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BHP DIAMONDS INC HR
BHP VCR EXPLOR'N *** R REIN
*** YELLOWKNIFE

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003/010

COST OF MINE RECLAMATION QUESTIONNAIRE FOR RECLAIM VERSION 2.1 revised

Developed by
DIAND, Water Resources Division with assistance from
Steffen, Robertson and Kirsten (Canada) Inc.

MEMORANDUM

This questionnaire is designed to identify the costs associated with reclamation activities. These costs are related to the unit costs included in the cost estimation model RECLAIM. This model is being developed by the Department of Indian and Northern Affairs (DIAND) with assistance from Steffen Robertson and Kirsten.

This questionnaire was developed as a result of two regional workshops that indicated that unit costs used in the model need to be reviewed, and revised to reflect northern conditions. The purpose of this questionnaire is to allow DIAND and SRK, the model developer, to work cooperatively with Industry to develop these unit costs that are realistic for the "north" and improve model utility.

This questionnaire is intended to be comprehensive. All information received will be held in the strictest confidence. If any part of the questionnaire does not pertain to your operation, please indicate "not applicable". If you have not yet started reclamation but can provide actual operating costs for any unit costs, please include them in the questionnaire.

Unit costs will be determined on a regional basis. Our next step in this project is to redistribute the model with the revised unit costs. Your cooperation in this project is appreciated. If you have any questions or comments on this questionnaire, please contact Erik Madsen. Upon completion of this questionnaire, please return it to Erik Madsen.

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Note: model recently revised by Mr. John Brodie for DIAND

COST OF MINE RECLAMATION QUESTIONNAIRE FOR RECLAIM VERSION 2.1 revised

PART A. MINESITE DESCRIPTION AND IDENTIFICATION

Mine name: BOSTON GOLD PROJECT

Operating company: BHP MINERALS CANADA

Location: 170 KM SW CAMBRIDGE BAY, NUNAVUT

Stage of mine life: ☐ operating; ☐ closed; ☐ abandoned/reclaimed;
☒ under development

Type of mineral(s) produced: GOLD

Type of mine (check one or more): ☐ open pit; ☒ underground

Type of ore (check): ☐ oxide; ☐ sulphide; ☒ other (QUARTZ VEINS AND ALTERED
PIGMENT WITH MAJOR
DOLOMITES & MINOR
SULFIDES)

Milling (check): N/A autogenous; ☐ conventional; ☐ heap

Quantity of ore milled (annually): N/A tonnes; (total) tonnes.

Tailings pond quantity: N/A tonnes or m³

Tailings pond surface area size: N/A hectares

Heap leach pad quantity: N/A tonnes or m³

Heap leach pad surface area size: N/A hectares

Mine/waste rock pile quantity: tonnes or 40,000 m³

Mine/waste rock pile size: 4.85 hectares; m³

INCLUDES AIRSTRIP
ROADS, PAD AND
PILES

Minesite access (indicate one or more): ☒ air; ☐ sea; ☐ road

Distance to nearest service centre: 170/710 km

Name of nearest service centre: CAMBRIDGE BAY / YELLOWKNIFE

Basis for costing: ☐ mine operator; ☒ contractor

HAVE NONE OF COSTS YOU WANT EXCEPT TRANSPORT
other key mine site components which may have been omitted

PART B. UNIT COST SUMMARY

I. EARTH PLACEMENT: EXCAVATION & TRANSPORTATION

Excavation and transportation of granular materials for various activities are required during minesite reclamation.

Mine and Equipment Inventory

Have you reclaimed, or are you planning to reclaim, any part of your minesite?

☒ Yes ☒ No — NOT IN NEAR TERM BUT YES ULTIMATELY

If yes, list the type of equipment you are using to excavate and move material.

ON SITE WE HAVE A DG
 CLASS DOZER, A 1 1/2 CYD
 LOADER AND A VERY SMALL
 KUBOTA FORKLIFT/BACKHOE
 AND A REGULAR FARM
 TRACTOR FOR UNDERGROUND
 TRANSPORTATION, HAVE CRUSHERS
 AND COULD RE ASSEMBLE TO
 CRUSH & SCREEN MATERIAL.

Drilling and Blasting

In the process of drilling and blasting, "bulk" refers to blasting large quantities of rock material. "Processed" refers to bulk material that has been crushed and screened to meet engineering specifications.

(check one or more ☐ processed; ☐ bulk)

TYPE	PRIMARY SOURCE (please check)	COST
On-site quarry	☐	\$ /m ³ or \$ /tonne
Off-site quarry	☐	\$ /m ³ or \$ /tonne
Esker	☐	\$ /m ³ or \$ /tonne
Other <u>NONE</u>	☐	\$ /m ³ or \$ /tonne

Haulage to MINESITE COMPONENT

	DISTANCE	COST
Tailings Pond	_____ km	\$ /m ³ or \$ /tonne
Rock Piles	_____ km	\$ /m ³ or \$ /tonne
Pit Slopes	_____ km	\$ /m ³ or \$ /tonne
Berms	_____ km	\$ /m ³ or \$ /tonne
Dykes	_____ km	\$ /m ³ or \$ /tonne
Dams	_____ km	\$ /m ³ or \$ /tonne
Other _____	_____ km	\$ /m ³ or \$ /tonne

NO HAULAGE

**Spreading and Compacting
MINESITE COMPONENT**

COST — NO COMPACTING

Tailings Pond	\$ _____ /m ³ or \$ _____ /tonne
Rock Pile	\$ _____ /m ³ or \$ _____ /tonne
Pt Slopes	\$ _____ /m ³ or \$ _____ /tonne
Berms	\$ _____ /m ³ or \$ _____ /tonne
Dykes	\$ _____ /m ³ or \$ _____ /tonne
Dams	\$ _____ /m ³ or \$ _____ /tonne
Others <u>AIRSTRIIP</u>	\$ <u>50</u> /m ³ or \$ _____ /tonne

→ INCLUDES HAULAGE FROM PORTAL

Recontouring/Besloping — NONE ATTEMPTED

rock piles	\$ _____ /m ³	Avg. Slope height _____ m; angle _____ °
overburden and soils	\$ _____ /m ³	Avg. Slope height _____ m; angle _____ °
dams/dykes	\$ _____ /m ³	Avg. Slope height _____ m; angle _____ °

II. MINE SITE SAFETY AND STABILITY

Physical Stability

Underground

Concrete stabilization for portals, adits, bulkheads, etc.

forms required, large volumes	\$ <u>N/A</u> /m ³
forms required, small volumes	\$ _____ /m ³
no forms required, large volumes	\$ _____ /m ³
no forms required, small volumes	\$ _____ /m ³
sand or waste rock for backfill	\$ _____ /m ³
grouting	\$ _____ /m ³

Surface

Concrete stabilization for portals, adits, spillways, etc. for safety and stability:

forms required, large volumes	\$ <u>N/A</u> /m ³
forms required, small volumes	\$ _____ /m ³
no forms required, large volumes	\$ _____ /m ³
no forms required, small volumes	\$ _____ /m ³

**NO
CONCRETE
ON
SITE**

Surface or Underground Drainage

Indicate the cost of purchasing pumps and pipes for sumps or drainage ditches where no treatment is required:

pumps smaller than 6 inches diameter	\$ <u>N/A</u>
pumps greater than 6 inches diameter	\$ _____
pipes smaller than 6 inches diameter	\$ _____
pipes greater than 6 inches diameter	\$ _____

Public Safety

berms \$ _____ /m
 fences \$ _____ /m
 signs \$ _____ each
 site stability maintenance (above items) \$ _____ /yr.

N/A

III. ENVIRONMENTAL MANAGEMENT

Procedures related to environmental management are central to reclamation operations for the maintenance of the quality of the ecosystem. Please indicate the cost of decontamination, reclamation or removal procedures by volume, surface area or item. Indicate the estimated cost of the following table items (if applicable):

ITEM	COST
<u>Landscaping/Revegetation</u>	
hydroseeding on a flat surface	\$ <u>UNKNOWN</u> /ha
hydroseeding on a sloped surface	\$ <u>UNKNOWN</u> /ha
placing a vegetation blanket/mat	\$ <u>UNKNOWN</u> /ha
planting trees	\$ <u>N/A</u> /ha
planting wetland species	\$ <u>UNKNOWN</u> /ha
other habitat restorations	\$ _____ /ha
<u>Decontamination and Disposal</u>	
Equipment	
mobile equipment	\$ <u>1250</u> /tonne BY AIR
stationary equipment (hoist, crusher, grinder)	\$ <u>1250</u> /tonne
autoclave	\$ <u>N/A</u> each
Soil Material	
removing soils from site	\$ _____ /kg or \$ <u>1000</u> /m ³ BY AIR
collecting and covering soils	\$ _____ /kg or \$ _____ /m ³
covering soils in place	\$ _____ /kg or \$ _____ /m ³
<u>Decontamination</u>	
chemicals/reagents in buildings/mills	\$ <u>N/A</u> /m ³
asbestos from buildings/mills	\$ <u>N/A</u> /m ³
<u>Building Removal</u>	
tearing down wood structures	\$ <u>?</u> /m ² of floor area
burning down wood structures	\$ <u>?</u> /m ² of floor area
removing masonry material	\$ <u>N/A</u> /tonne
removing concrete material	\$ <u>N/A</u> /tonne
tearing down steel structures	\$ <u>N/A</u> /m
power plant	\$ <u>N/A</u> /tonne

07/21/98 14:38 604 883 4125
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BHP VCR EXPLORIN --- YELLOWKNIFE

Chemicals/Reagents/Fuels and Oils Removal/Disposal

remove laboratory chemicals/mill reagents \$ N/A /kg
 dispose the chemicals/reagents on site \$ N/A /kg
 remove PCB material from site \$ N/A /kg
 fuel: remove from site \$ _____ /m³ or burn on site \$ _____ /m³
 oil: remove from site \$ _____ /m³ or burn on site \$ _____ /m³
 process chemicals: remove from site \$ N/A /kg or dispose on site \$ _____ /kg
 explosives: remove from site \$ N/A /kg or dispose on site \$ _____ /kg

Inspection/Monitoring

Do you conduct annual site inspections? ☒ Yes ☐ No. If yes, what are the costs for the following items?

a visual site inspection \$ _____ each
 a survey site inspection \$ _____ each
 water quality monitoring \$ _____ /year \$ _____ /#samples
 a site inspection report \$ _____ each
 other monitoring programs _____ \$ _____ each
 (specify)

Treatment Systems - N/A

Do you have an effluent treatment plant? ☐ Yes ☒ No. BUT DO HAVE SEWAGE PLANT
 If yes, indicate the approximate cost of building an effluent treatment plant and the throughput/day.

What was the cost of constructing the plant? \$ _____ (lump sum)
 What is the maximum plant throughput/day? _____ m³/day.
 What is the average plant throughput/day? _____ m³/day.
 What is the annual cost of operating the effluent treatment plant? \$ _____ /m³

Indicate the cost of purchasing pumps and pipes for pumping contaminated surface drainage or mine water

pumps smaller than 6 inches diameter \$ N/A
 pumps greater than 6 inches diameter \$ ✓
 pipes smaller than 6 inches diameter \$ ✓
 pipes greater than 6 inches diameter \$ ✓

Neutralization/Treatment Chemicals

Indicate the approximate cost to import

treatment reagents \$ N/A /tonne
 limestone \$ ✓ /tonne
 lime \$ ✓ /tonne
 other (specify) \$ ✓ /tonne

Pumping Operations

Indicate the approximate cost to maintain pumping operations \$ _____ /month

Other Site Requirements

What is the estimated cost of the following

clearing a spillway

\$ _____ each or \$ _____ /m²

scarifying road and installing water breaks

\$ _____ /km

IV. PERSONNEL AND MOBILIZATION

Mobilization of specialized equipment to and from the mine site is important for reclamation to be initiated. Please indicate the average cost of transporting equipment by air, sea and road.

Equipment Mobilization/Demobilization

provide general description of type of equip. in order to evaluate weight

Indicate the cost of moving heavy equipment to and from the site

by road

\$ _____ per piece of equipment

or

\$ 1250 /tonne

by air

\$ 25000 per piece of equipment

or

\$ 1250 /tonne

by sea

\$ _____ per piece of equipment

or

\$ 750 /tonne

540 LOADERS, DG, 20 TANK MINETRUCKS

Personnel Mobilization/Accommodation

During reclamation, personnel must be employed, transported and accommodated. Please indicate the number of people and the cost for those numbers or items.

What is the cost of mobilizing/demobilizing a camp for 10 (number of) people

by road

\$

0

by air

\$

0

by sea

\$

0

EXISTING CAMP ON SITE
CAN BE SHRUNK AS WORK IS
COMPLETED

What is the cost of mobilizing personnel \$ 800 /person FROM YELLOWKNIFE

What is the cost of accommodating personnel? \$ 2600 person/month

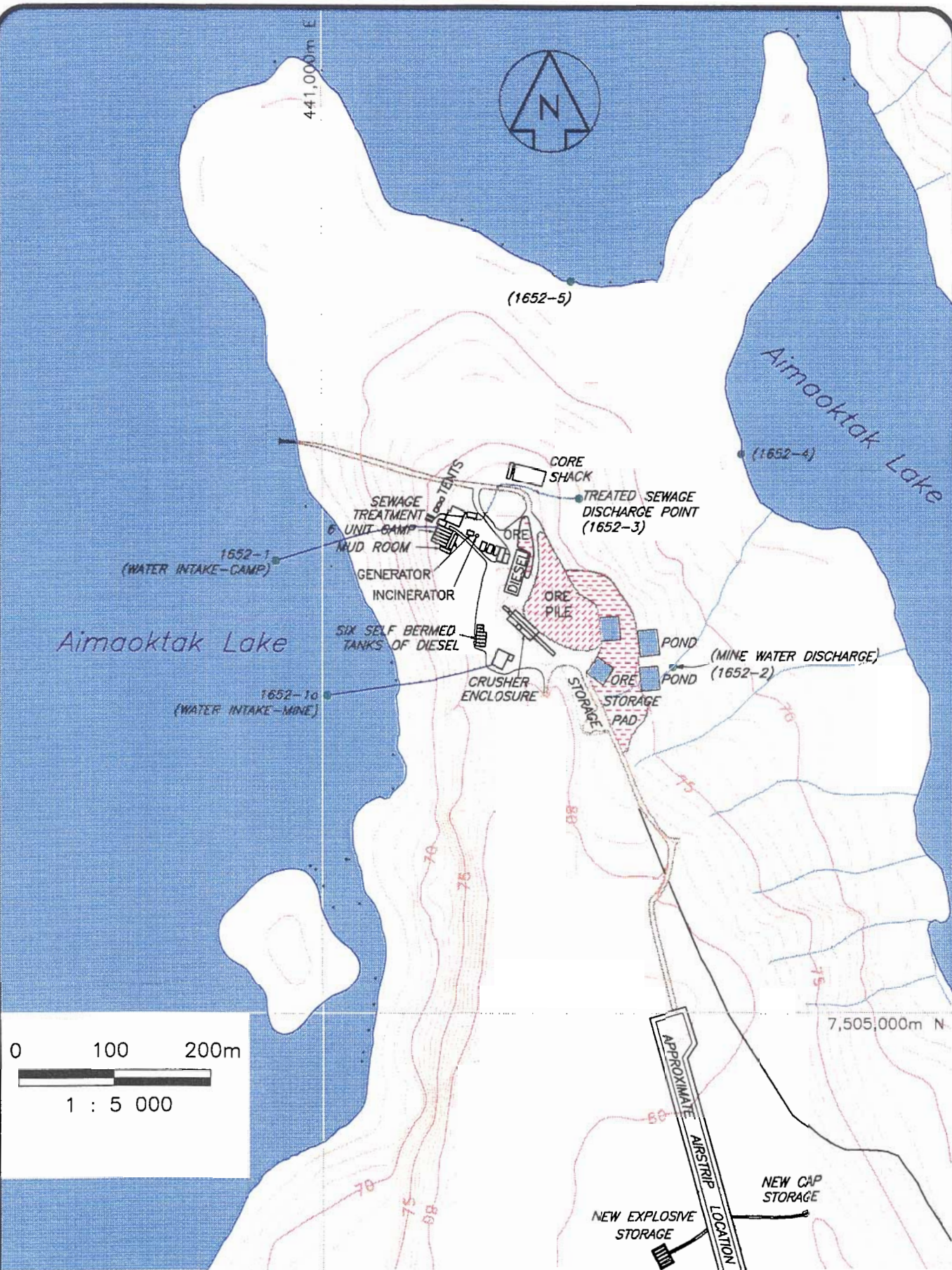
What is the cost of employing a security guard for the site? \$ N/A person/month

Supplies

What is the cost of moving other supplies \$ 8000/2600 each? TWIN OTTER TRIP
include? AIRCRAFT, FUEL, EXPIDITING

Provide color air photo if available of current development.

Submit plans - dgs. of development to date.



Boston Gold Project Site
Land Use Plan

Figure 2-1

BOSTON PROJECT SITE

Aerial Photo 1998



KIA.PPT
September 1997

Exploration
BHP Minerals