Appendix V5-10E

Hope Bay Belt Project: 2010 Marine Fish and Fish Habitat Baseline

MAC RESOURCES

Hope Bay Mining Limited

HOPE BAY BELT PROJECT
2010 Marine Fish and Fish Habitat Baseline Report

NEWMONT™
NORTH AMERICA

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April 2011

HOPE BAY BELT PROJECT

2010 MARINE FISH AND FISH HABITAT BASELINE REPORT

April 2011
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Prepared for:

NEWMONT™
NORTH AMERICA

Hope Bay Mining Limited

Prepared by:

Rescan™
Engineers and Scientists

Rescan™ Environmental Services Ltd.
Vancouver, British Columbia

Executive Summary

Rescan™
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Executive Summary

This report describes the results of baseline studies of marine fish and fish habitat for the Hope Bay Belt Project that were conducted in 2010 by Rescan Environmental Services Ltd. (Rescan) in 2010, on behalf of Hope Bay Mining Ltd. (HBML). The Hope Bay Belt Property is located approximately 125 km southwest of Cambridge Bay, Nunavut, on the south shore of Melville Sound.

The purpose of the studies was to support future Phase 2 development in the belt by providing baseline data that will be required for environmental impact assessment, permitting and environmental monitoring. There were two specific objectives:

- collect baseline data on fish habitat, fish community, and macrobenthos community in the nearshore zones of five potential marine ports (P1, P2, P3, P4 and P5) on the western shore of Roberts Bay and at one reference site (REF) in Reference Bay; and
- assess the potential effect of infrastructure development on fish movement and habitat use along the western shore of Roberts Bay through the use of stationary trap nets and mark-recapture techniques.

Visual shoreline surveys showed that the nearshore substrates of sites P2 and P4 are dominated by fine sediments, the substrates of site P3 and REF are dominated by gravel, and that site P5 is dominated by bedrock. (Site P1 had already been surveyed in 2009.) Hydroacoustic surveys of deeper, offshore substrate showed it to be dominated by fine sediments at all sites. With the exception of P5, all of the proposed infrastructure will be built mainly on fine sediments.

Fish communities were sampled in late July and early August (the early period) and late August and early September (the late period) using a combination of floating and sinking gillnets, long lines, beach seines, minnow traps and crab traps. A total of 683 fish from 16 different taxa were caught. Fourhorn sculpin was the most abundant species, accounting for 42% of the total catch, and was present at all six sites during both sampling periods. Other species of importance included Pacific herring, Arctic char, saffron cod, and Greenland cod. Sites REF and P3 had the highest total abundance of fish, and site P5 had the lowest. The species composition at site P5 was dissimilar to those of the other five sites, most likely because of its different littoral habitat – steep and rocky. Catch-per-unit-effort decreased from early to late sampling periods.

Four trap nets were installed along the western shore of Roberts Bay between July 30 and September 16. They caught a total of 919 fish of which 278, including Arctic char, lake trout, and saffron cod, were tagged. Only two of those fish being recaptured, which was a recapture rate of less than 1%. This suggests that most of those species do not use the nearshore zone as a primary migration corridor. However, a relatively high number of Greenland cod (46) with clipped pelvic fins were caught. Since pelvic fins were the primary ageing structure taken from fish caught at the five infrastructure sites in 2010, this suggests that Greenland cod may use nearshore habitat to a greater extent than other species.

Eight taxa of macrobenthos were captured in crab traps, including Amphipoda, Ophiuroidea, Decapoda, Isopoda, Bivalvia, Echinoidea, Gastropoda, and Asteroidea. Sea urchins (Echinoidea) were the most abundant taxon and were present at all sampling sites except for P1. Sea snails (Gastropoda) were observed in slightly lower numbers, but were present at all sampling sites. Site P1 had the lowest abundance of macrobenthos and its community composition was different from that of all other sites, most likely a result of its shallow depth. In contrast, sites P4 and P5, which have adjacent deep water habitat, have the highest abundances of macrobenthos.

Acknowledgements

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HOPE BAY BELT PROJECT
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1. Introduction

1. Introduction

The Hope Bay Belt Property is located approximately 125 km southwest of Cambridge Bay, Nunavut, on the south shore of Melville Sound (Figure 1-1). The nearest communities are Omingmaktok (75 km to the southwest of the property), Cambridge Bay, and Kingaok (Bathurst Inlet; 160 km to the southwest of the property).

The property consists of a greenstone belt running in a north/south direction, approximately 80 km long, with three main gold deposit areas. The Doris and Madrid deposits are located in the northern portion of the belt, and the Boston deposit is located in the southern end. The northern portion of the property consists of several watershed systems that drain into Roberts Bay, and a large river (Koignuk River) that drains into Hope Bay. Watersheds in the southern portion of the belt ultimately drain into the upper Koignuk, which drains into Hope Bay.

Hope Bay Mining Limited (HBML) is proceeding with the development of the Doris North Project. Required licences and permits are in place for the development of the Doris North Gold Mine, and construction of the project commenced in 2010.

HBML plans to develop additional deposits in the belt, and planning for this Phase 2 Project development has commenced. Baseline studies to support the permitting of the Phase 2 Project were carried out in 2009, and were continued in 2010. The environmental baseline program conducted in 2010 was intended to fill in information gaps in order to support the permitting process for the Phase 2 Project. The site layout options considered for the entire belt 2010 Phase 2 environmental baseline program are shown in Figure 1-2, and the site layout options considered for Roberts Bay are shown in Figure 1-3. Note that the five potential ports shown in Figure 1-3 each consist of an outer containment structure, identified as a “Barge Port” or a “Deep Water Port” in the legend, that are shown in dark brown or purple, respectively, and an inner fill area, either “Barge Port Fill” or “Deep Water Port Fill”, that are shown in light brown or blue, respectively.

Results from the 2010 Phase 2 Project environmental baseline program are being reported in a series of reports, as follows:

- 2010 Hydrology Baseline Report
- 2010 Freshwater Baseline Report
- 2010 Freshwater Fish and Fish Habitat Baseline Report
- 2010 Marine Baseline Report
- 2010 Marine Fish and Fish Habitat Baseline Report
- 2010 Terrain and Soils Baseline Report
- 2010 Country Foods Baseline Report
- 2010 Ecosystems and Vegetation Baseline Report
- 2010 Marine Wildlife Baseline Report

In addition, numerous reports are being produced as part of the Doris North Project compliance requirements, and many of these reports cover the geographical areas of the proposed Phase 2 Project.

Figure 1-1

Hope Bay Belt Project Location

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PROJECT # **1009-002-17** GIS # **HB-15-038** *February 1, 2011*

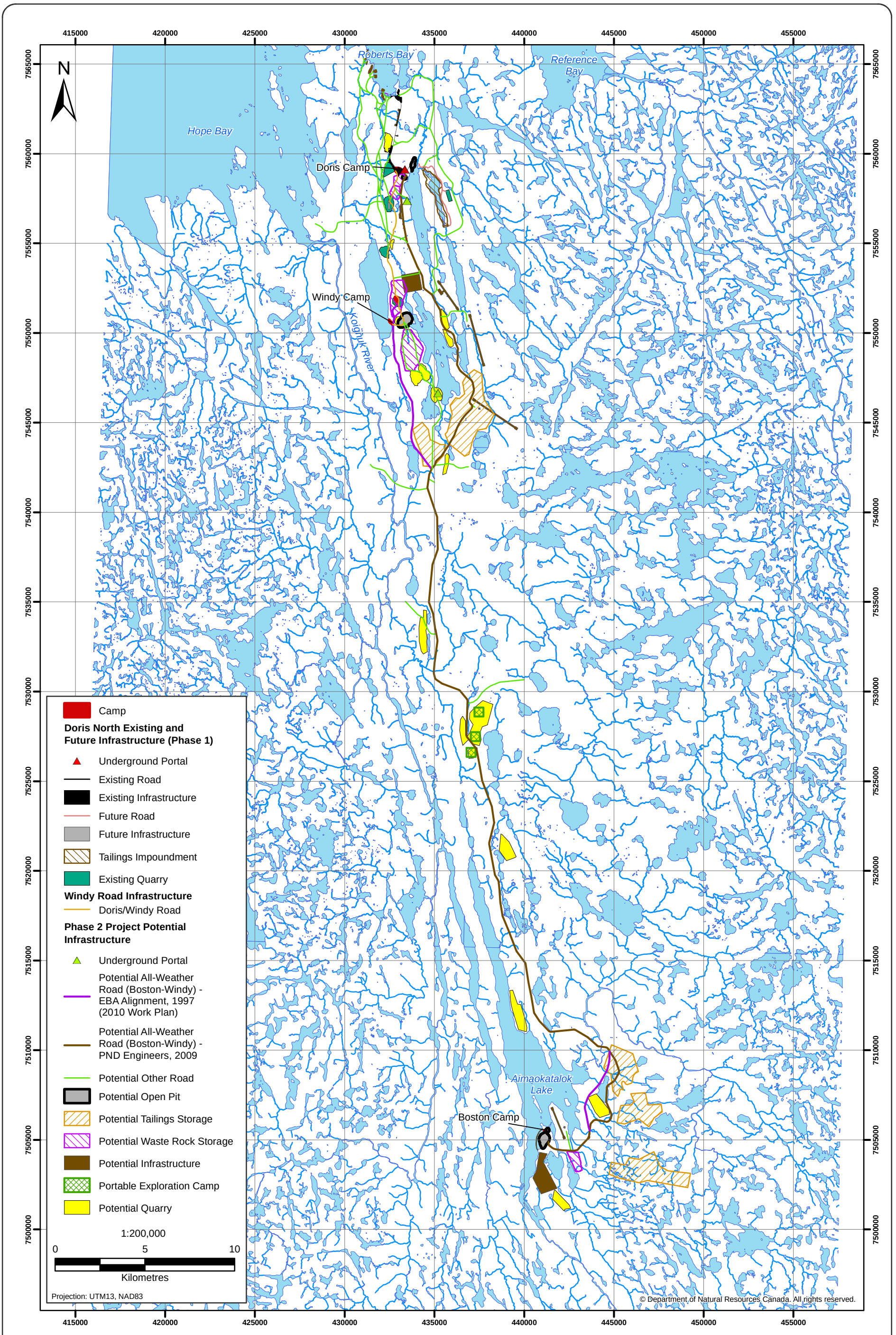

Figure 1-2

NEWMONT NORTH AMERICA

Site Layout Options Considered for Phase 2 Baseline Program, 2010

Figure 1-2

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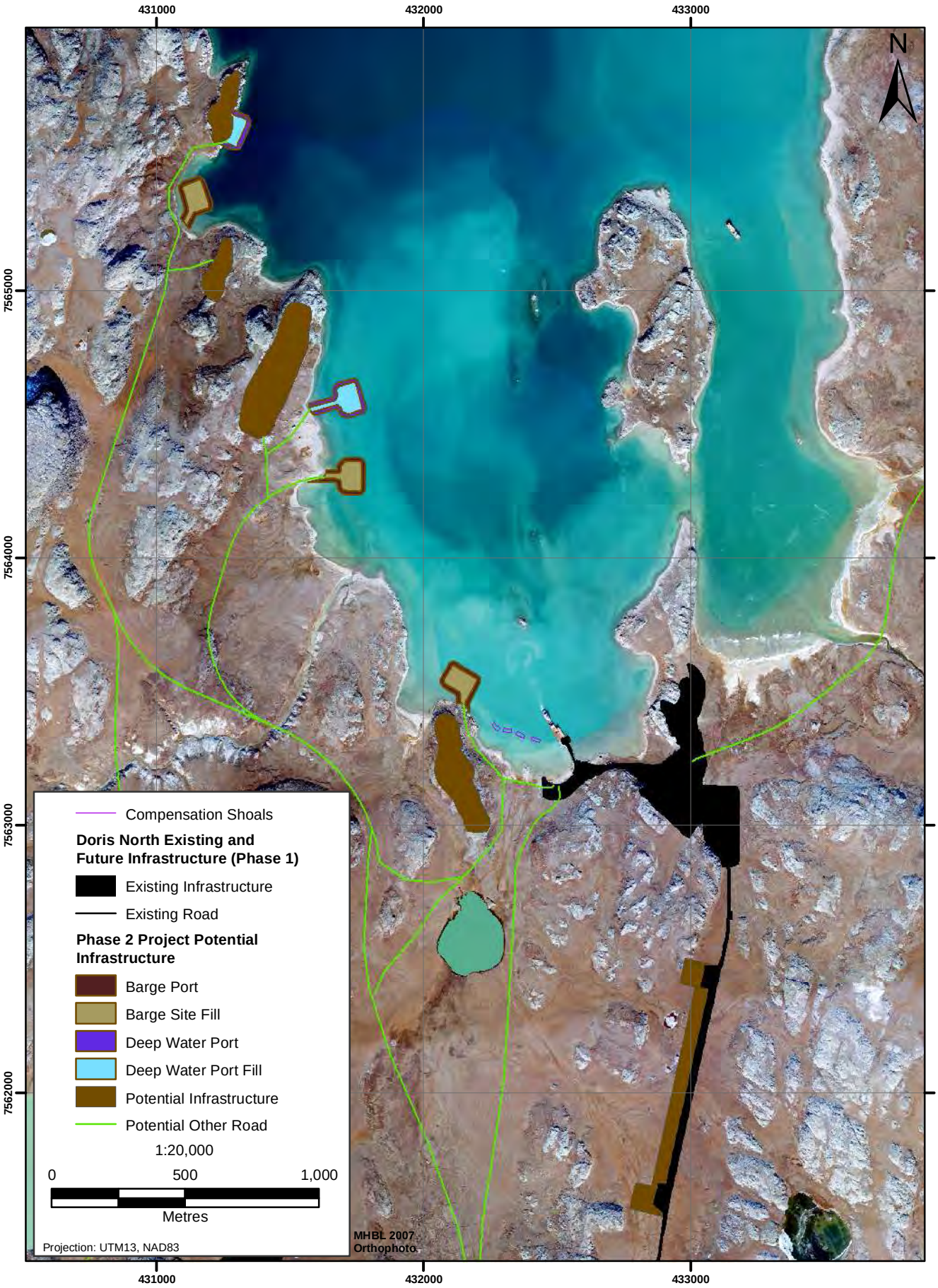

Figure 1-3

Roberts Bay Site Layout Options Considered for Phase 2 Baseline Program, 2010

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Examples of Doris North Project compliance reports generated in 2010 that are relevant to the proposed Phase 2 Project include:

- 2010 Meteorology Compliance Report, Doris North Project
- 2010 Hydrology Compliance Report, Doris North Project
- 2010 Roberts Bay Jetty Fisheries Authorization Monitoring Report, Doris North Project
- 2010 Doris Mine Site Fisheries Authorization Monitoring Report, Doris North Project
- 2010 Wildlife Mitigation and Monitoring Report, Doris North Project
- 2010 Wildlife DNA Study, Doris North Project
- 2010 Air Quality Compliance Reports, Doris North Project
- 2010 Aquatic Effects Monitoring Program Report, Doris North Project

Archaeology work was also conducted in 2010 and is being reported separately.

This report presents the results from the Marine Fish and Fish Habitat Baseline portion of the 2010 Phase 2 environmental baseline program. The objectives of this program were to collect and report baseline data on the fish habitat, fish community, and macrobenthos community at five potential marine infrastructure sites and one reference site. The potential impacts of infrastructure development on fish movement and habitat use were also assessed along the western shore of Roberts Bay using stationary trap nets.

2. Methods