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MEMO

Polaris Mining Partnership

To: Bill Willoughby – Mine Superintendent
From: Trevor Feduniak – Mine Planning Engineer
Date: December 21, 2001
Subject: **Contaminated Soils Storage**

Below is a list of underground areas and corresponding volumes for placement of surface contaminated soils. Volume and percent fill values for the KEX Stopes were provided by Jesse Hall using MineSight. The volumes of the drifts were measured from our working drawings and the percent fill values were estimated based on our current backfilling techniques (8 yard Scoop and 950 Loader). Gartner Lee has provided the estimated volumes for both hydrocarbon and sulphide contaminated soils. The Keel Extension area has been reserved for hydrocarbon contaminated soil, all others areas will be used for sulphide contaminated material.

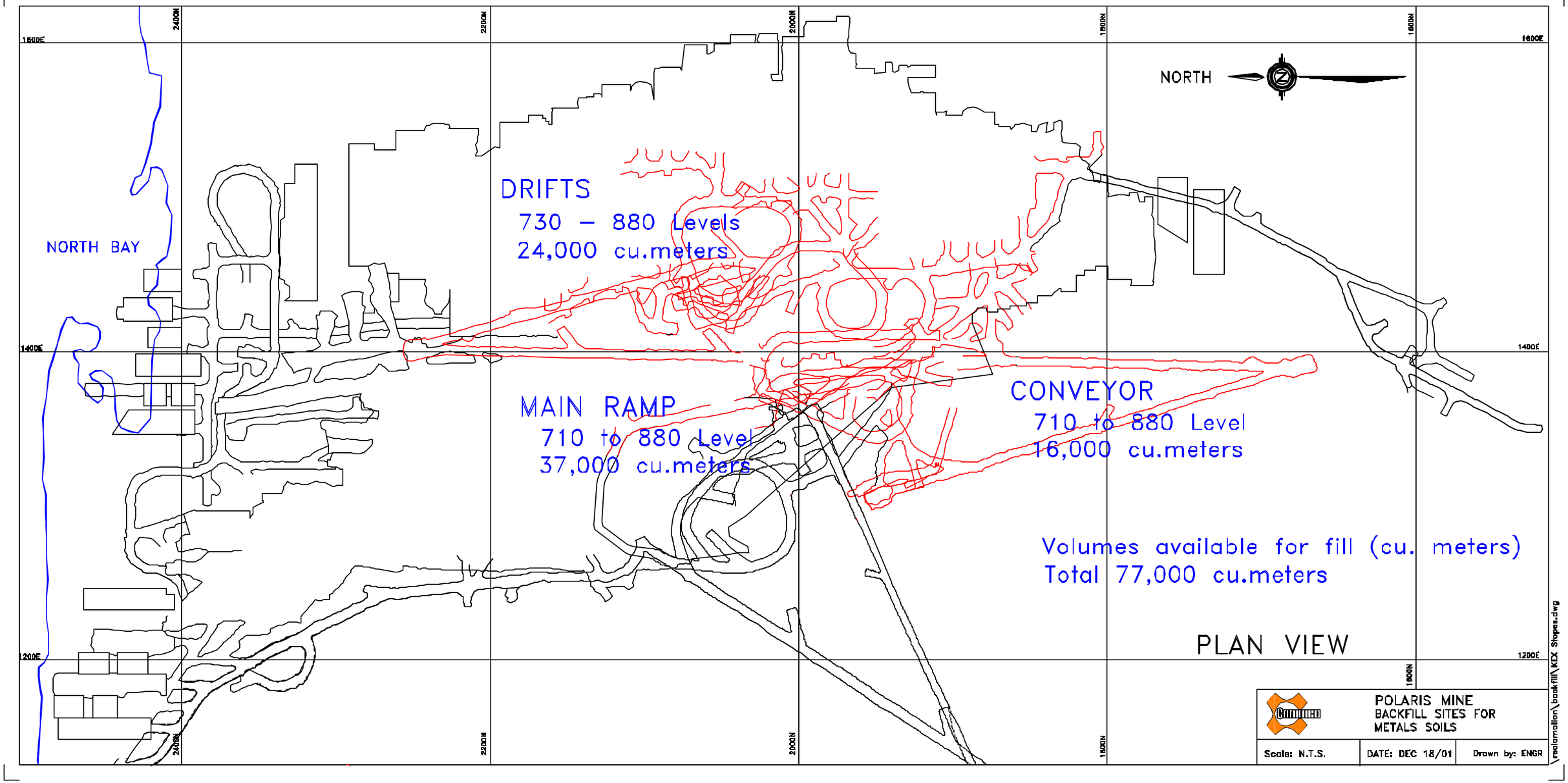
LOCATION	EXCAVATED VOLUME (m^3)	PERCENT FILL	AVAILABLE VOLUME (m^3)
KEX-1 (Stope)	23,400	75%	17,550
KEX-2 (Stope)	8,730	73%	6,373
KEX-3 (Stope)	11,340	80%	9,072
KEX-4 (Stope)	7,830	48%	3,758
TOTAL	**51,300**		**36,753**
Main Ramp (710 to 880)	41,047	90%	36,942
Conveyor (710 to 880)	26,839	60%	16,104
Misc. Drifts (730 to 880)	27,885	85%	23,702
TOTAL	**95,772**		**76,748**

CONTAMINATED SOIL	IN-SITU VOLUME (m^3)	PERCENT SWELL	REQUIRED VOLUME (m^3)
Hydrocarbons	29,200	120%	35,040
Sulphides	61,750	120%	74,100

The areas listed above will provide the necessary required storage capacity to satisfy the contaminated soil volumes provided by Gartner Lee.

Attachments:

- Plan Drawings: Depicting locations of storage areas listed above.
- Memo: Capacity for Hydrocarbon Storage in the Keel Extension – Jesse Hall.


NORTH
NORTH BAY
DRIFTS
730 – 880 Levels
24,000 cu.meters
MAIN RAMP
710 to 880 Level
37,000 cu.meters
CONVEYOR
710 to 880 Level
16,000 cu.meters
Volumes available for fill (cu. meters)
Total 77,000 cu.meters
PLAN VIEW
POLARIS MINE
BACKFILL SITES FOR
METALS SOILS
Scale: N.T.S.
DATE: DEC 18/01
Drawn by: ENGR
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NORTH BAY

B-N STOPE

C-N STOPE

H1-N

H-3

H-4

F RAMP BY-PASS

LUNCH ROOM

105 STORAGE

NORTH

E

S

W

KEX-4
3,800

KEX-3
9,100

KEX-2
6,400

KEX-1
17,500

KEEL EXTENSION STOPES

Volumes available for fill (cubic meters)
Total volume for fill = 36,800 cu.meters

PLAN VIEW

POLARIS MINE BACKFILL SITES FOR HYDROCARBON SOILS		
Scale: N.T.S.	DATE: DEC 18/01	Drawn by: ENGR

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