



**DRAFT ENVIRONMENTAL BASELINE STUDIES  
2005 STUDY PLANS**

**CHAPTER 14. CULTURAL RESOURCES**

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# TABLE OF CONTENTS

TABLE OF CONTENTS.....	14-i
ACRONYMS.....	14-ii
14. CULTURAL RESOURCES.....	14-1
14.1 Objectives of Study .....	14-1
14.2 Proposed Study Plan.....	14-1
14.2.1 Study Area/Scope .....	14-1
14.2.2 Methods/Approach .....	14-1
14.2.3 Major Tasks/Activities .....	14-2
14.2.3.1 Task 1. Literature Review .....	14-2
14.2.3.2 Task 2. Consultation.....	14-3
14.2.3.3 Task 3. Field Work — Mine Area.....	14-3
14.2.3.4 Task 4. Assessment of Information.....	14-3
14.2.3.5 Task 5. Field Work — Road and Port .....	14-4
14.3 Deliverables .....	14-4
14.4 Schedule.....	14-4

## ACRONYMS

AASHTO	American Association of State and Highway Transportation Officials
ABA	acid base accounting
ACHP	Advisory Council on Historic Preservation
ACLS	alternative cleanup levels
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
agl	above ground level
AHRS	Alaska Heritage Resource Survey
APE	area of potential effect
ARD/ML	acid rock leaching/metal leaching
ASCI	Alaska Stream Condition Index
BEESC	Bristol Environmental & Engineering Services Corporation
BMR	baseline monitoring report
CAD	computer-aided drafting
CC	comprehensive stations with continuous stage monitoring
CH2M	CH2M HILL, Inc.
CIR	color infrared
CWOC	comprehensive stations without continuous stage monitoring
DECD	Alaska Department of Economic and Community Development
DEM	digital elevation model
DNR	State of Alaska Department of Natural Resources
DO	dissolved oxygen
DOT&PF	State of Alaska Department of Transportation & Public Facilities
DQOs	data quality objectives
EC	environmental consequences
EIS	environmental impact statement
EPA	Environmental Protection Agency
EBD	environmental baseline document
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FSP	field sampling plan
GIS	geographic information system
GPS	global positioning system
HGM	hydrogeomorphic

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IM	initial monitoring station
LDN	Land Design North
LDNPP	Lake Clark National Park and Preserve
mg/L	milligrams per liter
mm	millimeters
MRLs	method reporting limits
NDM	Northern Dynasty Mines Inc.
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic & Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
ORP	oxidation reduction potential
PJD	preliminary jurisdictional determination
PSD	prevention of significant deterioration
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
SHPO	State Historic Preservation Officer
SOPs	standard operating procedures
SRB&A	Stephen R. Braund & Associates
SWANCC	Solid Waste Agency of Northern Cook County v. U.S. Army Corp of Engineers
SWE	snow-water equivalent
TIN	triangulated irregular network
TPH	total petroleum hydrocarbons
USACE	United States Army Corp of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WMP	water monitoring plan



## 14. CULTURAL RESOURCES

The objectives, methods/approach, and deliverables for each of the mine site, transportation and utility corridor, and port areas are the same except where noted below. SRB&A will lead cultural resources work on all three of these areas.

### 14.1 Objectives of Study

The objectives of the cultural resources component of this project are twofold:

- To locate, identify, delineate, inventory, and assess the eligibility of archaeological, historical, ethnographic, and traditional cultural properties in the project area for inclusion on the National Register of Historic Places (NRHP) and the Alaska Heritage Resource Survey (AHRS)
- To provide the necessary information for project permitting.

### 14.2 Proposed Study Plan

#### 14.2.1 Study Area/Scope

The study area will include the general vicinity of the mine site, transportation and utility corridor, and port and will follow the definition of area of potential effect (APE) set forth in 36 CFR Part 800 (Sec. 800.16(d)). An APE is defined as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.”

The mine site will include the proposed open pit, mill site, mine rock piles and tailings impoundment(s), and associated site infrastructure. The 2005 cultural resources field season will include the unsurveyed (in 2004) portions of the mine site including revised components of the most recent mine-development concepts, tailings impoundments, and associated site infrastructure as necessary.

For the transportation and utility corridor and the port segment of the study, the proposed port facility and the laydown area adjacent to the port facility for at least a quarter mile will comprise the second study area as the locations of those components are more clearly delineated by NDM. The 2005 cultural resources field season will include the port site, but not the transportation and utility corridor until such time as these alternatives are defined and right-of-way centerlines are surveyed and staked.

#### 14.2.2 Methods/Approach

Cultural resources may include historic structures and landscapes, prehistoric and historic archaeological sites, and traditional- and religious-use areas. Once located in the field and identified, the extent of these resources will be determined and delineated where practicable. When investigations of portions of the project area are complete, any discovered sites will be inventoried and recorded. The sites will be documented and assessed as to their eligibility for the AHRS and the NRHP. Recommendations for mitigation of impacts to cultural resources may be made as necessary.

The approach to identifying and assessing impacts on cultural resources for the Pebble Project area will rely on methods outlined in:

- Section 106 of the National Historic Preservation Act (NHPA) (16 USC 470),
- The NHPA's implementing regulations by the Advisory Council on Historic Preservation (36 CFR 800),
- The Alaska Historic Preservation Act (41.35.240), and
- The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (as amended and annotated) (48 FR 44716).

Other relevant legislation applicable to cultural resources includes, but is not limited to:

- The Antiquities Act of 1906 (16 USC 431 et seq.).
- The Archaeological Resources Protection Act of 1979 (ARPA) (16 USC 470 et seq.).
- The Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001-3013).

### 14.2.3 Major Tasks/Activities

Major tasks/activities for identifying cultural resources and assessing potential impacts on cultural resources for the Pebble Project area include:

- Planning Meetings/Work Plan. This task includes project meetings, review of project description, communication with NDM for additional project information and clarification, formulation of research designs, preparation and revision of work plans;
- A review of published and unpublished literature and the AHRS files maintained by the DNR Office of History and Archaeology;
- Consultation with interested state and federal agencies, Native organizations, and other parties;
- Field survey and testing; and
- Evaluation of data and proposed facilities to assess potential adverse impacts and alternative mitigative strategies.

These tasks are described below.

#### 14.2.3.1 Task 1. Literature Review

Historic, ethnographic, and archaeological accounts of the region will be reviewed to document prehistoric, historic, and recent cultural uses of the mine site, transportation and utility corridor, and port areas. Historic and ethnographic accounts should give indications of land use through time in the project areas and may include locations and descriptions of potentially important historic and prehistoric cultural sites and landscapes. Consultation of the AHRS database and review of the archaeological literature on file at the Office of History and Archaeology should provide specific information on previous archaeological research in the area. Aerial and satellite photographs will be used to determine the location of any visible surface features such as structures, caribou drive lines, corrals, and house and cache pits.

These data will be critically reviewed and compiled into an historical and ethnographic narrative describing the human presence in the project areas and an inventory of archaeological, ethnographic, and historical sites in the area of the proposed project. This preliminary compilation will be used to define the field research strategies. It also will be used in the engineering alternatives analysis to minimize potential impacts to cultural resources by guiding NDM's routing and location of proposed facilities. This preliminary report also will be the basis for the final environmental baseline and Section 106 report, which will include the results of the field survey and site nomination forms for cultural resources in the project area that are determined to be eligible for listing on the National Register.

#### **14.2.3.2 Task 2. Consultation**

Before and during field research, consultation on behalf of NDM will be ongoing with relevant state, federal, and tribal entities. The State Historic Preservation Officer (SHPO) issues field archaeology permits and manages the database of known cultural resource sites for the State of Alaska and is the first contact for many federal cultural resource issues depending on a variety of potential factors, including land ownership, funding, surface and subsurface estate, and trust relationships with Tribal entities.

#### **14.2.3.3 Task 3. Field Work — Mine Area**

The valley that will contain the proposed Pebble Project mine pit and associated facilities was the first area surveyed in the summer of 2004. Intensive survey coverage for this area will be completed, including a systematic pedestrian survey using multiple surveyors walking transects — thus covering most of the area — and frequent subsurface testing in high probability areas. The expanded area of the proposed pit and the new alternatives for various project components will be surveyed during the 2005 summer field season. The project team will examine the terrain for surface irregularities and vegetation changes that would indicate the presence of buried cultural remains. Surface features, such as depressions that may represent a former house pit or berms that may indicate the presence of a former habitation wall, all provide surface indications of potential archaeological resources. Field crews will examine elevated terrain, ridge lines, rock formations and grottoes, benches, relict shorelines of lakes and streams, stream crossings, and areas close to fresh water sources more carefully than areas with less archaeological potential, such as boggy low-lying areas. Erosional and other subsurface exposures will be examined for the presence of archaeological materials. Additional test pits may be excavated where there are indications of soil accumulation or possible cultural deposits.

#### **14.2.3.4 Task 4. Assessment of Information**

Following field work and processing of field and published data, the project's environmental effects on cultural resources during construction, operation, and closure at the mine site, the transportation and utility corridor, and the port site will be assessed and documented. Subsequently, consultation with SHPO and the Advisory Council on Historic Preservation (ACHP) will be done as necessary to address issues of site management and preservation where possible, as well as mitigation strategies should preservation not be feasible. Recommendations will be made for any ongoing monitoring studies needed to ensure compliance with all state and federal permitting requirements following this consultation.

This task is iterative with Tasks 1 and 3, as a preliminary assessment of cultural resources will be required for assessment of the engineering alternatives for siting facilities.

#### 14.2.3.5 Task 5. Field Work — Road and Port

Once proposed road and power line centerlines are staked, an archaeology field crew may proceed to the field to perform pedestrian and subsurface testing as warranted. A pedestrian transect survey will be completed from the mine site along the centerlines, examining the rights of way themselves and the peripheral area outside the right of ways for potential cultural resources. Subsurface testing will also be performed along the proposed rights of way and at proposed gravel source locations.

The port site, when selected, will likely require intensive pedestrian survey and numerous test pits, as locations along Cook Inlet are the highest probability areas of all project sections for cultural deposits and historic resources.

### 14.3 Deliverables

- 2004 Progress Report.
- 2005 Study Plan
- Consultation letters as needed with SHPO/agencies/tribes (for mine site and port site, not the transportation and utility corridor at this time). Mine-site work will continue and port/laydown area work will be initiated. Work along the proposed transportation and utility corridor may be initiated as alternatives are solidified and if right-of-way centerlines are staked as necessary for the completion of field work.
- Internal Cultural Resources Preliminary Report: literature review and recommendations providing input regarding known cultural resources based on AHRS review (mine site, transportation and utility corridor, and port).
- Recommendations for mitigation of potential effects to cultural resources as necessary.
- Section 106 report for the 2005 field season: includes literature review, field survey, and consultation results and determinations of eligibility if cultural resources are identified in the study area/areas of potential effect (mine site/port and laydown areas only).
- Consultation follow-up letters.
- Initial Environmental Evaluation.

### 14.4 Schedule

Field work commenced in June of 2004 in the area of the proposed mine pit and some project components from alternatives G/J3 and A4. During the summer of 2005, SRB&A proposes to survey the tailings impoundment(s) and associated storage facilities and those areas and components which may have changed as the location information becomes available and in consultation with NDM. Field surveys may be initiated as component locations are identified, staked, surveyed, or mapped. Port and lay-down area surveys will be conducted during the summer of 2005, not including the existing road from Williamsport to Pile Bay. If the road centerline is finalized by mid-July, the proposed centerline survey may be conducted and may continue through the end of field operations. In the event that prehistoric or historic

properties are discovered, more field time will be required to delineate and document those properties as required under state and federal laws.