# **Appendix G19**

Report: Archeological Impact Assessment Agnico Eagle Meadowbank 2013 Exploration Studies





# ARCHAEOLOGICAL IMPACT ASSESSMENT

# AGNICO-EAGLE MEADOWBANK 2013 EXPLORATION STUDIES

Permit Number: Nunavut 13-015A

# Final Report



Prepared for:

Agnico-Eagle Mines Ltd.

Val d'Or, Quebec

Prepared by:
Stantec Consulting Ltd.
Calgary, Alberta

Project Number: 124910368

December 2013





Stantec Consulting Ltd. 200 1719-10th Avenue SW Calgary AB T3C 0K1 Tel: (403) 245-5661 Fax: (403) 244-4701

December 6, 2013

David Frenette Agnico-Eagle Mines Ltd. 765, Chemin de la mine Goldex Val-d'Or, QC Canada J9P 4N9

Dear Mr. Frenette:

I am pleased to submit to you this report entitled *Archaeological Impact Assessment Agnico-Eagle Meadowbank 2013 Exploration Studies, Permit Number: Nunavut 13-015A Final Report*. Should you have any questions regarding this project, please do not hesitate to contact me.

Sincerely,

STANTEC CONSULTING LTD.

Jennifer Tischer, M.A. Tel: 403-806-1314 Jennifer.Tischer@stantec.com

# **Executive Summary**

At the request of Agnico-Eagle Mines Limited (Agnico-Eagle), Stantec Consulting Ltd. conducted an archaeological impact assessment for the Meadowbank Gold Project 2013 exploration activities under Nunavut Archaeological Permit 13-015A.

The archaeological studies were requested by Agnico-Eagle in order to ensure that no archaeological sites would be impacted by the exploration program. The 2013 exploration program was relatively small, consisting of surficial hand exploration, and drilling of five core holes. The archaeological field program included inspection of five proposed drill locations, assessment of the exploration Priority Areas that encompass the drill locations, as well as additional assessment of the terrain surrounding the Priority Areas. No archaeological sites were identified.

Agnico-Eagle has committed to ensuring avoidance of archaeological sites during exploration activities, and has continued to demonstrate this commitment through the conduct of these archaeological studies.

# **Project Personnel**

Permit Holder Jennifer C. Tischer, M.A.

Archaeologist Laura Roskowski, M.A.

GIS Analyst Evan Strangward, B.A.

Report Author Jennifer C. Tischer, M.A.

# **Table of Contents**

1	INTRODUCTION	1-1
1.1	BACKGROUND	<b>1-</b> 1
	1.1.1 Previous Studies	
	1.1.2 Current Studies	
1.2	OBJECTIVES	
1.3	SCOPE OF WORK	1-4
2	ENVIRONMENTAL SETTING	2-7
2.1	INTRODUCTION	2-7
2.2	REGIONAL ENVIRONMENT	2-7
2.3	PROJECT ENVIRONMENT	2-9
3	HERITAGE RESOURCES	
3.1	DEFINITION	
3.2	NATURE OF HERITAGE RESOURCES	3-1
3.3	CULTURAL CONTEXT	
	3.3.1 Precontact Chronology	
	3.3.2 Historic Inhabitants	3-2
4	METHODS	
4.1	INTRODUCTION	
4.2	RECORD REVIEW	4-1
4.3	FIELD STUDIES	4-1
4.4	SITE DESIGNATION	4-1
4.5	SITE DOCUMENTATION	4-2
4.6	SITE CLASSIFICATION	4-2
4.7	HERITAGE RESOURCE VALUES	4-2
4.8	FORMULATION OF RECOMMENDATIONS	4-2
4.9	CONTEXT FOR RECOMMENDATIONS	4-4
5	RESULTS	5-5
5.1	RECORD REVIEW	5-5
5.2	GROUND RECONNAISSANCE	5-5
6	SUMMARY AND RECOMMENDATIONS	6-1
7	REFERENCES CITED	7-1

# **MEADOWBANK 2013 EXPLORATION STUDIES**

**Table of Contents** 

# **List of Figures**

Figure 1-1	Location of Project	1-2
Figure 1-2	Location of 2013 Exploration Areas	
Figure 1-3	2013 Archaeological Study Areas	
Figure 2-1	Terrestrial ecozones and physiographic units of Nunavut	
Figure 4-1	Borden units north of 60° relevant to the Project area	
List of P	ates	
Plate 2-1	Aerial view north showing the Priority Areas.	2-10
Plate 2-2	Drill location IVR 13-G, located in the southern portion of Priority Area 2; view	
	north	2-11
Plate 2-3	Drill location IVR 13-A, view northwest	2-12
Plate 2-4	View southwest to drill locations IVR 13-A, showing the uneven bedrock terrain characteristic of the study area.	2-13
Plate 2-5	View east at the drainage extending between Areas 1 and 2.	
Plate 2-6	View south to the esker feature located at the southeast boundary of Priority	
	Area 2	2-15
Plate 2-7	View north into the northermost assessed (north of Priority Area 1)	2-16
Plate 2-8	View south along a well defined esker feature along the shore of the	
	northernmost area assessed (north of Priority Area 1)	2-17
Plate 2-9	View west to the area west of Priority Area 2, showing largely low, featureless	
	to una in	2 4 6

### 1 INTRODUCTION

At the request of Agnico-Eagle Mines Limited (Agnico-Eagle), Stantec Consulting Ltd. (Stantec) conducted an archaeological impact assessment for the Meadowbank Gold Project 2013 exploration activities under Nunavut Archaeological Permit 13-015A.

# 1.1 Background

The Meadowbank Gold Project (the Project), operated by Agnico-Eagle Mines Limited – Meadowbank Division, is located approximately 70 km north of the Hamlet of Baker Lake, Nunavut (Figure 1-1). Meadowbank is an open pit gold mine that started production in early 2010. The Project components include the mine site, a 110 km all season private access road between Baker Lake and the Meadowbank mine site, and a barge offloading, marshaling and fuel storage facility near the Hamlet of Baker Lake. Exploration activities have been undertaken for a number of years in the surrounding areas.

The 2013 exploration program is located approximately 50 km northwest of the Meadowbank Mine (Figure 1-2).

#### 1.1.1 Previous Studies

Previous studies were conducted for the Meadowbank Gold Project under six archaeological permits: 99-003A and 03-012A (Webster 2004), 05-012A (Prager 2006), 06-027A (Tischer 2007), 10-022A (Tischer 2010) and 11-015A (Tischer 2012).

Studies conducted in 1999 and 2003 (Webster 2004) focused largely on assessment of the then-proposed mine area, although some assessment of the marshaling area/tank farm and southern portion of the access road were also assessed during that study. Forty-two sites were recorded during the 1999 archaeological survey, including 40 newly recorded sites and two revisited sites. In 2003, 42 previously unrecorded sites and eight revisited sites were documented, for a total of 50 sites.

Studies conducted in 2005 (Prager 2006) focused on assessment of the proposed all-season road between Baker Lake and the mine. During that study, a total of 28 archaeological sites were newly recorded, and an additional 32 localities containing features were noted; these latter localities were not recorded as archaeological sites either due to the perceived recent nature of the sites, or if they were observed only from the air.

The 2005 assessment of the all-season road was not considered complete due to issues with coordinates of the road right-of-way and difficulties in obtaining access. As such, there was a need to undertake a second assessment in 2006 (Tischer 2007) to ensure that all areas proposed for impact were adequately assessed, and to determine the relationship between any identified sites and the all season road. During the 2006 field studies, 24 previously recorded sites were revisited and 47 sites were newly recorded along the proposed all season road and the associated borrow sources. Two new sites were also

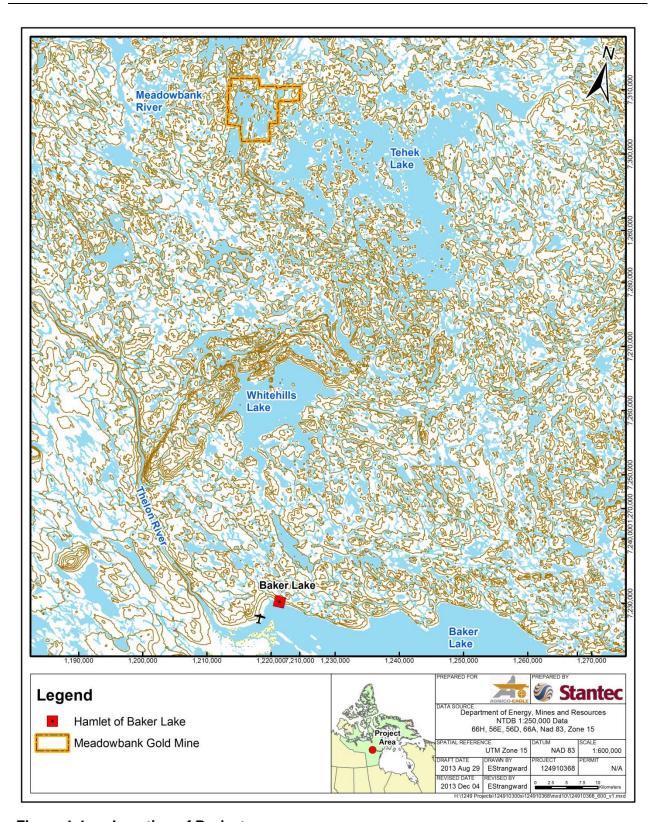


Figure 1-1 Location of Project

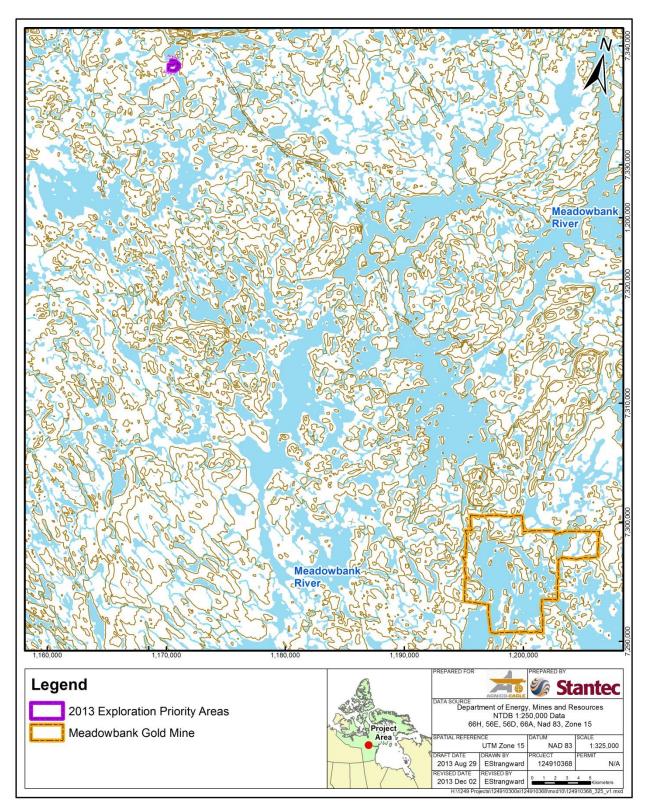


Figure 1-2 Location of 2013 Exploration Areas

#### **MEADOWBANK 2013 EXPLORATION STUDIES**

**Section 1: Introduction** 

recorded under the same archaeological permit during an assessment of 12 proposed borrow sources located east of the Meadowbank Gold Project. As such, the total number of sites investigated during the 2006 studies was 73.

Studies conducted in 2010 included elder interviews, an assessment of the tank farm expansion at Baker Lake, an audit of archaeological sites within proximity of the marshaling area, all-season road, and the mine, as well as an education program for exploration personnel. During those studies, 102 archaeological sites were investigated, including 79 revisited sites and 23 newly identified sites (Tischer 2010).

The 2011 studies were conducted relative to exploration activities, and included both post-impact of 2010/2011 exploration activities, and pre-impact assessments at potential exploration zones prioritized for assessment by Agnico-Eagle (Tischer 2012). No archaeological sites were identified within proximity of any of the existing disturbance associated with the winter 2010/2011 exploration program. One new archaeological site (LgLa-20) was identified within one of the 2011/2012 drilling targets, and three sites (LfLa-1, LfLa-7 and LfLa-8) were identified within the Priority 5 area, within which future drilling may take place. A fifth site (LhJx-1) was newly recorded to the north of the Priority 6 study area. Site information was provided to Agnico-Eagle to ensure avoidance.

#### 1.1.2 Current Studies

The current studies were requested by Agnico-Eagle for the 2013 exploration activities. The studies were conducted immediately in advance of the drilling activities, and included inspection of five drilling locations, Priority Areas 1 and 2 (which encompassed the drilling locations), and additional terrain around the Priority Areas.

The areas investigated during the current studies are illustrated in Figure 1-3.

# 1.2 Objectives

The objectives of the 2013 archaeological studies were to document any previously recorded or newly identified archaeological sites relative to the 2013 exploration program, and to complete an impact assessment of any sites identified. Specifically, the field program was designed to provide information on archaeological sites, determine site types, site nature and association, site context, and potential site values. These data were used to evaluate the impact of the program on specific archaeological sites identified, to ensure avoidance of any identified archaeological sites by Agnico-Eagle during exploration activities, and to provide information on archaeological resources relative to project planning and design.

# 1.3 Scope of Work

The scope of work for the 2013 archaeological studies undertaken by Stantec consisted of the following components:

1. **Record Review** - to identify previously recorded sites within proximity of the exploration areas and to determine the nature of the data base in the area.

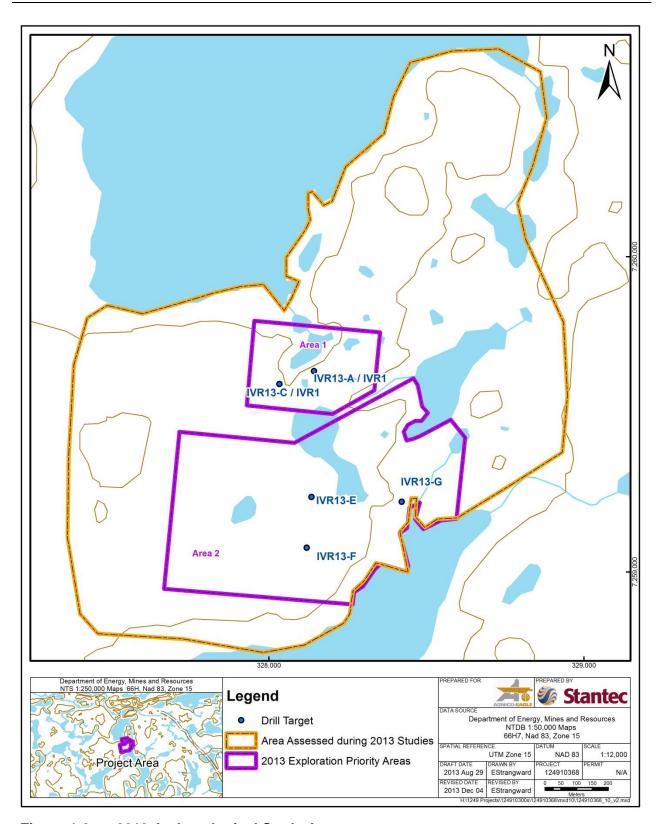


Figure 1-3 2013 Archaeological Study Areas

#### **MEADOWBANK 2013 EXPLORATION STUDIES**

**Section 1: Introduction** 

- 2. **Field Studies** to relocate, in the field, archaeological sites that were previously recorded within proximity of the exploration areas, as well as to identify and record any new sites. Site discovery was based on surficial inspection.
- 3. **Site Evaluation** to evaluate the nature of the existing resource data base, the quantity and quality of observable remains (e.g. site condition, content, uniqueness, and complexity), and the potential of the site to contribute to community enjoyment and education.
- 4. **Impact Assessment** to delineate the magnitude of forecasted impacts to the individual identified heritage resource sites as well as the local and regional data base and to recommend site-specific mitigative measures commensurate with the assigned value of the site.

# 2 ENVIRONMENTAL SETTING

#### 2.1 Introduction

Precontact economic strategies as well as many aspects of the material culture of the human inhabitants were intimately related to the opportunities and constraints provided by the regional environment that they occupied. In many respects, regional environment also strongly influenced where certain activities were conducted and consequently, where archaeological sites, testimony to precontact use and occupation, are located. The distribution of precontact sites in the barren grounds includes a wide variety of landforms but sites are most frequently associated with coastlines and lake shores, river and creek margins, eskers and kames, and bedrock knolls. This distribution pattern partially reflects environmental opportunities presented to human populations as well as cultural preferences in site location. Terrain influenced many forms of human activity, directing travel, biasing routes of communication, enhancing or limiting resource procurement activities, and restricting human occupation areas to selected localities. As a result, human populations were not uniformly distributed across the landscape, but were non-randomly clustered within the most suitable habitats. Because of the close relationship that precontact occupants had with the environment, a brief description of the regional and local environments is provided.

# 2.2 Regional Environment

The Meadowbank Gold Project is located within the Northern Arctic Ecozone and within the Wager Bay Plateau physiographic unit of the Canadian Shield physiographic region as defined by Bostock (1970) (Figure 2-1). The surficial geology in the general project area is dominated by discontinuous thin veneers of organic material, till and/or weathered parent material overlying undulating to hummocky bedrock. Large areas of weathered bedrock interspersed by thin veneers of moraine or organics are common (Bryden et al. 2003).

The Project is located approximately 70 km north of Baker Lake. Exploration areas investigated during the current studies were located north of the existing mine. Generally, the area is characterized by rolling terrain covered in heath tundra interspersed with higher bedrock outcrops and boulder fields. Glaciation has shaped the terrain; eskers and kames are not numerous, but an esker running generally north-south is situated to the east of the 2013 exploration area, and several smaller glacial features were examined during the studies.

Vegetation within proximity of the Project consists largely of the heath tundra community and lichen-rock community in the Ecological Land Classification (Bryden et al. 2003). The Heath Tundra community is found on morainal deposits on gently sloping uplands with low to medium moisture and nutrient regimes, and is characterized by bog blueberry, lingonberry, white arctic heather, Labrador Tea, bearberry and crowberry. The Lichen-Rock community is found on gentle slopes with low water and nutrient regimes and thin and absent soils, including boulder fields and bedrock outcrops. Sedge communities are associated with lake edges.

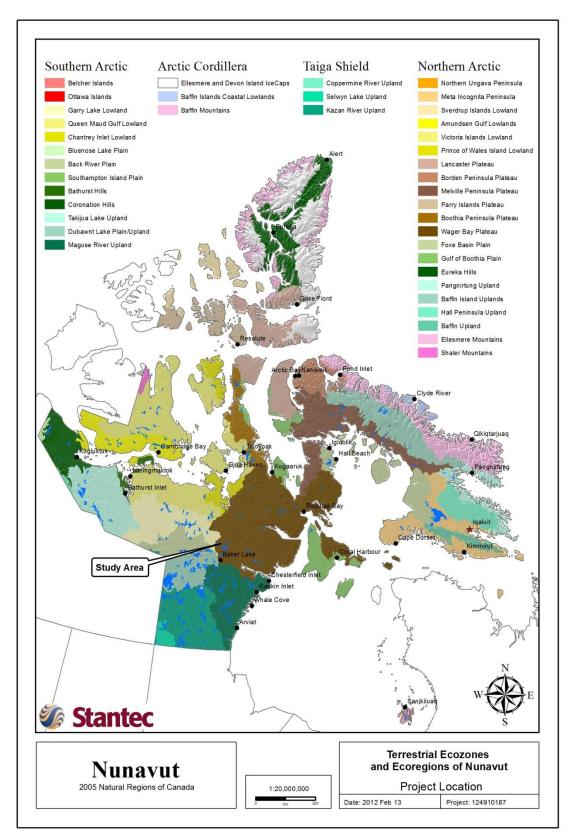


Figure 2-1 Terrestrial ecozones and physiographic units of Nunavut

#### **MEADOWBANK 2013 EXPLORATION STUDIES**

**Section 2: Environmental Setting** 

Fauna present in the Project area includes barren-ground caribou, which migrate through the area; caribou are found frequently in the Project area during fall, winter and spring. Other common species include muskox, arctic hare, arctic ground squirrel, and arctic fox, as well as bird species such as snow goose, Canada goose, lapland longspur, horned lark, savannah sparrow, semipalmated sandpiper, sandhill crane, rock ptarmigan and raptors (Bryden et al. 2003).

# 2.3 Project Environment

The 2013 exploration program is situated approximately 50 km to the north of the existing Meadowbank Mine. Two Priority Areas were provided by Agnico-Eagle within which 2013 exploration activities were planned (Plate 2-1). Five drill locations within these Priority Areas were examined for archaeological sites; the drill locations were located using UTMs and/or staking (Plate 2-2). Drilling activities were initiated at one location (IVR 13-A) during the archaeological field studies (Plate 2-3); as noted during the 2011 studies, surficial impacts as a result of drilling were observed to be very minimal.

The environment within which the Priority Areas are situated is characterized by the presence of small lakes interspersed by bedrock outcrops and some low-lying terrain. The bedrock is generally discontinuous and uneven with numerous loose boulders (Plate 2-4). Bedrock outcrops are interrupted by drainages and low-lying terrain extending between lakes (Plate 2-5). Several glacial features are present, including a small esker along the lakeshore at the southeastern edge of Priority Area 2 (Plate 2-6).

In addition to assessing the Priority Areas, some terrain surrounding the Priority Areas was also assessed as illustrated in Figure 1-3, as time was available to assess a larger area than that requested by Agnico-Eagle. To the north of Priority Area 1, a large area bounded by lakes was also assessed, including low lying terrain and a bedrock outcrop (Plate 2-7), and an esker feature along the western lakeshore (Plate 2-8). The area to the west of Priority Areas 1 and 2 was also assessed where archaeological potential was present, including a bedrock outcrop; however, most of this area is low, level and featureless (Plate 2-9). Similar terrain was assessed in an area extending east of the Priority Areas.



Plate 2-1 Aerial view north showing the Priority Areas.

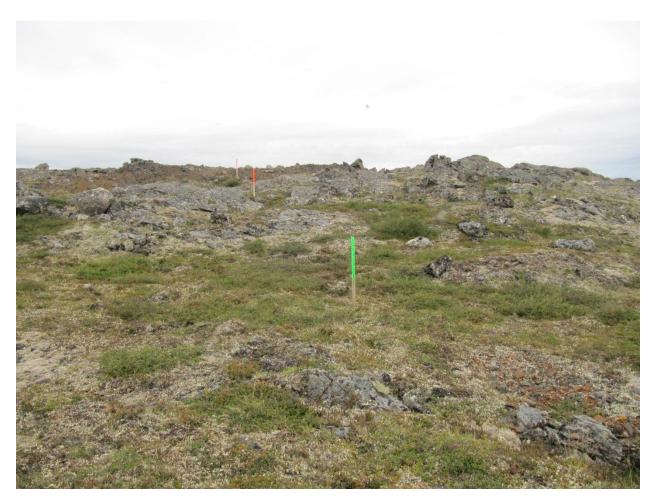


Plate 2-2 Drill location IVR 13-G, located in the southern portion of Priority Area 2; view north.



Plate 2-3 Drill location IVR 13-A, view northwest.



Plate 2-4 View southwest to drill locations IVR 13-A, showing the uneven bedrock terrain characteristic of the study area.



Plate 2-5 View east at the drainage extending between Areas 1 and 2.



Plate 2-6 View south to the esker feature located at the southeast boundary of Priority Area 2.



Plate 2-7 View north into the northermost assessed (north of Priority Area 1).



Plate 2-8 View south along a well defined esker feature along the shore of the northernmost area assessed (north of Priority Area 1).



Plate 2-9 View west to the area west of Priority Area 2, showing largely low, featureless terrain.

# 3 HERITAGE RESOURCES

#### 3.1 Definition

Heritage resources are identified by the Nunavut Archaeological and Palaeontological Sites Regulations (Nunavut Government 2001) and consist of archaeological artifacts more than 50 years old and fossils including natural casts, preserved tracks, coprolites, and plant remains as well as shells, exoskeletons of invertebrates, and vertebrate remains. Precontact archaeological sites are composed of artifacts, features, and residues of native origin. They predate the arrival of Europeans and are typically characterized by modified bone and stone, and stone structures. Historic sites are characterized by structures, features, and objects of European influence. These sites date back to contact with the Europeans but also include remains of more recent activity (i.e., more than 50 years). Historic sites less than 50 years old are generally associated with contemporary land use and document continued use and occupation of an area to the present time. Cultural landscapes consisting of either natural or man-made features important to a society's sense of place are also important heritage resources. Although palaeontological sites contain fossils of plants or animals or fossilized evidence of their existence, also of geological interest are type sites for geological formations.

# 3.2 Nature of Heritage Resources

Heritage resources are non-renewable and are susceptible to alteration, damage, and destruction by construction and development activities. The value of heritage resources cannot be measured in terms of individual artifacts or biological specimens, rather the value of these resources lies in the integrated information which is derived from the relationship of the individual artifacts and fossil specimens, associated features, spatial relationships (distribution), and contextual situations. Interpretation of heritage resource materials, and the ability to interpret the significance of particular sites in a landscape, is based on an understanding of the nature of the relationship between individual archaeological and palaeontological materials as well as the sediments and strata within which they are contained. As such, removal or mixing of cultural or fossil bearing sediments results in the permanent loss of information basic to the understanding of these resources. As a result, heritage resources are increasingly susceptible to destruction and depletion through disturbance.

#### 3.3 Cultural Context

#### 3.3.1 Precontact Chronology

Early intensive archaeological field study in the interior Canadian Shield focused on the central barren lands and is largely restricted to the work of Noble (1971) with some areally defined surveys by Gordon (1975) and Metcalf (1979). More recently, intensive impact assessment studies of defined project areas have been completed in the interior shield, including Blower (2003), Bussey (1994, 1995, 1997), Fedirchuk (1995, 1996a, 1996b, 2001), Kroker (1996), Novecosky (2008), Tischer (2002, 2007, 2008,

#### **MEADOWBANK 2013 EXPLORATION STUDIES**

**Section 3: Heritage Resources** 

2010) and Unfreed (1997). Regional syntheses have been provided by Gordon (1975), Noble (1977), and Wright (1981). A summary of the chronological framework is presented below.

In the interior, the earliest archaeological materials that occur in the general region are collectively referred to as the Northern Plano Tradition. These remains are recognized on the basis of the presence of lenticular Agate Basin and Acasta notched projectile points. Sites of this time period are widely scattered in the barren grounds. In the southern Keewatin District, sites of this time period are associated with major caribou crossings or fisheries (Harp 1961). Westward, eskers figure prominently in site association (Noble 1981: 97). The similarity in style to projectile points found further south has prompted the suggestion that people of the northwestern plains seasonally exploited the barrens (Wright 1981: 87). Although the basic economic lifestyle did not change in the succeeding Shield Archaic Period between approximately 4,000 and perhaps 1,000 B.C., lanceolate projectile points continue to serve as horizon markers during this period. Sites of the Shield Archaic occur northward along the Kazan-Dubawnt-Thelon river system. The Shield Archaic is replaced by the Arctic Small Tool Tradition, attributable to Palaeo-Eskimo peoples.

Sometime after approximately 3,500 B.C., Palaeo-Eskimo populations began to take up occupation along the coast of the central Arctic stretching eastward to Greenland. Identifiable on the basis of specialized microlithic and diagnostic standard size tools as well as a variety of bone, antler and ivory materials, these early occupations are assigned to either Pre-Dorset/Independence I (2200-800 B.C.), a transitional phase, or Dorset (500 B.C. – A.D. 1450) temporal affiliations (Maxwell 1984). Early, Palaeo-Eskimo sites occur at Dismal Lake (Harp 1958) and Bloody Falls (McGhee 1970). Both sea mammals and terrestrial ungulates (primarily caribou) were exploited; undoubtedly fish and fowl were also included in the subsistence pattern. The succeeding Dorset sites in the eastern and High Arctic suggest an increasing emphasis on sea mammals for winter subsistence and perhaps an increasing use of caribou in summer at inland lakes and of fishing weirs. The final archaeological phase is termed Thule and represented by the 'typical Eskimo' sites in the arctic (McGhee 1984). Thought to have developed in northern Alaska, it rapidly spread eastward to Greenland after approximately A.D. 1000. Characteristic of Thule culture was a dependence on whale hunting, supplemented by seal, fish, caribou and fowl, and winter villages consisting of several semi-subterranean houses as well as the appropriate hunting and survival tools and material goods.

#### 3.3.2 Historic Inhabitants

The Project area falls within the traditional territory of the Caribou Inuit, which is located west of Hudson's Bay and extends from the tree line to just north of Baker Lake. The Caribou Inuit depended almost entirely on fish and caribou, and rarely visited the coast to hunt seals. According to McGhee (1990), the Thule ancestors of the Caribou Inuit, spreading down the coast of Hudson's Bay approximately 1,200 B.C., would have encountered the immense herds of caribou that migrate from the tree line north to the summer calving grounds around Chesterfield Inlet. However, given that the barrenlands were occupied by Chipewyan, the Inuit would not have been able to make much use of the caribou resource. When small pox decimated the Chipewyan populations in the 1780s, the Inuit, who had by now acquired trade goods such as traps and rifles as a result of interaction with the Hudson's Bay Company, were able to move inland and efficiently hunt caribou.

# 4 METHODS

#### 4.1 Introduction

In order to meet the objectives of the archaeological impact assessment, the 2013 studies included a record review of archaeological sites on record and a review of previous studies conducted for the Project. Field studies were subsequently conducted, focusing on areas within the Priority Areas and the surrounding terrain with moderate to high archaeological potential. Analysis of findings and reporting was then conducted, including site evaluation, impact assessment and formulation of recommendations.

#### 4.2 Record Review

An updated site file search was obtained from the Nunavut Department of Culture and Heritage in order to ensure that all archaeological sites on record within proximity of the 2013 exploration program were considered when assessing the exploration areas. In order to obtain the database, a data license was submitted to the Department of Culture and Heritage as required.

In addition to updating the site file search, the studies previously conducted for the Meadowbank Gold Project under Permits 99-003A/03-012A (Webster 2004), 05-012A (Prager 2006), 06-027A (Tischer 2007), 10-022A (Tischer 2010) and 11-015A (Tischer 2012) were briefly reviewed in order to provide some archaeological and historical context for the Project area. In addition, a general literature review was also undertaken to provide regional context.

The record and report review was compiled into an archaeological overview and was used to determine the scope and nature of studies that would be conducted relative to the exploration program.

#### 4.3 Field Studies

The 2013 field studies included surface inspection of all five proposed drill site locations, as well as assessing all areas with moderate to high archaeological potential within the Priority Areas and within surrounding terrain (as illustrated in Figure 1-3) to identify archaeological sites.

#### 4.4 Site Designation

Archaeological sites are referred to by a Borden Number which consists of a four letter symbol accompanied by a number (i.e., LdNs-11). This uniform site designation scheme for archaeological sites in Canada was developed by archaeologist Charles Borden (1954). Within this system and north of latitude  $62^{\circ}$  (Figure 4-1), the upper case letters represent major blocks  $2^{\circ}$  by  $4^{\circ}$  in size (i.e.,  $L = 64^{\circ}$  to  $66^{\circ}$  latitude;  $N = 104^{\circ}$  to  $112^{\circ}$  longitude) and the lower case letters denote 10' and 20' units within the major block (i.e. d = 30' to 40' latitude; s = 0' to 20' longitude). The numbers are assigned sequentially by the Archaeological Survey of Canada, Canadian Museum of Civilization and refer to specific sites within each unit.

#### 4.5 Site Documentation

When identified, the locations of any archaeological sites encountered are recorded using Global Positioning System (GPS) coordinates in the NAD 83 format and the relationship of each site to the local physical features is documented. Site locations are plotted on 1:50,000 National Topographic Map Series map sheets and the relationship of each site to the Project is denoted. Site characteristics are also documented, including estimated dimensions, content, setting, and complexity. Each site is photographed using a digital camera. An Archaeological Site Record Form, including a site sketch map, are completed for each archaeological site identified and submitted to Department of Culture and Heritage and the Canadian Museum of Civilization as required.

#### 4.6 Site Classification

Each site identified is classified on the basis of its primary physical attributes and/or predicted primary function. Precontact and historic site types include isolated finds, artifact scatters, campsites, quarries and stone features. Stone feature sites are stone alignments or configurations resulting from past human activity. Depending on the configuration of these features, function may be ascribed to these sites, for example campsites, drive lanes or caches.

# 4.7 Heritage Resource Values

Site values are determined on the basis of the results of the field program as well as the regional archaeological context and indigenous perspective. Generally, relative site value is based on the data obtained to date. Factors considered include site type, size, and complexity, presence or absence of subsurface materials and features, and number of artifacts observed. The scientific value of a specific site is deemed to be low if substantial disturbance or exposure has occurred or at sites with single artifacts or single features of limited antiquity. Sites at which large quantities of artifacts or diagnostic artifacts are present, or at which cultural stratification, or a large number of stone features, occur (particularly if they contain rare or unusual features), are classified as having high scientific value.

In addition to these tangible variables, each site is viewed from the perspective of the regional data base. Public, including First Nation and Inuit, perspective of site value is also an important criterion in evaluating identified sites.

## 4.8 Formulation of Recommendations

Site specific recommendations are formulated primarily on the basis of the level of available information and the perceived values within the context of the predicted impact. Because of the non-renewable nature of heritage resources, avoidance as a mitigation measure is recommended as the preferred option at sites with established heritage values. Sites of limited scientific value and of limited ethnic value (for example, isolated artifact finds or fossil fragments) are generally not recommended for further study and are not considered for avoidance mitigation as the data collected at the archaeological impact assessment stage has effectively reduced or eliminated impact from the proposed development.

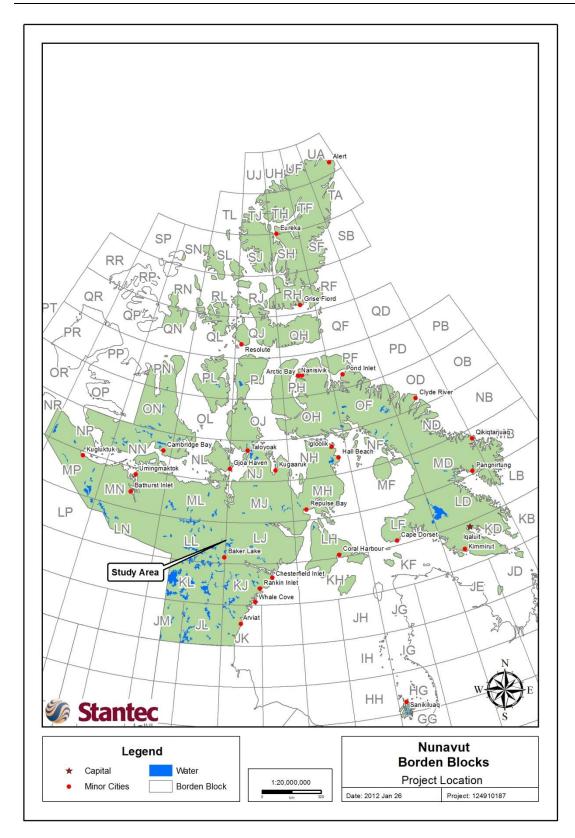


Figure 4-1 Borden units north of 60° relevant to the Project area

#### **MEADOWBANK 2013 EXPLORATION STUDIES**

**Section 4: Methods** 

Further study is recommended at sites that cannot be avoided and at which the data collected during the impact assessment stage is considered insufficient to mitigate effects from the proposed development.

#### 4.9 Context for Recommendations

In general, site-specific mitigative measures recommended reflect the nature and content of each site and the heritage resource values ascribed to each site. As such, the site-specific scope of studies recommended at each site represents a professional judgment as to an appropriate balance in compensation for scientific and community information lost through site destruction.

The site-specific recommendation made for an identified site is based primarily on its location relative to proposed disturbance activities. Should disturbance to identified sites be anticipated as a result of the Project, further assessment and/or mitigation studies may be required. Mitigation requirements are determined by the Department of Culture and Heritage.

# 5 RESULTS

#### 5.1 Record Review

Numerous archaeological sites have been recorded within proximity of the Meadowbank Gold Project, including sites at the marshaling area/storage facility at Baker Lake, sites along the all-season road from Baker Lake to the mine, and sites within proximity of the mine itself. Sites on record include possible prehistoric stone features, historic stone features, and historic/indigenous sites containing historic/contemporary era materials, often associated with stone features. No sites containing prehistoric lithic artifacts have been identified within proximity of the Meadowbank Mine Project.

No previously recorded archaeological sites are on record within proximity of the 2013 exploration program. In fact, no sites are on record within NTS Mapsheet 66 H/7 within which the program lies. The lack of previous sites recorded is likely due to the lack of previous archaeological studies that have taken place in this region.

#### 5.2 Ground Reconnaissance

All five of the proposed drill locations were visited and inspected for archaeological sites. In addition, all areas deemed to be of moderate to high archaeological potential within the Priority Areas were traversed and inspected for archaeological sites. As time permitted additional study coverage, the assessment of these Priority Areas was expanded to include additional areas to the north, west and east. As a results, all area of moderate to high archaeological potential within the assessment area as illustrated in Figure 1-3 have been inspected for archaeological sites.

No archaeological sites were identified within the assessment area as illustrated in Figure 1-3. One poorly-defined stone feature site in the southeastern portion of Area 2 (on the esker) was observed; based on items at the site (cans determined to date to the 1980s or later based on date stamps), this site was determined to be recent in nature. This time period corresponds with the dates of the earliest exploration activities in this area which, according to the Agnico-Eagle exploration crew, began in 1989. This site is not archaeological or historic in nature.

#### **Section 6: Summary and Recommendations**

### 6 SUMMARY AND RECOMMENDATIONS

At the request of Agnico-Eagle, Stantec conducted an archaeological impact assessment for the Meadowbank Gold Project 2013 exploration activities under Nunavut Archaeological Permit 13-015A.

The archaeological studies were requested by Agnico-Eagle in order to ensure that no archaeological sites would be impacted by the exploration program. The 2013 exploration program was relatively small, consisting of surficial hand exploration, and drilling of five core holes. The archaeological field program included inspection of five proposed drill locations, assessment of the exploration Priority Areas that encompass the drill locations, as well as additional assessment of the terrain surrounding the Priority Areas. No archaeological sites were identified.

Agnico-Eagle has committed to ensuring avoidance of archaeological sites during exploration activities, and has continued to demonstrate this commitment through the conduct of these archaeological studies.

.

### 7 REFERENCES CITED

- Blower, D. 2003. Heritage Resources Studies Mitigation and Assessment 2002. Bathurst Inlet Port and Road Project. Nunavut Permit 02-035A. Fedirchuk McCullough & Associates Ltd. Nunavut Department of Culture and Heritage. Iqaluit.
- Borden, C. E. 1954. A uniform site designation scheme for Canada. *Anthropology in British Columbia*, Vol. 4: 44-48.
- Bostock, H.S. 1970. Physiography of Canada. In; *Geology and economic minerals of Canada*, edited by R. j. W. Douglas. Geological Survey of Canada. Economic Geology Report No. 1. Ottawa.
- Bryden, C. et al. 2003. Meadowbank Gold Property Baseline Report: Terrestrial Ecosystem and Marine Mammals. KAVIK-AXYS Inc. Report on file with Cumberland Resources Limited.
- Bussey, J. 1994. Report on field investigations for the BHP NWT Diamonds Project (preliminary). Points West Heritage Consulting Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Bussey, J. 1995. 1995 Archaeological investigations for the BHP Diamonds Inc. Points West Heritage Consulting Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Bussey, J. 1997. 1996 Archaeological investigations for the BHP Diamonds Inc. Points West Heritage Consulting Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Fedirchuk, G.J. 1995. Heritage resource impact assessment Kennecott Southwest Diavik Property. Fedirchuk McCullough & Associates Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Fedirchuk, G.J. 1996a. Heritage resources studies Lytton Minerals Limited Jericho Project. Fedirchuk McCullough & Associates Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Fedirchuk, G.J. 1996b. Heritage resources studies Mountain Province Mine Kennady Project. Fedirchuk McCullough & Associates Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Fedirchuk, G.J. 2001. Heritage resource studies Bathurst Inlet Port and Road Project. Fedirchuk McCullough & Associates Ltd. Nunavut Department of Culture and Heritage. Iqaluit.
- Gordon, B.H.C. 1975. Of men and herds in barrenland prehistory. Canada, National Museum of Man, Archaeological Survey of Canada. Ottawa.
- Harp, E. Jr. 1958. Prehistory of the Dismal Lake Area, N.W.T., Canada. Arctic, Vol. 11, no. 4:219-249.

- Harp, E. Jr. 1961. The archaeology of the Lower and Middle Thelon, Northwest Territories. Arctic Institute of North America. Technical Paper No. 8. Montreal.
- Kroker, S. 1996. Ulu mine project archaeological impact assessment, phase II. Quaternary Consultants Limited. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- McGhee, R. 1970. Excavation at Bloody Falls, N.W.T., Canada. *Arctic Anthropology*, Vol. 6, no. 2: 53-72.
- McGhee, R. 1984. Thule Prehistory of Canada. In *Handbook of North American Indians*, Vol. V. Arctic, pp. 369-376. Smithsonian Institution, Washington.
- McGhee, R. 1990. Canadian Arctic Prehistory. Canadian Museum of Civilization. Hull.
- Maxwell, M. S. 1984. Pre-Dorset and Dorset Prehistory in Canada. In, *Handbook of North American Indians* Volume 5 Arctic. Pp 359-368. Smithsonian Institution, Washington.
- Metcalf, F. 1979. Rawalpindi River archaeological survey 1978. Manuscript on file, Archaeological Survey of Canada. Ottawa.
- Noble, W.C. 1971. Archaeological surveys and sequences in Central District of Mackenzie, N.W.T. *Arctic Anthropology*, Vol. 8, no. 1: 102-145.
- Noble, W.C. 1977. The Taltheilei Shale Tradition: an update. In *Problems in the Prehistory of the North American Subarctic: the Athapaskan questions*. Edited by J.W. Helmer, S. Van Dyke, and F.J. Kense. University of Calgary, Calgary.
- Noble, W.C. 1981. Prehistory of the Great Slave Lake and Great Bear Lake Region. *Handbook of North American Indians* Volume 6, Subarctic. Pp. 97-129. Smithsonian Institution. Washington.
- Novecosky, B. 2008. Report on Archaeological Baseline Collection for the Kiggavik/Sissons Uranium Project, Nunavut. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Nunavut Government. 2001. Archaeological and Palaeontological Sites Regulations.
- Prager, G. 2006. Meadowbank Gold Project 2005 Archaeological Investigations of a Proposed All-Season Road Final Permit Report. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Tischer, J.C. 2002. Heritage Resources Studies Final Report: Izok Mine Project. FMA Heritage Resources Consultants Inc. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Tischer, J.C. 2007. Archaeological Impact Assessment Cumberland Resources Meadowbank Mine All-Season Road and Borrow Sources Nunavut Permit 2006-027A. FMA Heritage Resources Consultants Inc. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

#### **MEADOWBANK 2013 EXPLORATION STUDIES**

**Section 7: References Cited** 

- Tischer, J.C. 2008. Archaeological Studies Pacific Ridge Exploration Ltd. Baker Basin Project Nunavut Permit 2007-026A. FMA Heritage Resources Consultants Inc. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Tischer, J.C. 2010. Archaeological Impact Assessment 2010 Agnico-Eagle Mines Limited Meadowbank Gold Project Nunavut Permit 10-022A. FMA Heritage Inc. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Tischer, J.C. 2012. Archaeological Impact Assessment Agnico-Eagle Meadowbank 2011 Exploration Studies, Nunavut Permit 11-015A. Stantec Consulting Ltd. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Unfreed, W.J. 1997. Continuing inventory: heritage resources impact assessment Kennecott Diavik Property. Fedirchuk McCullough & Associates Ltd. Consultant's report on file, Prince of Wales Northern Heritage Centre. Yellowknife.
- Webster, C. 2004. Cumberland Resources Ltd. Meadowbank Gold Project Baseline Archaeological Report Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.
- Wright, J.V. 1981. Prehistory of the Canadian Shield. In *Handbook of North American Indians*, Vol. VI. Subarctic, pp. 86-96. Smithsonian Institution. Washington.

# **MEADOWBANK 2013 EXPLORATION STUDIES**

Error! No text of specified style in document.: Error! No text of specified style in document.