported sites whose locations were not well documented and which were relocated to obtain more accurate data.

3.0 Methodology for Survey

3.1 Survey Methodology

To further build baseline knowledge of the archaeological resources on Army lands in Alaska, and to meet Section 106 obligations, USAG Alaska pursued a comprehensive inventory strategy in 2007. This resulted in an intensive, full-coverage survey of survey units. Unless the survey area was stratified, all accessible areas of each "area of potential effect" (APE) were subjected to pedestrian survey and all high probability locations were subjected to subsurface survey when practical. Areas that are considered inaccessible include high angle slopes (greater than 40 degrees) and wetlands. Stratification of survey areas is based on previous research, distribution of known sites, and knowledge of the survey area terrain. Stratification results from an understanding of the cultural resources that are expected to be encountered in the survey area and the demonstrated distribution of site types among high and low probability terrain. This methodology section of the annual report documents justification for survey stratification and elimination of portions of the APE from field survey.

3.1.1 Pedestrian Survey Methods

All areas not eliminated by pre-survey reconnaissance or classified as wetlands or steep slopes were surveyed. Areas were surveyed using a transect interval of no more than 20 meters. Transect intervals decreased in areas of dense vegetation to insure a visual inspection of the entire survey area. Transect intervals also decreased in areas deemed to have a high potential for containing archaeological sites. Transect intervals below the 20 meter minimum were decided in the field by the field crew leader in consultation with the appropriate Post Archaeologist. Transect survey units were partitioned according to existing roads and trails where possible. When roads did not provide for practical unit boundaries, a one square kilometer work unit was used.

All areas of high potential for subsurface material were systematically shovel tested. There were approximately 20 meters between tests; at times test intervals were closer. An example of an area that may be tested in 20 meter intervals is a long ridgeline or large landform that offers a number of undifferentiated high probability locations. A shorter test interval was used to test small, isolated, high probability landforms such as an isolated knoll, prominence with a view, lakeside terraces, stream mouths, or level benches adjacent to steeper slopes (this list is not complete and is meant as an example of locations that may be tested intensively). Shovel tests were square or round and measured at least 30 cm in diameter and were excavated to the maximum depth possible. All soil removed was screened through ¼ inch hardware cloth. The number of tests and approximate location of testing was recorded by crew leaders. Oakfield soil probes were used when necessary to identify sites and features or to delineate site boundaries.

Crew leaders used GPS, topographic maps, and air photos to record field data. All spatial data was entered into GIS data files. Crew members recorded their activities in field notebooks. Data recorded daily included date, crew names, crew leader name, activity (e.g. survey, shovel testing, site sampling) and details of crew and individual tasks and activities. Recordation of incidental observations regarding weather conditions, technical problems, task efficiency, and task and project coordination was also encouraged.

3.1.2 High- and Low-Probability Locations

Surveys carried out by USAG Alaska archaeologists at DTA East from 2002 to 2007 (Hedmen et al. 2003; Raymond-Yakoubian and Robertson 2005; Robertson et al. 2004; Robertson et al. 2006; Robertson et al. 2007) indicate that important environmental aspects contributing to site placement include the viewshed, elevation relative to the immediately surrounding terrain, and distance to water. Lake margins and the tops of small knolls and ridgelines provide the highest

probability locations for archaeological sites. Elevated portions of clear streams and anadromous fish streams, stream confluences and islands are also considered high probability locations. Other high probability locations include benches adjacent to steeper slopes and leading edges of terraces.

Low probability terrain on DTA lands includes flat expanses of spruce forest that lack water, wetlands, and slopes greater than 40 degrees. Full coverage surveys have failed to locate any archaeological sites in these settings.

3.1.3 Prehistoric Site Designation

The minimum required for designation of a prehistoric archaeological site is the presence of a single artifact on the ground surface, a single positive shovel test, or a single identifiable feature such as a house depression, cache pit, or hearth. "Sites" defined on the basis of sub-surface finds will minimally include a single identifiable artifact or feature such as a flake, manuport, or hearth. Site boundaries will be determined during the evaluation phase.

Once a site was identified, a USAG Alaska site form was filled out, a sketch map was drawn using compass and tape, and a permanent datum nail was installed. Aluminum survey caps will be placed on a length of rebar and inserted so that approximately 5 cm extends above the ground surface during the evaluation phase. Survey caps will be stamped with the site's AHRS number. If time allowed, site boundaries were determined during the site identification phase (see "Site Evaluation Procedures").

3.1.4 Historic Site Designation

Historic archaeological sites are those sites that are greater than 50 years of age that reflect historic period activities and could not otherwise be designated as a prehistoric site. Most standing structures that are attributable to the military use of these lands will lie beyond the purview of archaeological inventory. USAG Alaska lands contain several property types that are in excess of 50 years of age. Examples include homesteads and mining remains, trap line cabins and guide cabins, aircraft wrecks, roadhouse remains, early trails and early communication systems. Any property deemed in excess of 50 years in age will be documented as a site in the manner prescribed in this methodology.

3.1.5 Artifact Collection

Artifact collection was limited to artifacts retrieved from shovel tests, important diagnostic artifacts found on the surface, and artifacts that were in immediate danger of destruction. All artifacts collected were recorded on a site map. Artifacts collected were bagged and labeled in accordance with USAG Alaska and University of Alaska Museum standards.

3.1.6 Threatened Resources

In the case of cultural material being in immediate danger of destruction, USAG Alaska's Cultural Resource Manager will be notified. Appropriate mitigation measures will be determined in consultation with the Alaska State Historic Preservation Officer and interested Tribal Governments. This did not occur during the 2007 field season.

3.1.7 Human Remains

No human remains were encountered during the 2007 field season. If any human remains, sacred objects, funerary objects, or objects of cultural patrimony had been encountered, they would have been avoided. Work would have stopped in the immediate vicinity of the find, measures would have been taken to protect remains, and the Cultural Resource Manager would have been notified immediately so that appropriate action was taken.

Figure 3. Field technician surveying for sites on DTA

4.0 Methodology for Data Recovery

During the 2007 field season, USAG Alaska conducted archaeological excavation to recover data as mitigation for an adverse effect at three archaeological sites (XMH-00284, XMH-00881, and XMH-00874). In order to address all of the goals of the project, a range of investigative techniques was employed.

4.1. Areas of Excavations

At XMH-00874 excavations were carried out in the areas that will be directly impacted by construction. A minimum of 5% of the site will be excavated; however the goal is that 50% of the area to be directly impacted by construction will be excavated. One hundred and ninety four square meters were excavated during the 2007 field season. Excavation will continue in the 2008 field season.

At XMH-00284 and XMH-00881 excavations were carried out in areas that will be directly impacted by construction. An area of 20 m^2 was excavated at XMH-00284 and 21 m^2 were excavated at XMH-00881. This was roughly 20% of each site; however it was more than 60% of the area where subsurface material was located

4.2.1 Excavation Methods

At XMH-00874 excavations were primarily conducted by hand with trowel and brush. Skim shoveling was used in excavating non-cultural levels after the location of cultural deposits had been determined by trowel excavation. No mechanical means of excavation were used.

At XMH-00284 and XMH-00881 excavation was primarily conducted by skim shoveling of each 50 cm^2 quad in each 1 m^2 unit. No mechanical means of excavation were used at these sites.

4.2.2 Recording Excavation Levels

At XMH-00874 all excavation units used 5 cm arbitrary levels unless clear stratigraphy dictated otherwise. At XMH-00284 and XMH-00881 all excavation units used 10 cm arbitrary levels unless clear stratigraphy dictated otherwise.

At all three sites levels were recorded on USAG Alaska excavation level forms. These forms, along with the USAG Alaska photo log, provide for complete documentation of the level and include: plan drawings, profile drawings, level photographs, soil level descriptions, artifact descriptions, and feature descriptions.

4.2.3 Recording Artifact Locations

At XMH-00874 all artifact locations were recorded in three dimensions with the assistance of a Total Station. USAG Alaska used a Sokkia Set6 Total Station and a data collector for recording artifact locations and other site mapping for this project.

At XMH-00284 and XMH-00881 all surface artifact locations were recorded in three dimensions with the assistance of a Total Station. USAG Alaska used a Sokkia Set6 Total Station and a data collector for recording artifact locations and other site mapping for this project. Locations of tools were recorded in three dimensions with the assistance of a total station and all other artifacts were recorded by quad.

4.2.4 Screening and Back-Dirt

All excavated soil was screened through ¼- or ⅛-inch hardware cloth. Back-dirt from Area 1 will be used as a pre-cap in Area 2 to help protect that portion of the site from secondary impacts during the construction in Area 1. Back-dirt from Area 2 will be returned to excavation units.

4.2.5 Faunal and Macrobotanical Assemblages

All faunal and macrobotanical assemblages derived from the excavated areas will be examined and processed. Any macrobotanical remains that have the potential of being paleoenvironmental materials will be analyzed.

4.2.6 Processing, Conservation, and Analysis

Full processing, conservation, and analysis of artifact assemblages will be undertaken. If any fragile or unstable organic artifacts are recovered during excavation appropriate measures will be taken to stabilize and protect these artifacts. A professional conservator may be employed to help in the stabilization and transportation of such artifacts.

Figure 4. Field technicians excavating a site on DTA

5.0 Undertakings

USARAK has proposed one major range development project, and USAG Alaska has proposed three smaller projects on lands at Fort Wainwright's Donnelly Training Area (DTA). The DTA's major range development project, the Battle Area Complex (BAX), is a range designed for gunnery training of vehicle-mounted weapon systems and dismounted infantry platoons, either independently of or simultaneous with supporting vehicles (Figure 5).

The smaller projects within the DTA are the development of a large Gravel Source, to complete the road upgrade project on 33 Mile Loop Road, Buffalo DZ Battalion Bivouac, and Moose Habitat (Figure 5). No sites were evaluated for eligibility to the National Register of Historic Places in 2007.

Archaeological surveys of the proposed projects were conducted in May, June, and July of 2007. A total of five new archaeological sites were identified and recorded in the areas surveyed during the 2007 summer field season. Archaeological excavation to recover data as mitigation for an adverse effect was conducted on sites XMH-00284 and XMH-00881 in June 2007 and site XMH-00874 from May to September of 2007.

Archaeological field crews, comprised of employees of the Center for Environmental Management of Military Lands (CEMML, Colorado State University), conducted surveys of areas potentially impacted (both directly and indirectly) by proposed undertakings, as well as conducted excavation to recover data at site XMH-00284, XMH-00874, and XMH-00881

Four archaeological crews, each comprised of four archaeologists, conducted the work in the DTA. The DTA archaeologist, Aaron C. Robertson, and Julie Esdale were the supervising archaeologists for these projects.

Table 2. General survey results for DTA

	2002	2003	2004	2005	2006	2007	**Total**
Total Area of the Donnelly Training Area	657,000	657,000	657,000	657,000	657,000	657,000	**657,000**
Area Not Accessible for Archaeological Survey*	139,000	139,000	139,000	139,000	139,000	139,000	**139,000**
Area Accessible for Archaeological Survey	518,000	518,000	518,000	518,000	518,000	518,000	**518,000**
Number of Field Crew	16	16	8	20	12	20	**92**
Total Acreage Surveyed	10,872	29,404	2,223	10,118	6,381	2,184	**61,182**
Recorded Archaeological Sites	100	116	10	39	26	5	**296**
Number of Sites Evaluated for Listing in NRHP	20	5	32	51	4	0	**112**
Number of Sites Eligible for Listing in NRHP	8	1	19	15	1	0	**44**
Number of Sites Excavated for Data Recovery and Mitigation	0	0	0	0	1	2	**3**
Percentage of Accessible Land Surveyed	2%	5%	<0.5%	2%	1%	<0.5%	**10%**

5.1 Battle Area Complex (BAX)

The BAX is designed for gunnery training and would meet qualification requirements of crew-served, vehicle-mounted weapon systems. The BAX range would also support dismounted infantry platoon tactical live-fire operations, either independently of or simultaneous with supporting vehicles. Units would acquire skills needed to detect, identify, engage and defeat stationary and moving targets in a tactical array. Primary features of the BAX include course roads with crossover capability, stationary armor targets, moving armor targets, stationary infantry targets, moving infantry targets, machine gun bunkers and breaching obstacles. All targets would be fully automated and the event-specific target scenario would be computer-driven and scored from the control facility. The range operating system would be fully capable of providing instrumented after-action reviews. In addition to the range, the BAX would include an after-action review facility, ammunition breakdown building, ammunition loading dock, operations/storage building, arctic latrines, bleacher enclosure, bivouac and unit staging area, covered mess area, building information systems, electric service, water and septic system, storm drainage and general site improvements.

There were three alternatives being considered for the siting of these projects from 2002 to 2006: Texas Range, Eddy Drop Zone, and Donnelly Drop Zone (Figure 2). On March 17, 2006 USARAK released the BAX/CACTF Supplemental Draft EIS listing Eddy Drop Zone as its preferred alternative.

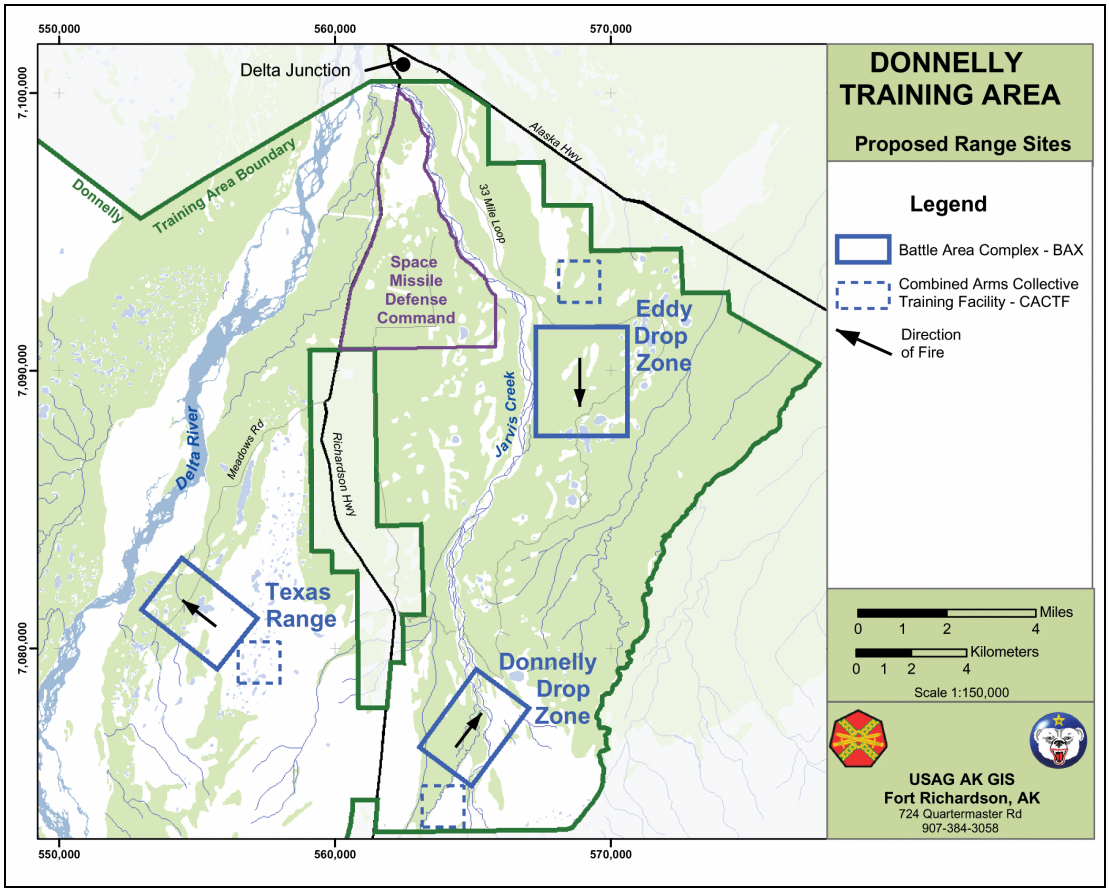

Figure 5. Location of the three BAX alternatives

5.1.1 History of Work for the BAX Project

Survey for the construction footprints of the three BAX alternatives was conducted in 2002 and 2003 (Hedman et al. 2003; Robertson et al. 2004). The focus in 2003 was completion of the surveys for the firing fans or "surface danger zones" for the alternatives. The firing fan for the Texas Range alternative is located in an active impact area and was not surveyed due to safety concerns. The firing fans for the Eddy Drop Zone alternative (firing south) and Donnelly Drop Zone alternative (firing north) overlap and this area received the majority of the resources for survey in 2003 (Robertson et al. 2004). The focus of the 2004 field season was to start the site evaluations and determinations of eligibility (DOEs) for listing in the National Register of Historic Places (NRHP) for sites located in the construction footprint and firing fans for the three alternatives of the BAX project (Raymond-Yakoubian and Robertson 2005). The focus of the 2005 field season was to continue the site evaluations and DOEs for listing in the NRHP for sites located in the construction footprint and firing fans for the three alternatives of this project (Robertson et al. 2006). In March 2006 Eddy Drop Zone was named the preferred alternative and USAG Alaska and the Alaska State Historic Preservation Officer (SHPO) entered into consultation. A Memorandum of Agreement (MOA) between USAG Alaska and the SHPO signed on July 12, 2006 outlining the steps that USAG Alaska will take to mitigate the adverse effects that the BAX project will have on site XMH-00874. In July of 2006 archaeological excavation to recover data started; this continued into the 2007 field season.

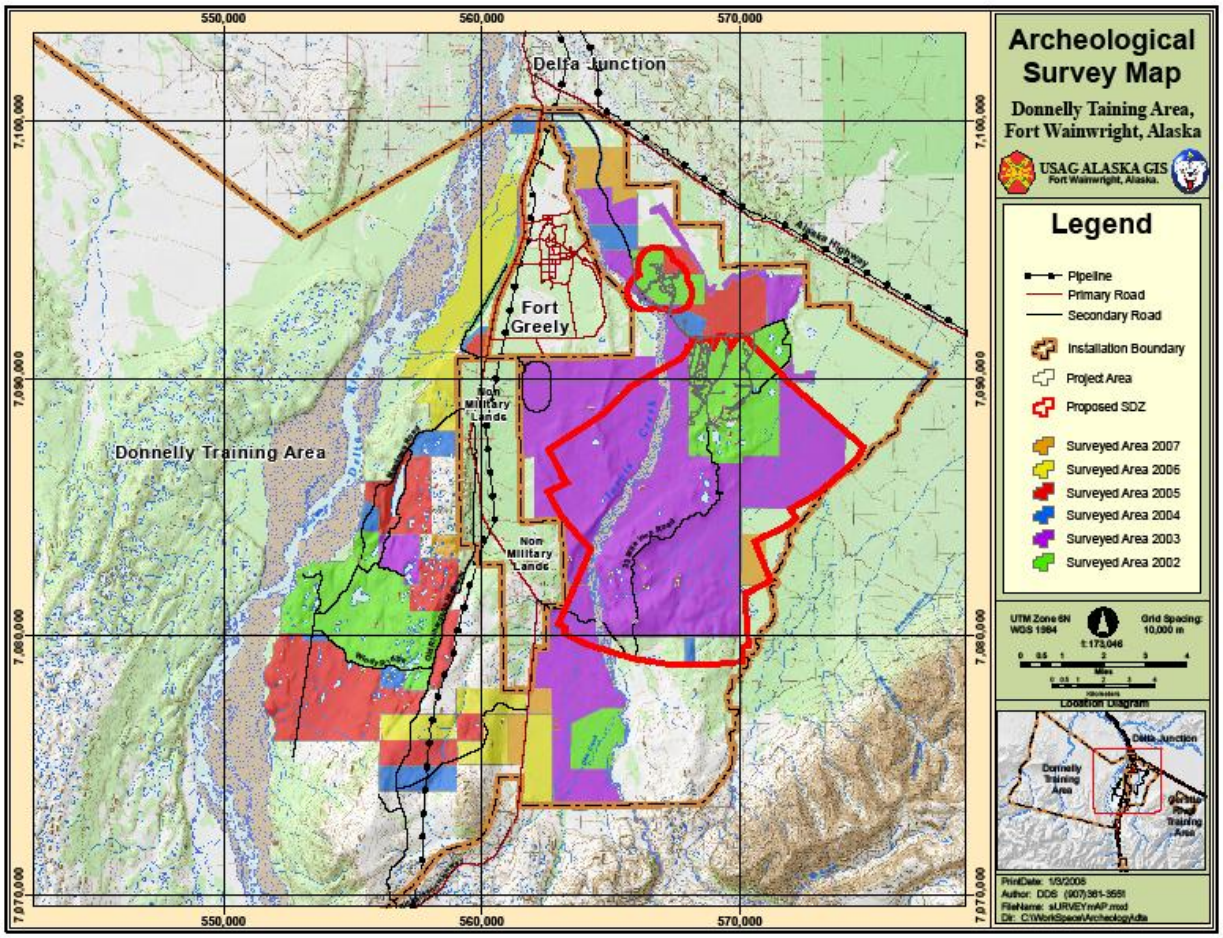

Figure 6. Location of the three BAX alternatives and history of survey for the BAX/CACTF project

5.1.2 BAX Cultural Resources

There are six archaeological sites (XMH-00290, XMH-00873, XMH-00874, XMH-00877, XMH-01160, and XMH-01303) located in the Eddy Drop Zone BAX range alternative footprint. Only sites XMH-00874 and XMH-1303 have been found eligible for listing in the NRHP. Site XMH-00874 is described below.

XMH-00874
Determination: Eligible

Site XMH-00874 is located on a high point on a southwest-northeast trending glacial moraine. The closest water source is Banjo Lake, 200 m to the southwest. Small spruce and aspen are present, but vegetation consists mainly of small shrubs, moss, and lichen. A small portion of the surface is exposed immediately south of the crest. Overall, surface visibility is minimal throughout most of the site area.

2002

Site XMH-00874 was identified in a 2002 Phase I survey when ten flakes and one chert biface were found on the ground surface (Hedman et al. 2003). During the Phase II evaluation later that summer, an intensive examination revealed an additional 11 surface artifacts. Two hundred and fifty-nine were recovered from below the surface in either shovel test pits or excavation units. These artifacts include eight tool fragments: one projectile point, one projectile point fragment, one biface fragment, one microblade core rejuvenation flake (Figure 10f), and four microblades.

2006

Phase III archaeological excavation to recover data was begun at the site in July of 2006. Almost all of the small spruce trees on the area of the site were removed to aid in excavation and mapping. All live aspen trees were left in place. A Sokkia Set6 Total Station was used to lay out a 10 m grid over the site and to put in the corners of the excavation units. The total station was also used to three-point provenience artifacts, bone, and charcoal.

Forty square meters (37 1 m x 1 m units and 12 50 cm x 50 cm units) were excavated during the 2006 field season (Figure 11). Three 6 m^2 areas were opened at each corner of the site and a trench (A), which runs on a north/south axis through the site, was started (Figure 12). This trench was finished during the 2007 field season; additionally a second trench, running on an east/ west axis through the site, was excavated in 2007.

A total of 1,845 pieces of cultural material were found: 822 lithic artifacts and 1000+ bone fragments. Fifty-three tools and diagnostic artifacts were found including seven unifaces, one projectile point fragment, seven bifaces and biface reworking fragments, one microblade core tab (Figure 10h), and twenty-four microblades. The remaining finds are lithic debitage, predominantly of rhyolite, basalt and chert. Material types also include obsidian--a non-locally occurring material type.

The 1000+ bone fragments were recovered from one excavation unit, N531/E520, and almost all of them from the southeast quad of this unit. More units adjacent to N531/E520 will be excavated during the 2007 field season. An interim report detailing the 2006 excavations will be released in the spring of 2007 and a final report will be released 12 months after the final field season ends.

2007

One hundred and ninety-four square meters were excavated during the 2007 field season (Figure 11). This includes a large 68 m^2 contiguous area where a hearth feature was located, the completion of trench A (started in 2006), which runs on a north/south axis through the site, and the start and completion trench B (Figure 12), which runs on a east/west axis through the site.

A total of 12,655 pieces of cultural material were found: 6,626 lithic artifacts, 6000+ bone fragments, and one hearth feature. These lithic artifacts include 231 tools and diagnostics: ten unifaces, three projectile point fragments, three bifaces, seven microblade cores (Figure 10), and 135 microblades. See Table 3 for more details. The remaining finds are lithic debitage, predominantly of rhyolite, basalt, chert, and obsidian.

The 6000+ bone fragments were recovered from excavation unit next to N531/E520, where 1000+ bone fragments were recovered in 2007 (see Figure 14). Most of the 6000+ bone fragments were recovered from excavation unit N530/E520 where the one hearth feature was located (Figure 13). An interim report detailing the 2007 excavations was been completed and a similar report detailing the 2007 excavations will be released in the spring of 2008 and a final report will be released 12 months after the final field season ends.

Figure 7. Microblade cores from XMH-00874

Table 3. Lithic assemblage recorded from XMH-00874 in 2007

Artifact Class	Frequency	% of Assemblage
Bifaces (1%)		
Projectile point fragments	3	<1%
Bifaces	3	<1%
Biface fragments	27	<1%
Unifaces (1%)		
Side scraper	5	<1%
End scraper	5	<1%
Uniface fragments	1	<1%
Unifacially retouched flakes	9	<1%
Tci thos	9	<1%
Microblade Cores and Microblades (3%)		
Microblade core	7	<1%
Microblade core frontal rejuvenation flake	8	<1%
Microblade core tab	1	<1%
Microblade core fragment	1	<1%
Microblades	135	2%
Crested blades	2	<1%
Blade Cores and Blades		
Blade core fragment	1	<1%
Blades	3	<1%
Burin		
Burins	4	<1%
Perforator	1	<1%
Hammerstone	1	<1%
Abraders	3	<1%
Manuport	2	<1%
Flake Core	1	<1%
Debitage (95%)		
Flakes	6370	96%
Shatter	25	<1%
Total	**6626**	**100%**

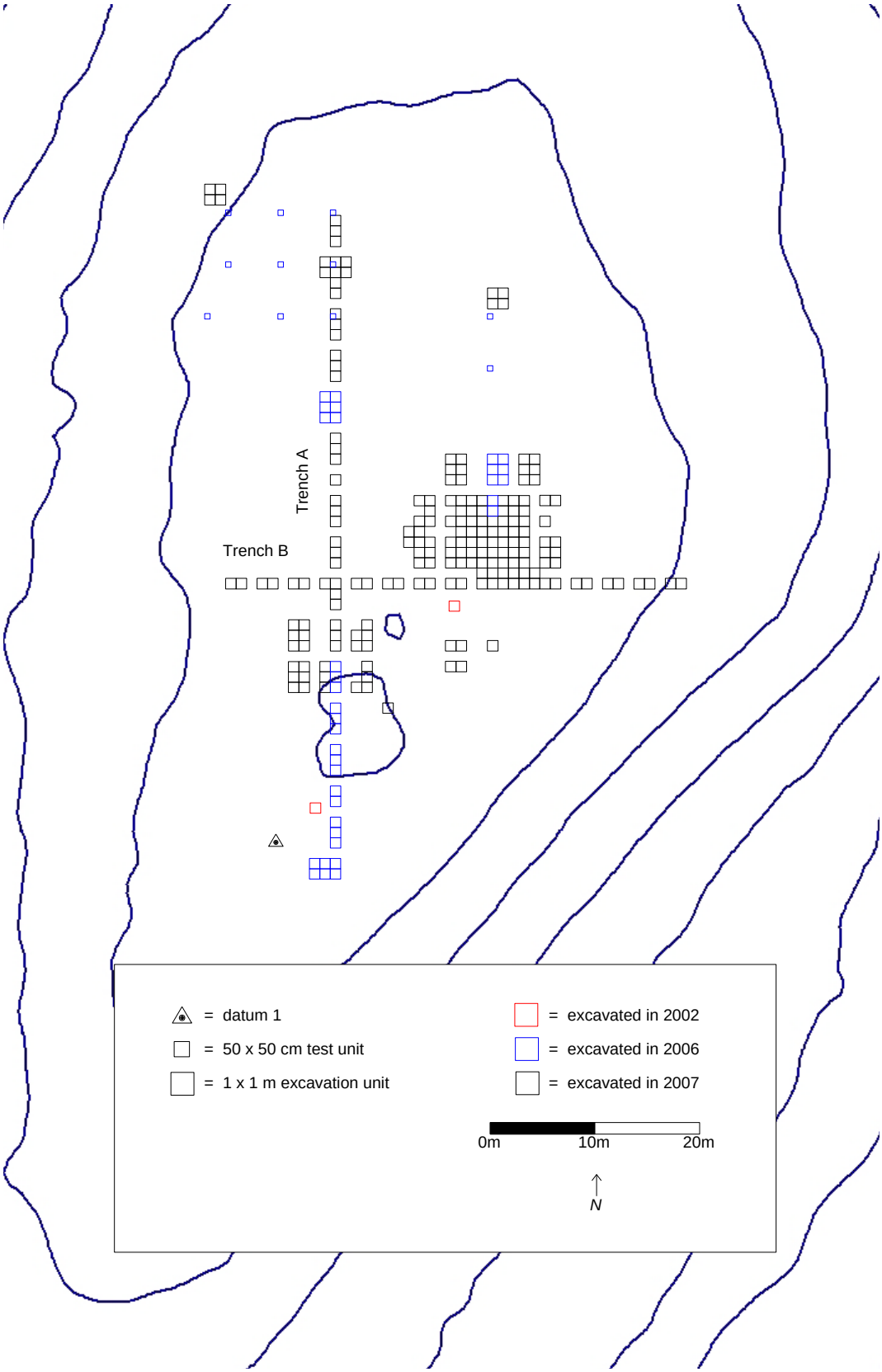

Figure 8. Map of 2007 excavation at XMH-00874

Figure 9. Site XMH-00874 Trench B in 2007, facing east

Figure 10. Site XMH-00874 hearth (Feature 1)

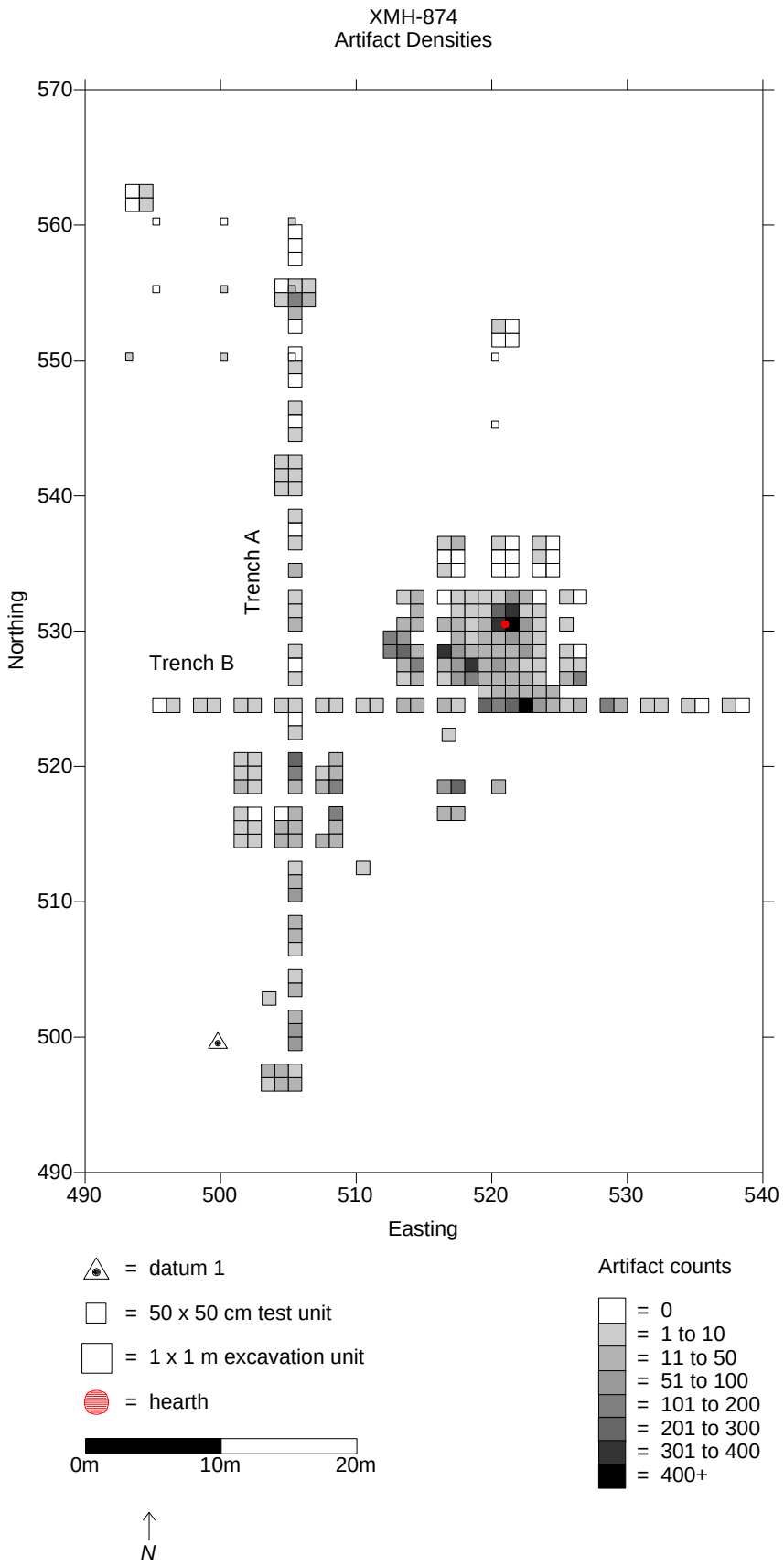

Figure 11. Artifact densities for excavation units at XMH-00874

5.2 Lower 33-Mile Loop Road Gravel Sources

USAG Alaska has proposed to make improvements to the lower third of 33-Mile Loop Road that will allow for travel during wet times of the year. Several mud holes along the existing trail have been detailed for repair. Gravel is needed for this project. The quality and quantity of gravel from sources that were previously used for other sections of 33-Mile Loop Road are inadequate. 33-Mile Loop Road is barely more than a trail, and is not meant for multiple daily passes with belly dumps full of gravel. This will cause excess wear and tear on the portions that have already been improved. The current site that has been chosen is within the next portion of improvements. It will be developed as needed, meaning one end will be opened and gravel will be removed load by load rather than clearing and working the entire area at the beginning. This source will provide gravel for future projects in a large radius all around this point. Any new access projects to open additional training lands in Training Areas 7 and 10 will be able to use this gravel pit.

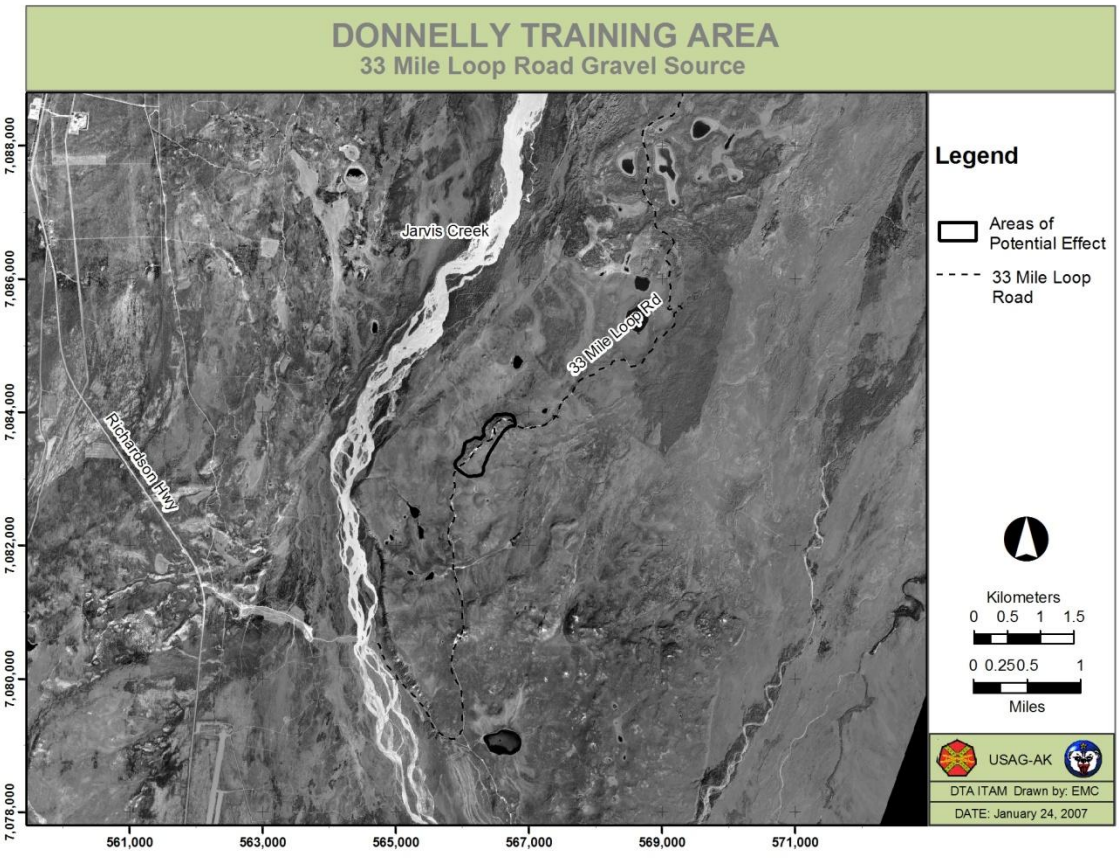

Figure 12. Location of the Area of Potential Effect (APE) Gravel Source Project

5.2.1 History of Lower 33-Mile Loop Road Gravel Source Project

The removal of gravel from lower 33-Mile Loop Road was first discussed within the Army in 2004. The proposed footprint for this project had been previously surveyed for other projects in 2002 and 2003 (Hedman et al. 2003; Robertson et al. 2004). Cultural resource specialists determined that the proposed APE for this project was too close to two sites eligible for listing on the National Register of Historic Places (NRHP). Before continuing with the project as planned it was determined that other alternatives would need to be explored. Late in 2004, funding for the lower 33-Mile Loop Road fell through and the project was temporarily put on hold.

The 33-Mile Loop Road project was revisited in January 2006. Cultural resource specialists within the Army again determined the APE was too close to the two NRHP eligible archaeological sites. The project proponent needed to consider other alternatives before considering the removal of two NRHP eligible sites as an option.

Following this advice the Salcha-Delta Soil and Water Conservation District (SDSWCD) began an exhaustive attempt to identify alternative gravel locations within the Donnelly Training Area. Using the Soil Survey of Fort Greely and Donnelly Training Area, Alaska (USDA/NRCS 2005), the SDSWCD used several different criteria to obtain gravel locations without disturbing more archaeology sites.

The first proposal was developed on February 10th, 2006 and the polygons were created based on soil type and slope (Figure 16). North-facing slopes were used in an attempt to avoid potential archaeology sites. This proposal identified 3 potential locations. Coring determined that the 2 northern sites were not going to be accessible. The smaller one to the south was marginally accessible, but the material was not of sufficient quality due to large aggregates (6"+) and a high percentage of sand particles.

The second proposal on February 13th 2006 was an attempt to locate gravel pits in good soils while at the same time avoiding known archaeological sites (Figure 16). The polygons were based on soil type (USDA/NRCS 2005) and topography. These were also sampled by the SDSWCD in the spring, and the 6 test holes that were dug all looked promising with quality material and minimal overburden. However, these locations faced the same problems as the original proposal as being too close to the NRHP eligible sites.

A third proposal was developed in October 2006, primarily based on soil type (USDA/NRCS 2005). The large area to the east in this proposal proved to be more difficult to access than was previously suspected (Figure 16). In addition, the tests found that 5 to 6 feet of overburden would have to be removed before reaching potential material. Finally, the material collected at 6' in depth was marginal in quality due to a lack of particle size variety and fines, although there were some indications that it might improve with deeper excavation. However it was determined that the difficulties of site access and the cost of removing that much overburden was going to be prohibitive.

The northeastern site in the third proposal had 2 ½ to 3 feet of overburden. The material itself was mostly sand and big chunks of rock larger than 6 inches. This would not work as an adequate source for the gravel necessary for the proposed project. The southern site of this proposal did not have much overburden, but it was similar sand and large rock, which was determined not to meet the gravel needs of the project.

At this point, the potential alternatives have been sufficiently explored. It is now necessary to consider the adverse effect of the proposed project on the two NRHP eligible sites that are located within the APE.

5.2.2 Lower 33-Mile Loop Road Gravel Sources Section 106 (NHPA) Inventory

A Section 106 (National Historic Preservation Act) review of the current project was conducted in 2006 and 2007. Two eligible cultural resources were identified within the area of potential effect for this project. Application of the Criteria for Identification and Evaluation of Historic Properties [36 CFR 800.4(d)] indicates a finding of "Historic Properties Affected" for the proposed project. Additionally, application of the Criteria for Adverse Effect [36 CFR 800.5(a)] to sites XMH-00284 and XMH-00881indicates a finding of "Adverse Effect."

USAG Alaska undertook an archaeological excavation to recover data as mitigation for an adverse effect to sites XMH-00284 and XMH-00881. Excavation took place during May and June of the 2007 summer field season. This document presents the research design and methodology that will be used for data recovery.

5.2.3 Lower 33-Mile Loop Road Gravel Sources Cultural Resources

Eleven prehistoric sites have been previously recorded within 1 km of the proposed project area (Figure 17). However only four sites (XMH-00284, XMH-00881, XMH-00883, and XMH-01094) are located in the proposed project's APE. Site XMH-00284 was located during a 1978 survey (Holmes 1979), XMH-00881 and XMH-00883 were located during a 2002 Phase I survey (Hedman et al. 2003) and site XMH-01094 was located during a 2003 Phase I survey (Robertson et al. 2004). Sites XMH-00881 and XMH-00883 were evaluated in 2002; XMH-00881 was determined eligible for the NRHP and XMH-00883 was not eligible (Hedman et al. 2003). Sites XMH-00284 and XMH-01094 were evaluated in 2003. Site XMH-00284 was determined eligible for the NRHP and site XMH-01094 was determined not eligible (Robertson et al. 2004).

Following is a description of each site in the currently proposed project area:

XMH-00284
Determination: Eligible

Site XMH-00284 is located on a glacial ridge system that is nearly 2 km long and 250 m wide (Figure 18). 33-Mile Loop Road follows the crest of the moraine, and passes by approximately 5 m from the site. Numerous vehicle tracks are adjacent to the portion of the road within site boundaries. The slope (15- to 20-percent grade) is steep on all sides (Figure 18). The surrounding terrain is generally flat; the ridge extends southwest and is the most marked topography in the immediate area. Viewshed at the site is 180°, with unobstructed views to the east and south.

Site XMH-00284 was identified during a 1979 survey by Charles Holmes and revisited in 2002. Location information for the site was several hundred meters off and the site was inadvertently given a new AHRS number (XMH-00882). Later investigation revealed that sites XMH-00284 and XMH-00882 are the same site.

During the 2002 Phase I survey, one flake was found in a shovel test. In Phase II, an intensive surface examination revealed a medium density artifact scatter of 25 artifacts on the ground surface. Subsequent shovel tests were randomly placed on the moraine at intervals of 5-10 m, depending on terrain and vegetation. A total of 30 shovel tests were excavated at the site: 4 during the initial investigation, and 26 in the evaluation phase. Each shovel test measured approximately 30 cm in diameter. The depth of the shovel tests varied, but in all cases shovel

test pits were excavated to glacial deposits. Only one shovel test (the one excavated during initial survey investigations) was positive. This shovel test revealed one chert flake immediately below the root mat (0-5 cmbs). The site was determined to be 10 m in diameter, based on the location of surface artifacts and the single positive shovel test. A total of 33 artifacts were found at the site before 2007 excavations: one microblade and 32 flakes.

In 2007, Phase III investigations began with systematic survey walking 20 x 20 m grids (laid out over the XMH-00284 ridge) revealing five separate artifact clusters. Excavation units were placed over the areas of densest surface artifact concentration using the total station. The two northernmost of the five localities were later closed because of sediment saturation by petroleum products. Twenty 1 x 1 m units were excavated to glacial deposits in three different areas of the site (A, B, and C) (Figure 19). Area A (N1984-1985, E1999-2001) was located south of the main datum. A surface scatter of quartzite flakes and a quartzite flake core was found here. A total of six units were excavated in Area A to the glacial deposit, which was very shallow. Areas B (N2000-2004, E1986-1987) and C (N2007-2008, E 1986-1986) were across 33 Mile Loop Road west of the main site datum. A total of ten units were excavated in cluster B and four units in cluster C. These two areas were part of the same widespread artifact scatter.

Inferences from the spatial data show two main components at XMH-00284. Area A is a small, single component, surface artifact cluster of quartzite core reduction flakes that demonstrates no association with artifacts in other areas of the site. Area B and C most likely represents one occupation. This cluster was buried and boundaries and spatial data were disturbed after deposition by trampling or other mechanisms. Although the 2007 excavations did not uncover this artifact cluster in its entirety, the location of surface artifacts suggests that most of the occupation area was removed (Figure 19).

Twenty different raw materials were identified in these clusters. Area A had 99% quartzite flakes. Area B was made up of 35% banded gray chert, 21% gray chert, 14% silicified siltstone, and 9% black chert flakes. Debitage in Area C was 23% black chert, 21% banded gray chert, 18% gray chert, and 10% silicified siltstone. Flake types demonstrate that mainly late stage bifacial thinning took place at the site (Table 4). Microblade core reduction and retouch of scraping tools were secondary activities. Two lanceolate projectile point fragments, three end scrapers, a cobble spall scraper (tsi-tho), and a flake core make up the formal tool assemblage at XMH-00284 (Figure 19). The quartzite flake core was found during excavations of Area A and the tsi-tho was discovered in an Area B excavation unit. The remainder of the tools were found on the site surface.

Lack of datable material and diagnostic artifacts makes it impossible to fit the small lithic scatters at XMH-00284 into any particular cultural historical framework. The presence of a tsi-tho makes this site consistent with other interior Athabaskan-related assemblages.

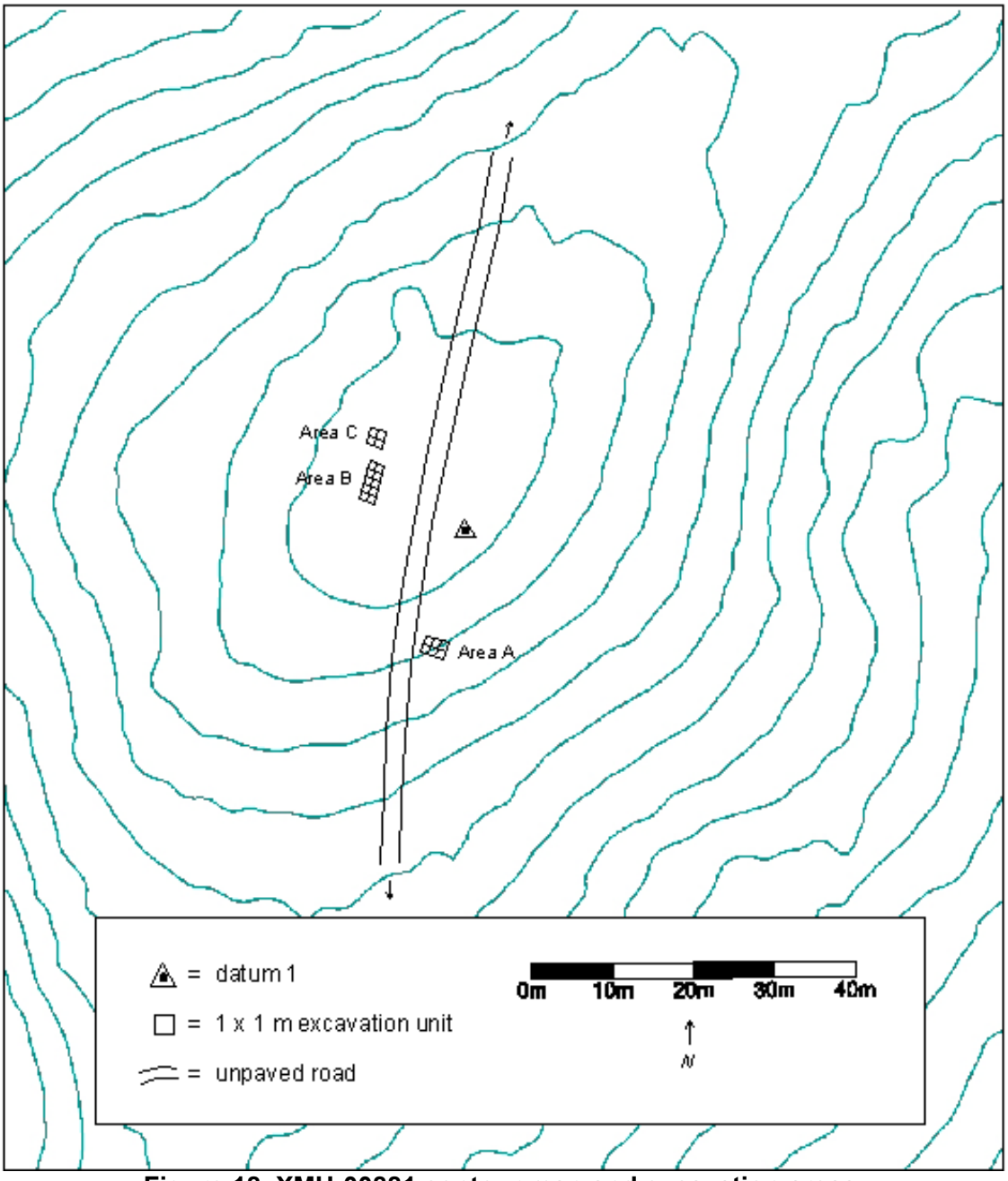

Figure 18. XMH-00881 contour map and excavation areas

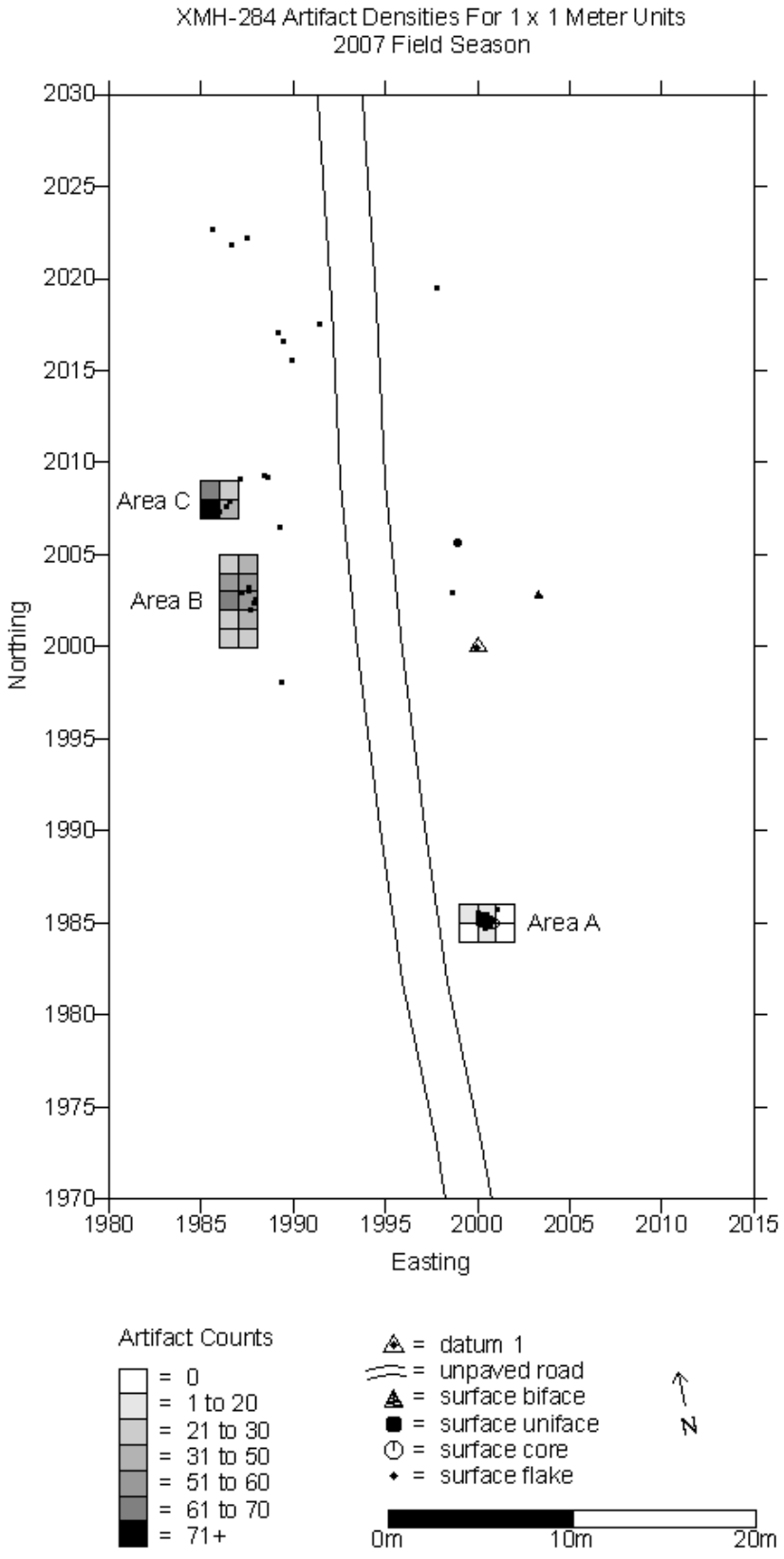

Figure 19. Map of 2007 excavations and artifact densities at XMH-00284

Table 4. Lithic assemblage recorded from XMH-00284 in 2007

Artifact Class	Frequency	% of Assemblage
Bifaces (36%)		
Projectile point fragments	2	0.3
Biface fragments	1	0.1
Bifacial reduction flakes	275	35.2
Unifaces (1%)		
Side scraper	0	0
End scraper	3	0.4
Tci thos	1	0.1
Unifacially retouched flakes	2	0.3
Microblade Cores and Microblades (3%)		
Microblade core tablet	1	0.1
Microblades	9	1.2
Core reduction flakes	13	1.7
Other (61%)		
Flake Core	1	0.1
Core Reduction flakes	63	8.1
Flake fragments	411	52.6
Total	**782**	**100%**

Figure 20. Area B excavation

XMH-00881
Determination: Eligible

The XMH-00881 site is located on a glacially derived ridge that is part of a larger ridge system nearly 2 km long and 250 m wide (Figure 21). The slope is steep on all sides, at a grade of 15-20 percent (Figure 21). The surrounding terrain is generally flat; the ridge extends southwest and is the most marked topography in the immediate area. Viewshed at the site is 180°, with unobstructed views to the east and south.

The surface of the ridge is nearly devoid of vegetation and visibility is good to both sides of 33-Mile Loop Road, which passes through the crest of the landform approximately 5 m from the site. Initial investigation of the site in 2002 revealed three flakes on ground surface. Prior to excavation, an intensive surface examination was conducted, revealing a medium density artifact scatter with 20 flakes. Due to the density of lithic material, the artifact concentration was mapped as a unit. Shovel tests were randomly placed on the moraine at 5-10 m intervals, depending on terrain and vegetation. A total of 38 shovel tests were excavated. Shovel test pits were typically 30 cm in diameter. The depth of the shovel tests varied, but in all cases shovel tests were excavated to glacial till. Only one shovel test, located within the artifact concentration, was positive, producing one chert flake. Based on the location of surface artifacts and the positive shovel test, the site was estimated to have a diameter of 10 m.

In preparation for 2007 excavations of the site, the entire XMH-00881 landform was resurveyed. Flakes and artifacts were found on surface in four separate areas (A-D. Figure 22). Eighteen units were excavated in Area A, the main artifact locality. Only two flakes were found in Area B and three flake fragments in Area C. Area D was an isolated red chert scraper (Figure 22).

A total of 238 flakes and flake fragments were excavated in the Area A locality (Figure 23). Raw materials were primarily banded gray chert (53%) and basalt (40%) with a few other minor chert varieties. The majority of diagnostic flakes (34%, Table 5) are consistent with late stage bifacial thinning activities (primarily resharpening tool edges). No formal tools were found in this locality.

The three end scrapers discovered at XMH-00881 were all isolated finds (Figure 24). The raw materials from which the end scrapers were made (red chert, gray chert, and obsidian) were not found in the debitage assemblage. There is no evidence to link these tools with any of the excavated clusters.

Lack of diagnostic tools and charcoal for radiocarbon dating at XMH-00881 prevents determining cultural affiliation.

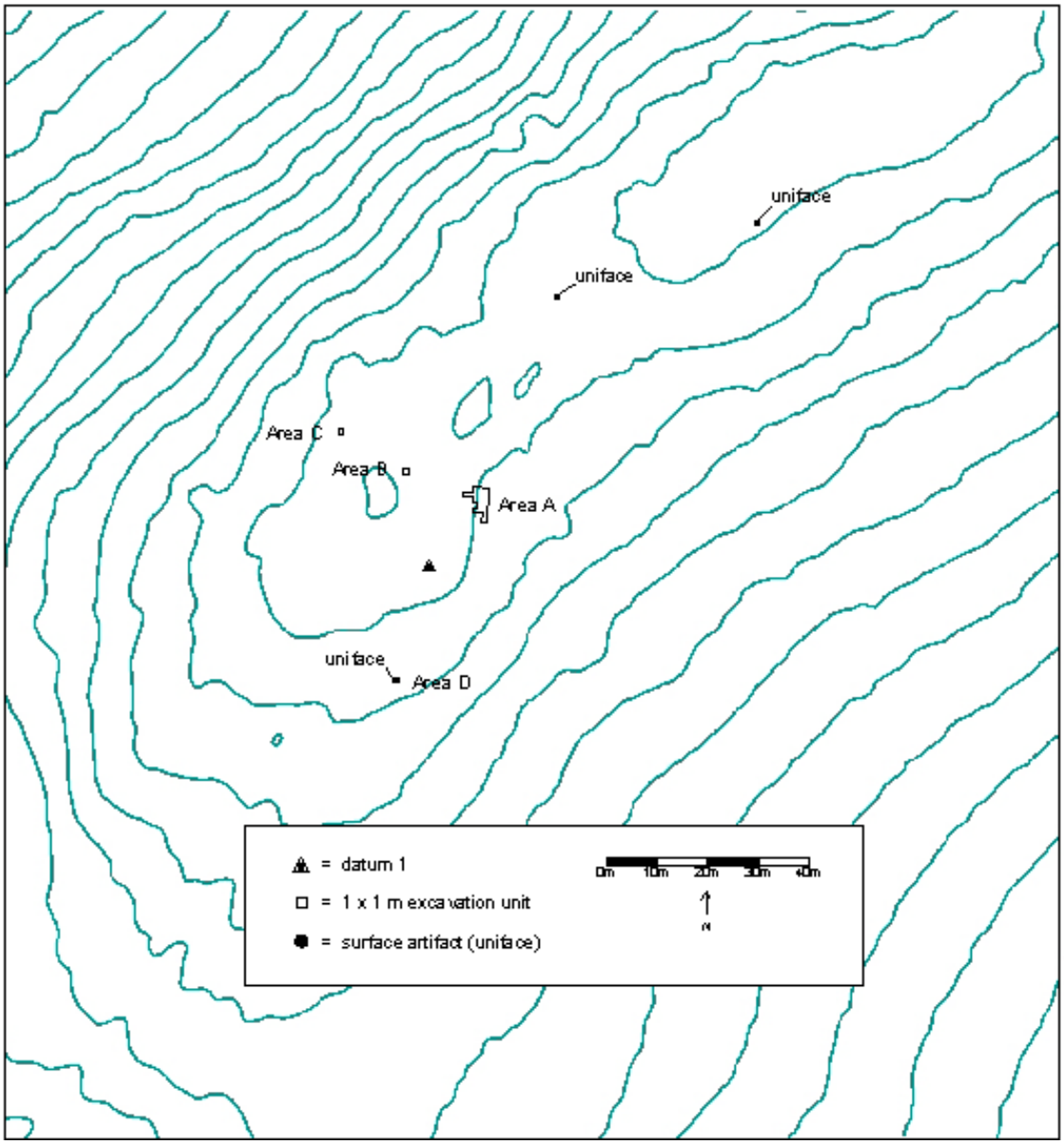

Figure 21. XMH-00881 contour map and excavation areas

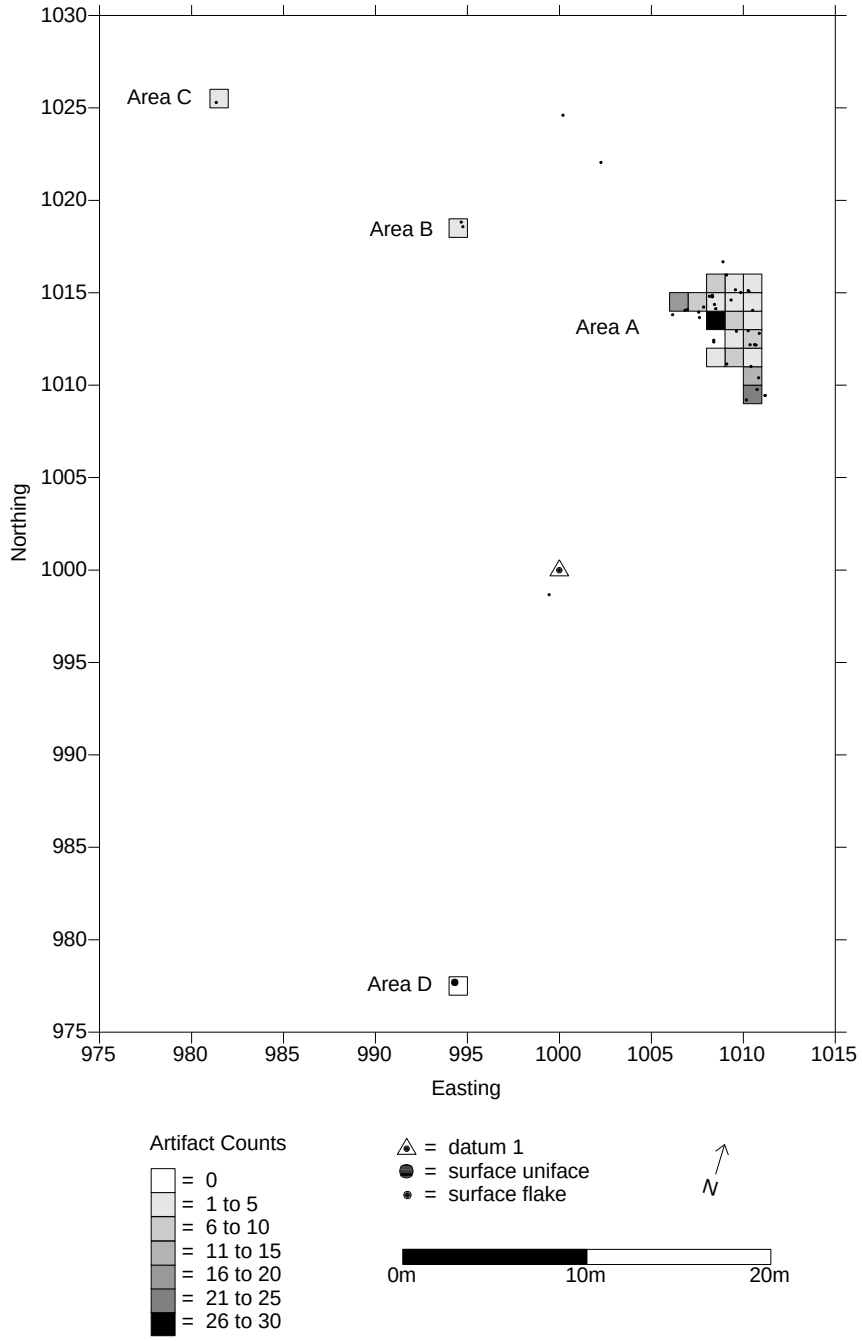

Figure 22. Map of 2007 excavations and artifact densities at XMH-00881

Figure 23. Area A excavation, facing north

Table 5. Lithic assemblage recorded from XMH-00881

Artifact Class	Frequency	% of Assemblage
Bifaces (%)		
Projectile point fragments	0	0
Biface fragments	0	0
Bifacial reduction flakes	96	33.7
Unifaces (%)		
Side scraper	0	0
End scraper	3	1.1
Tci thos	0	0
Unifacially retouched flakes	0	0
Microblade Cores and Microblades (%)		
Microblade core tablet	0	0
Microblades	1	0.4
Core reduction flakes	3	1.1
Other (%)		
Flake Core	0	0
Core Reduction flakes	5	1.8
Flake fragments	177	62.1
Total	**285**	**100%**

Figure 24. End scrapers from XMH-00881

XMH-00883
Determination: Not Eligible

Site XMH-00883 is located on a moraine that is part of a larger ridge system that is nearly 2 km long and 250 m wide. The slope is steep on all sides, at a grade of 15 to 20 percent. The surrounding terrain is generally flat; the ridge extends southwest and is the most marked topography in the immediate area. Viewshed at the site is 180°, with unobstructed views to the east and south. Initial investigation of the site revealed three fragments of flaked stone on the ground surface.

The site is limited to a small surface flake scatter, with a total of three fragments of flaked stone located on the surface of the site, all of which can be classified as gray chert (two dark gray and one light gray fragment). The site was evaluated during the 2002 field season and was determined not eligible for listing in the NRHP (Hedman et al. 2003). The site was reexamined in 2007 and no further artifacts were recorded at the site.

XMH-01094
Determination: Not Eligible

Site XMH-01094 is located on a northeast-southwest trending ridge with 33 Mile Loop Trail running through the middle of it. Donnelly Dome is visible to the southwest and the Granite Mountains can be seen to the east. The nearest water source is North Caribou Lake, located approximately 1.5 km to the southwest. The ground surface of the site is vegetated primarily by low scrub, forbs, grasses and sedges, with several barren areas scattered around. Surface visibility is approximately 75 percent as a result of 33 Mile Loop Trail running the length of the ridge.

Site XMH-01094 consists entirely of one uniface that has been broken into two separate pieces, both found on the surface of 33 Mile Loop Trail. One fragment was found during Phase I survey and the other fragment was found during the evaluation phase in essentially the same spot in the road. Both pieces were collected. The refitted black chert uniface is 81 mm long, 40 mm wide, and the combined weight of the two pieces is 22 g. Site XMH-00888 was evaluated during the 2003 field season and was determined not eligible for listing in the NRHP (Robertson et al. 2004). The site was reexamined in 2007 and no further artifacts were recorded at the site.

5.3 Buffalo DZ Battalion Bivouac Upgrades

USAG Alaska has proposed to upgrade a Battalion Bivouac site in the DTA East (Figure 25). The proposed project will improve approximately 173 acres footprint of unimproved trails with a network of hardened trails and tent pads. These improvements will be accessed via 33-Mile Loop Road. The purpose of this project is to improve access and control erosion by confining bivouac activities to hardened surfaces through grading and the installation of geotextile and fill material.

5.3.1 Buffalo DZ Battalion Bivouac Section 106 (NHPA) Inventory

In August of 2007 the proposed Battalion Bivouac site upgrades were pedestrian surveyed by two crews of four archaeologists employed by CEMML. Aaron C Robertson was the supervising archaeologist for this work.

The proposed project is located in a flat area east of the Richardson Highway off 33-Mile Loop Road. The vegetation in the project area is composed of black spruce and scattered aspen with an under story of berry bushes, grasses and mosses. Portions of the project area had been previously disturbed by vegetation clearing, trail use and other troop training activities.

5.4.2 Battalion Bivouac Results/Summary

Pedestrian survey and subsurface testing of the proposed project area did not identify any cultural resources. There are no known sites located within 2 km of the proposed Battalion Bivouac site upgrade. Based on the above information, USAG Alaska has determined that no historic properties will be affected by the proposed activities.

Figure 25. Location of Buffalo DZ Battalion Bivouac*

* All of the area shone in map has been surveyed for cultural resources

5.4 Moose Habitat

USAG Alaska has proposed developing moose habitat located within Army lands, on Ft. Wainwright, Alaska. The moose habitat will be sited in Training Area 9 approximately 15 km southeast of Delta Junction, Alaska and six kilometers south of the Richardson Highway. The project involves the developing 200 acres of habitat though vegetation removal and reseeding or natural re-growth of species preferred vegetation at the DTA. The moose habitat is designed to promote the health of the moose population in the area by generating new growth of hard woods, which moose graze on in the winter months.

The project's APE consists of six plots equaling 200 acres east of 33 Mile Loop Road in Training Area 9 (Figure 26). These plots will be shear-bladed in the winter to generate new growth of hard woods in spring. The forest in this area was burned in the 1987 Granite Creek Fire, and the plots consist of standing and fallen dead spruce trees, with a dense re-growth of young aspen and willow 4-6 cm in diameter between the dead spruce.

No ground disturbance will result from the undertaking of this project. The blade of the bulldozer will be set 6 inches above the ground surface. The parameters of the project require that the ground must be frozen and sufficient snow cover be present to protect the surface vegetation. The shear-blading of the moose habitat is scheduled for winters of 2007 (plot A), 2008 (plots B) and 2009 (plots C).

5.4.1 Moose Habitat Cultural Resources

One prehistoric sites have been previously recorded within 500 m of the proposed project areas. Site **XMH-01089** is located within 500 m of the Moose Plot B (Figure 26).

XMH-01089

Site XMH-01089 is located on the top of a high point on a northeast/southwest trending ridge. The site is elevated only 10 m above the surrounding terrain. The site affords approximately a 180° unobstructed view of the surrounding terrain to the south and east. Two other sites are located on the same landform; XMH-01090 is 150 m to the southwest and XMH-01091 is 300 m to the southwest. No water sources are visible in the immediate area, but a small unnamed lake is located approximately 600 m to the west. The surface of the site is vegetated primarily by dwarf scrub and forbs, with several large barren areas. The site has also been impacted by military activity. It has been cleared of vegetation and the remains of a small temporary structure are present.

Site XMH-01089 consists of one basalt biface fragment and one gray chert flake. The biface fragment is 5.0 cm long, 3.0 cm wide, and weighs approximately 14.0 g. No artifacts were collected and no subsurface testing has been conducted. The site has not been evaluated for listing in the NRHP.

5.4.2 Moose Habitat Results/Summary

Pedestrian survey of the proposed project area failed to identify any cultural resources within the APE for the proposed projects. The entire length of the proposed moose habitat was archaeologically surveyed at various times throughout the 2004 and 2007 field seasons (Figure 26). No ground disturbance will result doing the development of the proposed moose habitat. Based on the information provided above, the proposed projects will have no effect on historic properties.

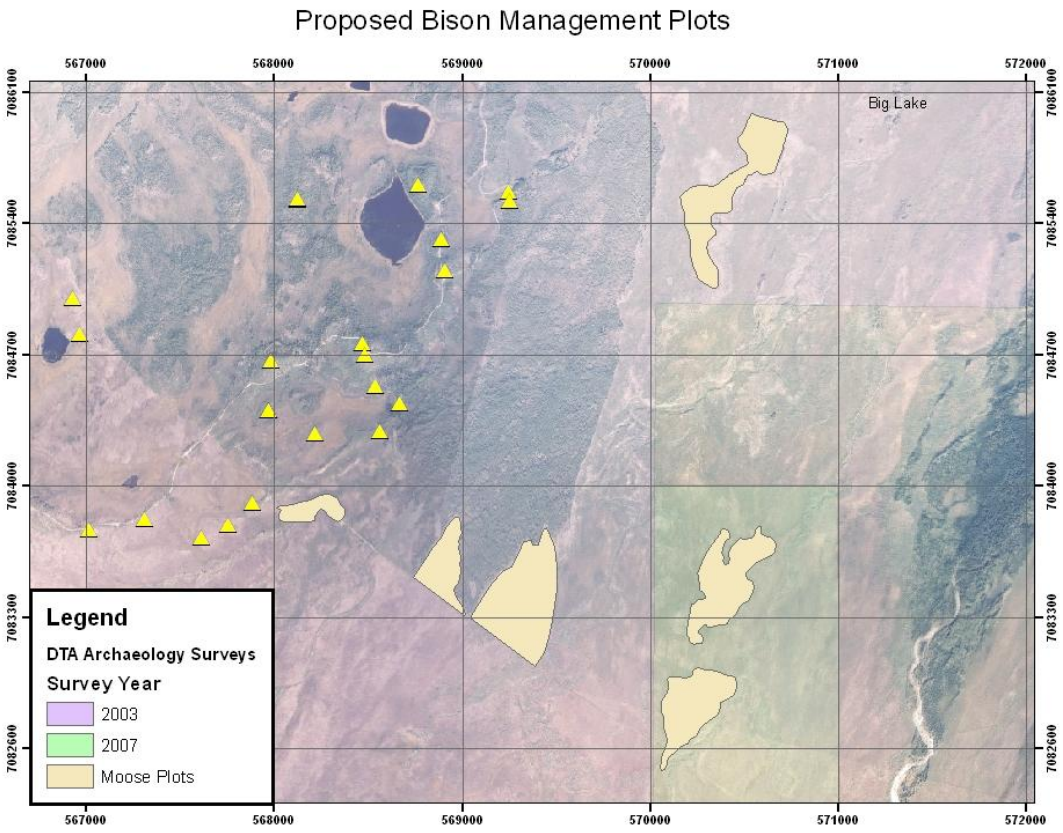

Figure 26. Proposed areas of moose habitat

6.0 Survey and New Sites 2007

During the summer of 2007, four archaeological survey crews (each comprised of four archaeologists) employed by CEMML conducted a Phase I pedestrian survey. Two thousand one hundred and eighty-four acres were archaeologically surveyed on the DTA during the 2007 summer field season, and a total of 5 new archaeological sites were identified. The following is a description of the new sites.

Table 6. Archaeological Sites Located in 2007

AHRS #	Project	NRHP Status
XMH-01332	ITAM 2007	Not Evaluated
XMH-01333	ITAM 2007	Not Evaluated
XMH-01334	ITAM 2007	Not Evaluated
XMH-01335	ITAM 2007	Not Evaluated
XMH-01336	ITAM 2007	Not Evaluated

XMH-01332
Determination: Not Evaluated

Site XMH-01332 is located on the southern end, and southern exposure, of a north/south trending ridge. The ridge gently slopes off to the south. The ridge is somewhat isolated in the terrain, besides a large ridge to north, and is among the highest of all surrounding elevations. The nearest water source is Sue Lake, located 650 m to the North. The viewshed is approximately 300 degrees from the top of the moraine and is quite significant when facing southeast and southwest. Site XMH-01333 is located approximately 200 m to the southeast of XMH-01332. Vegetation at the site is primarily bunchgrasses, mosses, and lichens, with a few dead and dwarf trees in the area. Surface visibility is estimated at 30 percent, and depends on location within the site.

Site XMH-01332 consists of one small light green rhyolite flake located on the surface. The flake was left *in situ* and the site was recorded. The site was identified by means of pedestrian survey of the landform. No subsurface testing was conducted.

Figure 28. XMH-01332 site overview facing east

XMH-01333
Determination: Not Evaluated

Site XMH-01333 is located about halfway down the southern exposure of a north/south trending glacial moraine. The nearest water source is Sue Lake, located 850 m to the north. The viewshed is approximately 225 degrees from the top of the moraine and is quite significant when facing south towards the area leading up to the Granite Mountains. Vegetation at the site is primarily bunchgrasses, mosses, and lichens, with a few dead and dwarf trees in the area. Surface visibility is estimated at 20-50 percent, and depends on location within the site.

Site XMH-01333 consists of one large tan-colored rhyolite flake possibly utilized as a tool, such as a scraper. The flake was left *in situ* on the surface and the site was recorded. The site was identified by means of pedestrian survey of the landform. No subsurface testing was conducted.

Figure 29. XMH-01333 overview facing south

XMH-01334
Determination: Not Evaluated

Site XMH-01334 is located on a northwest/southeast trending glacial moraine. There are approximately a dozen small lakes and ponds located in the vicinity of the site. The nearest water source is a small unnamed pond located 100 m to the northeast. The viewshed at the site is 180 degrees to the south. Visible landmarks include Donnelly Dome to the south and the peaks of the Granite Mountains to the southeast. Surface visibility is estimated at 25 percent.

Site XMH-01334 consists of one tan- to gray-colored rhyolite projectile point found on the surface. This projectile point was found broken in two and both halves were collected. No subsurface investigations took place at the site. The site was located through pedestrian survey of the landform and its surrounding area.

Figure 30. XMH-01334 site overview facing northwest

Figure 31. Projectile point from site XMH-01334

XMH-01335
Determination: Not Evaluated

Site XMH-01335 is located on the south face of an exposed east/west trending glacial moraine, which drops off steeply to the west. The area has many small- to mid-sized kettle lakes. The site overlooks the nearest water source, a small unnamed lake approximately 150 m to the northwest. The site is lower in elevation than surrounding ridgelines but is still predominant in terms of topography. The viewshed is roughly southwest, overlooking continuous moraines leading down to the Delta River. Other dominant landmarks include Donnelly Dome, located several km to the south and the Alaska Range to the far south and west. Vegetation at site includes primarily moss, lichen, and berries with low-lying alder, aspen and spruce that are mostly down slope from the ridgeline. Surface visibility is estimated at 30 percent.

Site XMH-01335 consists of one gray chert scraper located on the surface. The site was identified during pedestrian survey. The scraper was photographed *in situ* and collected and the site was recorded. No subsurface testing was conducted.

Figure 32. XMH-01335 site overview facing west

Figure 33. Scraper from XMH-01335

XMH-01336
Determination: Not Evaluated

XMH-01336 is located on an exposed low-lying glacial moraine situated between one small and one mid-sized kettle lake. The ridgeline trends north/south and divides the lakes, which are approximately 50-75 m east and west from the site. The ridge is typical in elevation for the immediate area with taller ridges to the east. The greater area contains several kettle lakes and numerous moraine features. The primary viewshed is towards the west where the Delta River is partially visible. Donnelly Dome is visible to the south. Vegetation at the site includes primarily low-lying shrubs and dwarf trees. Surface visibility is excellent where the site was located and good elsewhere with an estimated surface visibility of 50 percent.

Site XMH-01336 consists of three small secondary and tertiary gray basalt flakes located on the surface. XMH-01336 was identified on the surface during pedestrian survey. No artifacts were collected. No subsurface testing conducted.

Figure 34. XMH-01336 site overview facing southeast

References

Anderson, D. D.

1968 *Early Notched Point and Related Assemblages in Western American Arctic.* Unpublished manuscript on file in the University of Alaska Museum.

1970a Microblade Traditions in Northwestern Alaska. In *Arctic Anthropology* 7(2):2-16.

1970b Akmak: An Early Archaeological Assemblage from Onion Portage, Northwest Alaska. *Acta Arctica* 16. Copenhagen.

1988 Onion Portage: An Archaeological Site on the Kobuk River, Northwestern Alaska. University of Alaska Press, Fairbanks.

Andrews, E.F.

1975 Salcha: an Athabaskan Band of the Tanana River and its Culture. Master's Thesis, University of Alaska Fairbanks.

Bacon, G. H.

1978 *Final Report on the Archaeological Survey of the XM-1 Tank Range, Fort Greely, Alaska.* Final Report. Prepared for the US Army Corps of Engineers, Alaska District, NPASU-78-78-41. Prepared by Alaskarctic, Fairbanks.

Bacon, G.H. and C.E. Holmes

1979 Archaeological Survey and Inventory of Cultural Resources at Fort Greely, Alaska, 1979. Final Report. Prepared for the U.S. Army Corps of Engineers, Alaska District.

Clark, D. W.

1981 "Prehistory of the Western Subarctic," in *Handbook of North American Indians*, Vol. 6-Subarctic. J. Helm (ed.), Washington, D.C.: Smithsonian Institution Press.

Clark, Donald W.

1992 The Archaic in the Extreme Northwest of North America. *Revista de Arqueología Americana* 5: 71-99.

Cook, J. P.

1969 *The Early Prehistory of Healy Lake*. Ph.D. Dissertation, University of Wisconsin-Madison.

Department of the Interior, National Park Service, National Register, History and Education

2000 *National Register Bulletin, Guidelines for Evaluating and Registering Archaeological Properties.* Barbara Little, Erika Martin Seibert, Jan Townsend, John H. Sprinkle, Jr., and John Knoerl (eds.)

Dixon, E.J.

1985 Cultural Chronology of Central Interior Alaska. In *Arctic Anthropology* 22(1):47-66.

1999 Bones, Boats, and Bison: Archeology and the first colonization of western North America. University of New Mexico Press.

Esdale, J. A.

2007 The Northern Archaic: History of Research, Synthesizing the Data, and Current Problems. Paper given at the annual meeting of the Alaska Anthropological Association, March 14-17, Fairbanks, Alaska.

Gamza, T.

1995 *Excavation and Evaluation of Sullivan's Roadhouse (XBD-061), Fort Greely, Alaska Final Report.* Prepared for the Office of History and Archaeology, Division of Parks and Recreation, Alaska Department of Natural Resources, Anchorage.

Griset, S. and M. Kodack
1999 *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curating Department of Defense Archaeological Collections*. Department of Defense.

Hedman, W., A. Robertson, N. Fichter and K. Anderson
2003 *Interim Report: Archaeological Survey and Evaluation, Fort Richardson and Fort Wainwright, 2002*. Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska.

Higgs, A.S., B.A. Potter, P.M. Bowers, and O.K. Mason
1999 Cultural Resource Survey Report of the Yukon Training Area and Fort Greely Army Lands Withdrawal, Alaska. Draft Report. Prepared for CRREL and ABR Inc., Fairbanks.

Hoffecker, J. F.
1996 Introduction to the Archaeology of Beringia. In *American Beginnings: The Prehistory and Paleoecology of Beringia.* Frederick Hadleigh West, ed., pp. 149-153. University of Chicago Press.

Hoffecker, J.F., W.R. Powers, and T. Goebel
1993 The Colonization of Beringia and the Peopling of the New World. In *Science* 259:46-52.

Holmes, C. E.
1979 Archaeological Reconnaissance Report for Fort Wainwright, Fort Greely, and Fort Richardson Withdrawal Lands, Alaska. Report Prepared for the 172nd Infantry Brigade.
1986 Lake Minchumina Prehistory: An Archaeological Analysis. *Aurora Series No. 2*. Anchorage: Alaska Anthropological Association.
1996 "Broken Mammoth Site." In *American Beginnings: The Prehistory and Paleoecology of Beringia*. F. H. West (ed.). University of Chicago Press.
1998 New Data Pertaining to Swan Point, the Oldest Microblade Site Known in Alaska. In *CRP* (15) 21-22.
2000 "Classification of Early Alaskan Archaeological Assemblages: the Search for Useful Criteria." Paper presented at Canadian Archaeological Association 33rd Annual Conference, Ottawa.
2001 Tanana River Valley Archaeology circa 14,000 to 9000 B.P. *Arctic Anthropology* 38(2):154-170.
2002 *Summary Report: Determination of National Register Eligibility for Three Archaeological Sites at Fort Greely, Alaska.* Office of History and Archaeology Report No. 89. Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources.

Holmes, C. E. and J. Anderson
1986 *Archaeology and Paleoecology of the Delta River Area, Interior Alaska*. National Science Foundation Project Summary Manuscript on file at the State Historic Preservation Office, Anchorage.

Holmes, C. E. and J. P. Cook

1999 "Tanana Valley Archaeology Circa 12,000 to 8,500 Yrs. B.P." Paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago, IL.

McKennan, R.A.
1981 Tanana. In *Handbook of North American Indians*, Vol. 6, Subarctic. William Sturtevant (gen. ed.), June Helm (vol. ed.). Smithsonian Institution, Washington.

Mishler, C. W.
1986 *Born With the River: An Ethnographic History of Alaska's Goodpaster and Big Delta Indians.* Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys Reports, Public Data File 86-14, Fairbanks.

Rabich, J. and D. Reger
1978 Archaeological Excavations at the Gerstle River Quarry Site. In *Archaeological Survey Projects 1977. Miscellaneous Publications in History and Archaeology Series No. 18*. Alaska Department of Natural Resources, Division of Parks, Anchorage.

Robertson, A., and M. Proue
2006 *Methodology: U.S. Army Alaska 2006 Range Developments, Section 106 Archaeological Inventory and Evaluation, Fort Richardson and Fort Wainwright.* Prepared by the Center for Environmental Management of Military Lands. Colorado State University, Fort Collins, CO.

Robertson, A., M. Proue, P. Hall, S. Shirar and C. K. Paraso
2007 *Annual Report: Archaeological Survey and Mitigation, Donnelly Training Area, Fort Wainwright, Alaska 2006.* Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska

Robertson, A., J. Raymond-Yakoubian ,S. Shirar, M. Proue, J. Burr, H. Robbins and D. Cory
2006 *Annual Report: Archaeological Survey and Evaluation, Donnelly Training Area, Fort Wainwright, Alaska 2005.* Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska

Robertson, A., N. Fichter and K. Anderson
2004 *Annual Report: Archaeological Survey and Evaluation, Fort Richardson and Fort Wainwright 2003*. Center for Environmental Management of Military Lands (CEMML), Colorado State University, Ft. Collins, CO and U.S. Army Alaska, Fort Wainwright, Alaska.

Staley, D. P.
1993 A Phase I Cultural Resource Survey of 19 Locations for the Proposed Yukon Measurement and Debriefing System in Interior Alaska. Final Report. Prepared by Mariah Associates, Inc. Albuquerque.

U.S. Department of Agriculture (USDA).
2005. Soil Survey of Fort Greely and Donnelly Training Area, Alaska. Natural Resources Conservation Service.

West, F. H.

1967 The Donnelly Ridge Site and the Definition of an Early Core and Blade Complex in Central Alaska. In *American Antiquity* 32 (2):360-382.
1975 Dating the Denali Complex. In *Arctic Anthropology* 12:76-81.
1981 *The Archaeology of Beringia*. New York: Columbia Press.