Telus Tower North
5th Floor, 10025 Jasper Avenue
Edmonton, AB
T5J 1S6
Tel: (780) 497-3862
Fax: (780) 497-3842

PWGSC Northern Contaminated Site Group

Memo

To: Bob Martin

From: Brad Thompson

CC:

Date: January 13, 2006

Re: FOX-C Site Observations and Agreements

Attendees: Bob Martin, Indian and Northern Affairs Canada (INAC)
Brad Thompson, Public Work and Government Services Canada (PWGSC)
Lyndon Kivi, Department of Fisheries and Oceans (DFO)
Mathew Akavak, Qikiqtani Inuit Association (QIA), Iqaluit
Loasie Audlakiah Qikiqtani Inuit Association(QIA), Qikiqtarjuaq
Greg Johnson (Qikiqtaaluk Corporation)

On September 1, 2005 a site inspection was completed at the former FOX-C DEW Line site and surrounding area, to review elements of the remediation plan. Attendees included community representatives, regulatory authorities, and the remediation contractor. Areas specifically looked at included the beach (following the unloading of the remediation equipment), the rivers and barrels located within it, and areas where remediation efforts occur on Inuit-owned land. Additional details regarding the site inspection are provided below.

BEACH UNLOADING AREA

The sea-lift containing the first shipment of remediation equipment and supplies was unloaded on August 26 and 27, 2005. At that time, extremely wet conditions were encountered at the site which hindered the unloading process and resulted in some soil rutting within the active layer.

Photo 1: Aerial view of unloaded equipment. Note vehicle rutting resulting from extremely soft soil conditions leading from the beach.

Photo 2: Soil conditions near beach unloading area.

INAC and PWGSC recognize the importance of remediating the site. Prior to QC leaving the site, the disturbed area of the beach was back-bladed and smoothed out. For work completed adjacent to, or extending into the water, DFO stipulated that activities cannot occur between August 7 to September 7. Outside of this time period,

remedial activities should only be conducted during low tide. There is no work at the FOX-C beach area which is expected to extend into the water.

Barreled fuel was unloaded within 30 m of the high water mark; however, these barrels were moved back to a safe distance from the shoreline prior to the contractor demobilizing from the site for this year.

Photo 3: Fuel barrels unloaded from sealift. These have since been moved back from the high-water mark

RIVER AND BEACH BARRELS

Clean up of barrels located adjacent to and within the river connecting the freshwater lake to the fiord was discussed.

Photo 4: Barrels located along river between water lake and the fiord.

The proposed remediation approach outlined by the contractor was to:

- Inspect all barrels located near or adjacent to the waterway for the presence of petroleum products. If petroleum products are identified within the barrels, special procedures for pumping out the barrel will be implemented prior to removing the barrel
- Once the it is confirmed that the barrel does not contain any petroleum products, they will be approached using all-terrain vehicles (ATVs) and loaded into trailers connected to the ATVs.
- If barrels are partially buried, the barrels will be removed using a winch attached to the ATV.

For barrels on the west side of the river, DFO acknowledged that the river at shallow locations could be traversed by ATVs. However, to minimize any risk to fish or fish habitat in the river, barrel removal activities will not be permitted between August 7 and September 7. During this period the char may be migrating up the river.

ACTIVITIES ON INUIT OWNED LAND

Camp Construction

An inspection of the general area was completed to identify a location that was large enough for the camp, relatively level and accessible to heavy equipment. The location

which best met these criteria was the within the beach area, south of where the equipment was unloaded as shown below.

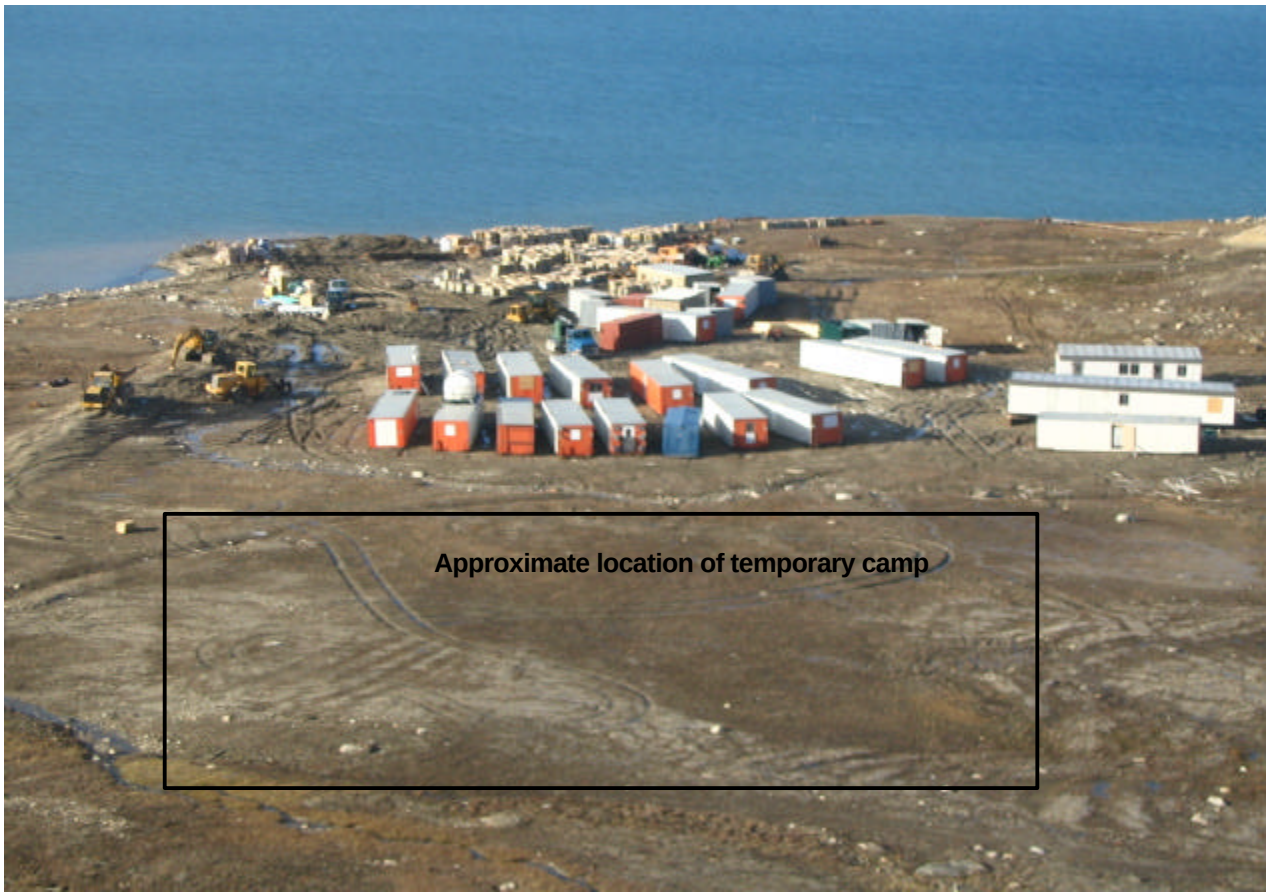


Photo 5: Location of temporary camp.

It was determined that a granular pad would have to be constructed before moving the camp trailers into this area in order to meet the regulatory requirements described in QIA Certificate of Exemption (Q05XX17) and the Land Use Permit (N2005X0009).

In order to begin construction of the granular pad, some road repair and culvert installations were required to access borrow source #3 to obtain the necessary material. These activities are described in greater detail below.

Road Repairs

Since the site has been abandoned for over 40 years, significant degradation of the roadways has occurred. In order to facilitate the remediation activities, these roads will have to be restored. Every attempt will be made to repair the existing roads; however, there are some locations where new roads have to be constructed, since the previous roads are beyond repair. An example of the this is the road to the Upper Site immediately after the 3-way intersection (see Photo 7). Where situations like this occur,

a new roadway will be constructed at a location to minimize new disturbance to the surrounding land.

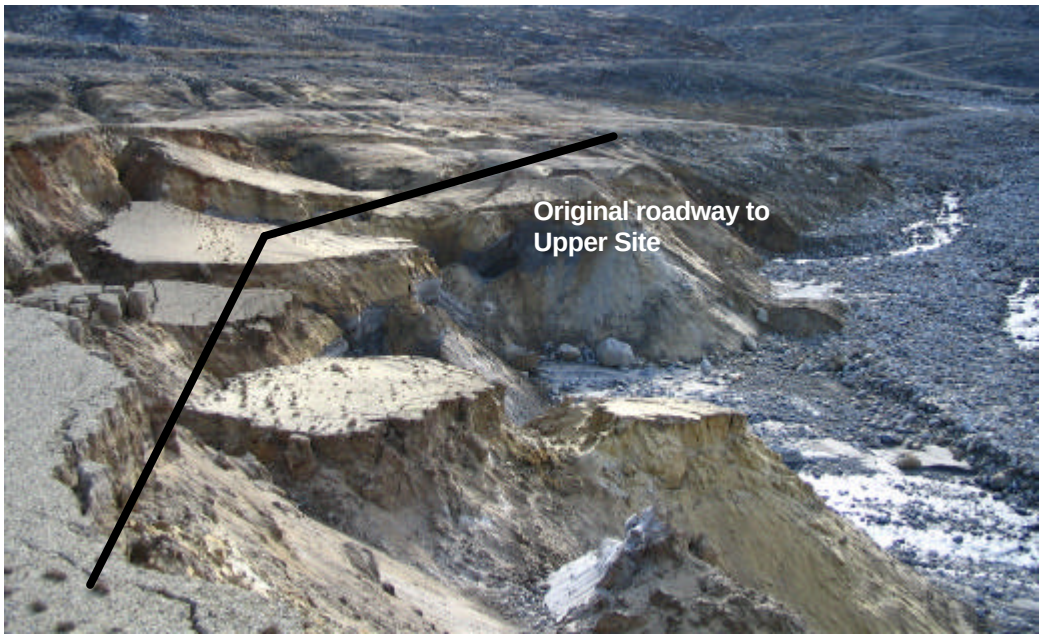


Photo 7: Road to Upper Site which is beyond repair resulting from glacial outwash and erosion of the sand.

Culvert Installation

During the operation of the DEW Line site, a number of culverts, consisting of barrels welded together, were installed to facilitate crossing of various waterways. All of these have either been washed out or been filled in with gravel and rusted through.

In most cases culverts will be replaced; however, there are a couple of major crossings where culvert installations are not feasible. At those locations, temporary bridges will be constructed over the waterway. Culverts installed during this project will be removed at the end of every season. The contractor will be developing a comprehensive road rehabilitation plan detailing exactly where culverts and bridges will be located. This plan will be forwarded to stakeholders for review.

In order to obtain granular material from borrow source #3 this year, three culverts had to be installed along the road from the beach area. They are shown on the following page.

Culvert Crossing #1

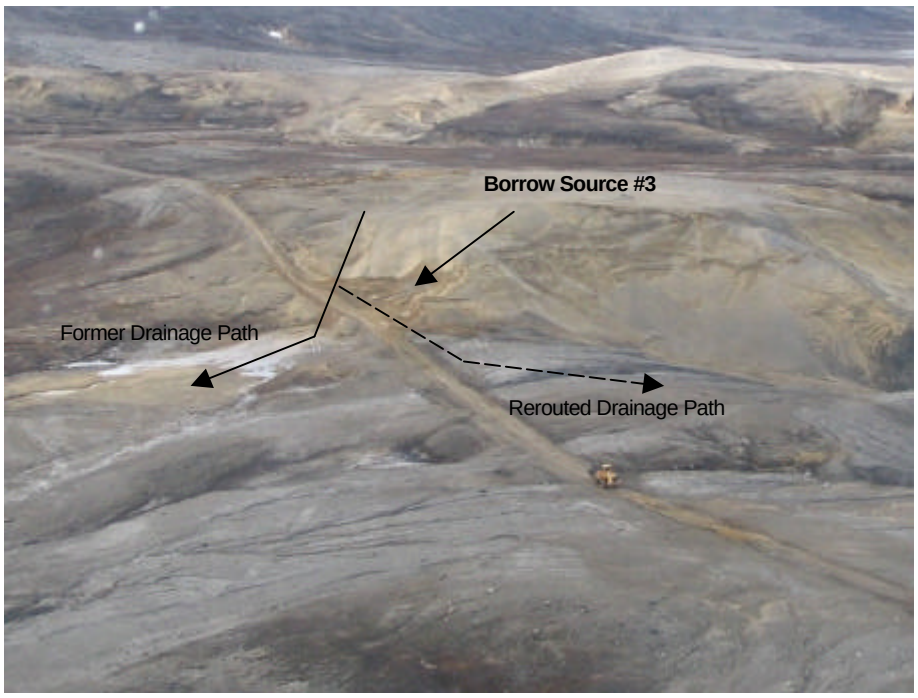
Culvert Crossing #2

Culvert Crossing #3

At the completion of this year's on-site activities, all culverts were removed from the stream crossings.

Reroute Drainage Channels

During the site visit, it was observed that the road, near borrow source #3, had been washed out from a seasonal drainage channel. Options were discussed between DFO, QIA representatives, and QC and it was decided the best way to manage the temporary drainage channel was to reroute it from draining to the northeast to draining to the west, as shown below.



Development of Borrow Sources

Development of borrow material has occurred at three locations on-site; on the south side of the road approximately half way to the upper site (borrow area 1), at the

intersection of the roads to the upper station, lake area and beach area (borrow area 2), and on the west side of the road approximately half way from the beach area (borrow area 3). As previously disturbed areas, it was agreed upon that these areas could immediately be used as borrow sources. Geotechnical investigations at the site in 2004 identified an additional four borrow sources at various locations (borrow areas 4 to 7). Please refer to the attached Figure which shows the locations of all borrow sources. Should material be required from the previously undisturbed borrow source areas, approval from the Qikiqtani Inuit Association will be obtained prior to development.

Landfill and Landfarm Construction

To complete remediation activities, two landfills and one landfarm will be constructed for the disposal of nonhazardous waste and petroleum hydrocarbon contaminated soil respectively. The landfarm will be constructed on a relatively level area between the Beach Area and the Lake Area. Hydrocarbon contaminated soil from the beach area will be transported and treated in the landfarm. Based on input from community meetings, this landfarm location was preferred.

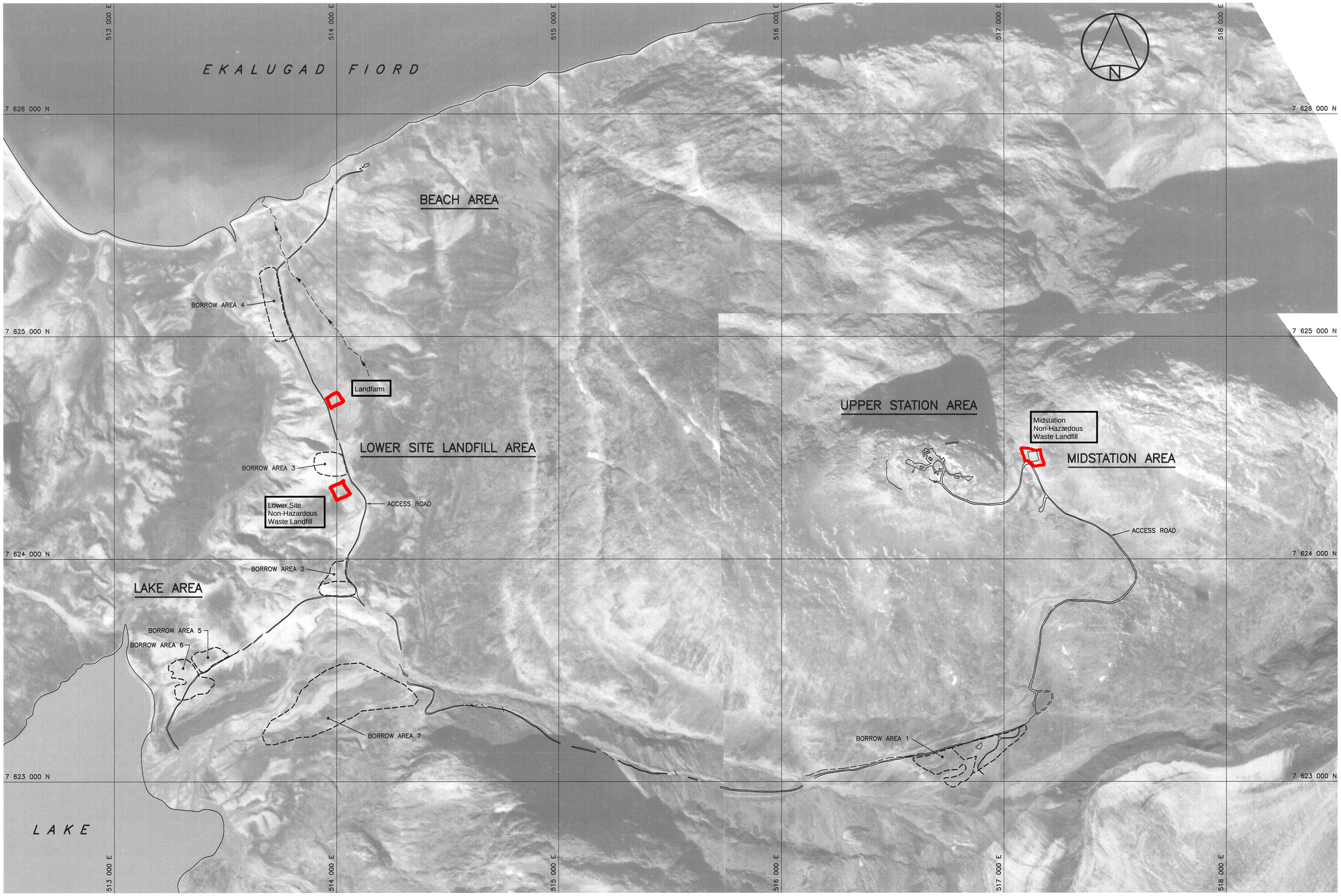
The Lower Site nonhazardous landfill will be constructed on Inuit Owned Land, south of borrow area 3, between the Lake and Area and the Beach Area. This location was preferred by the Inuit as it was the furthest away from the water supply lake. Nonhazardous waste from the Beach Area, Lake Area, and half way along the access road to the Upper Station Area will be placed in this landfill.

The second nonhazardous waste landfill will be constructed on the Midstation Pad, south of the debris area present at the Midstation Area. This landfill will be constructed within the limits of the DIAND property. Nonhazardous waste from the upper length of the access road, the Midstation area and the Upper Station Area will be disposed of in the Midstation Landfill.

Please refer to the attached Figure for the exact locations of the landfarm and landfills.

CONCLUSIONS

This memo summarizes the site conditions observed during the site inspection completed on September 1, 2005 by INAC, PWGSC, DFO, QIA, and QC. Decisions made regarding the remediation process have been documented for future use.



Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region

Client: Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada

Canada

Nunavut Regional Office
Iqaluit, Nunavut

General Notes:

1. ALL COORDINATES ARE REFERENCED TO NAD83 CSRS, UTM ZONE 19. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL, RELATIVE TO GEOID MODEL EGM96.
2. SITE PLANS AND TOPOGRAPHIC INFORMATION ARE BASED ON AIR PHOTOS AND SURVEYS. CURRENT CONDITIONS MAY NOT BE EXACTLY AS SHOWN.
3. BORROW AREA INFORMATION AND TEST PIT LOCATIONS AS SHOWN ON THE DRAWINGS HAVE BEEN PROVIDED BY EBA ENGINEERING CONSULTANTS LTD.
4. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.

Legend:

APPROXIMATE EXTENT OF BORROW AREAS

REGISTERED PROFESSIONAL ENGINEER
R.H. SCHMIDTKE
LICENSEE
N.W.T.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS and GEOPHYSICISTS OF THE NORTHWEST TERRITORIES
PERMIT NUMBER
P 007
UMA ENGINEERING LTD.

uma
An AECOM Company

REVISIONS	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	05/07/25

A detail number / number du detail
B source drawing no. / de dessin no.
C detail on drawing no. / detail sur dessin no.

project title / titre du projet
FOX-C Intermediate DEW Line Site
EKALUGAD FIORD
Site Restoration

Nunavut

drawing title / titre du dessin
OVERALL SITE PLAN

designed by / conçu par	B. FEDORAK
drawn by / dessiné par	L. VARGAS
approved by / approuvé par	R. SCHMIDTKE
PWGSC Project Manager / Administrateur de Projets TPSGC	B. THOMPSON
scale / échelle	1:7500
project no. / projet no.	413759
date	FEBRUARY, 2005
sheet / feuille	C01 OF 16

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