

Technical Memo

To:	Bill Mitchell, DIAND	Date:	October 7, 2005
cc:	Mark Liskowich (DIAND)	From:	Michael Royle, P.Geo.
Subject:	Summary of All Potential Borrows Sources on Giant Mine Lease and in near Vicinity	Project #:	1CP001.037.B2.04

1 Introduction

This memorandum summarizes the potential borrow sources identified, both on the Giant Mine site lease and in the surrounding area. The summary incorporates previous work by Golder Associates (Golder 2004a and 2004b) and a recent borrow reconnaissance by SRK in order to list all sources that could be used to supply materials for remedial works on the site. The information was compiled as part of the site-wide Giant Mine Remediation Plan.

The borrow sources are illustrated in Figure 1 and have been listed in Table 1. The table lists the requirements for the remediation work proposed, and the estimated unit rates for each of the identified potential sources. Some of these source areas would require considerable amount of work to access the materials, such as the soils beneath the current South Pond tailings impoundment. However, this material has been included in the list for completeness, and to illustrate that materials are available if considered a cost effective resource when compared to materials located further from the mine site.

2 Previous Assessments

Two assessments of borrow material were carried out in 2004 by Golder Associates to identify all available borrow sources on and near the mine site by means of site reconnaissance and air photo interpretation, and to delineate the most promising by means of a drilling program to quantify the materials. However, the on-lease assessment was not comprehensive, so an additional assessment was carried out by SRK to fulfill the original intent of the study.

3 Potential Borrow Sources

All possible borrow sources, ranging from waste rock to clays, on and around the mine lease are identified on Figure 1. Source areas identified in the Golder programs are illustrated, as well as all additional sources identified by means of recent site reconnaissance by SRK and additional site photo and a preliminary drillhole/mining record review of the site. Some of these areas will only be available as borrow once remedial works have started (e.g.: crushed rock base for the Tailings Reprocessing Plant, etc.)

The material types and estimated volumes are listed in Table 1. Field investigations (drilling or test pitting) have not been carried out on the additional borrow sites added by SRK to the potential inventory. Material types are based on surface observations. Estimated volumes for backfill material in the A1, A2, and C1 Pits are based on a comparison of available as-mined topography in the pits and the current topography. The resulting volumes are considered to be reasonably accurate. All other volumes are based on the plan area and an assumed thickness of material, and so may be significantly in error.

4 Cost Estimation

Costs for producing the borrow material from the proposed sites was estimated using simple load-haul-dump calculations. The actual haulage distances from the source area to final destination were grouped into three haulage distance categories consisting of:

- within 0.5km
- 2 to 4km; and
- 6 to 7km.

Costs for road construction have not been included in the calculation, but would likely only have a significant effect on the distant sources as all others are close to current mine roads. Revegetation costs were added to the unit costs based on a stripped area. “Best” and Worst” case costs were calculated based on using larger equipment for the best case and smaller, less efficient equipment in the worst case.

In addition to borrow sources located on the surface, estimated costs for mining overburden dumped into pits A1, A2, and C1 was also calculated (SRK 2005). The unit costs were calculated using the same load-haul-dump format, with the exception that no revegetation costs were added.

The costs estimated for the four borrow sources are presented in Table 2 below.

Table 2: Giant Mine Borrow Source Unit Costs for Tailings Cover

Borrow Sources	Destination	Average Distance (km)	Loading/Hauling Cost (\$/m ³)		Revegetation Cost (\$/m ³)		Total Cost (\$/m ³)	
			Best Case	Worst Case	Best Case	Worst Case	Best Case	Worst Case
Within 0.5 km	Central Pond	0.4	\$3.91	\$5.44	\$0.09	\$0.16	\$4.00	\$5.60
2 to 4 km	Central Pond	2.6	\$5.22	\$8.54	\$0.09	\$0.16	\$5.31	\$8.70
6 to 7 km	Central Pond	6.1	\$6.54	\$16.70	\$0.50	\$0.90	\$7.04	\$17.60
Open Pits (2 to 3.5 km)	Central Pond	2.5	\$5.62	\$8.33	\$0.00	\$0.00	\$5.62	\$8.33

Notes: Revegetation costs based on \$0.25 (best) to \$0.45 (worst) per m²
Open Pit costs are averages for the 3 pits



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References

“Air Photo Interpretation of Potential Borrow Areas North of Giant Mine”, Golder Assoc Ltd, Sept. 2004a,

“Giant Mine Borrow Investigation”, Golder Assoc Ltd, Dec 2004b,

“Open Pit – Overburden Mining”, SRK Consulting, October 2005

