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MEMORANDUM

TO: Mr. Allan Reeves
Director, Mine Planning and Operations
Tahera Diamond Corporation

Our file: 2738 (2738M001.DOC)

Date: September 30, 2005

FROM: Al Stewart, P.Eng./ Mike Scholz, P.Eng.
Email: astewart@piteau.com; mscholz@piteau.com

RE: Jericho Diamond Mine: Geotechnical Investigations and Preliminary Slope Design Criteria for the Proposed Open Pit

INTRODUCTION

Piteau Associates Engineering Ltd. (Piteau) was retained by Tahera Diamond Corporation (Tahera) to provide geotechnical consulting services in support of the Jericho Open Pit Design Review. This memorandum briefly summarizes the geotechnical field investigations and results of the office analyses, and presents preliminary interramp slope design criteria for the open pit.

Following an office review of existing information contained in previous design reports, a geotechnical investigation program was developed to address gaps in the data. The field investigation was conducted to collect data from newly excavated benches within the starter pit to provide information on rock mass competency and variability, and to assess geologic structural conditions and current bench performance. Office analyses were then conducted to compile and evaluate the field data, conduct appropriate stability analyses, and develop preliminary slope design criteria for the open pit.

Field investigations were carried out by Alan Stewart and Mike Scholz of Piteau. Mr. Stewart was on site on August 31 and September 1, 2005, and Mr. Scholz was on site between August 31 and September 7, 2005.

FIELD INVESTIGATIONS

Continuous geologic structural cell mapping was conducted about every 10m along existing bench faces in the starter pit, nearby rock outcrops and the C1 Diversion channel, for a total of 86 cells. Bench documentation was carried out at the same time to assess rock mass conditions and bench performance. About 258m of core from geotechnical drillhole SRK99-003 was geomechanically logged.

ANALYSIS

Data Compilation and Processing

Geomechanical logging data from drillholes SRK99-001 through to SRK99-006 were compiled and the rock mass was classified using the Rock Mass Rating (RMR) system. Bench documentation data were compiled and also used to classify the rock mass. Structural cell mapping data were compiled into a database and stereographic projections of the data were prepared. Assessments of a number of different discontinuity parameters relating to joint roughness, number, spacing and continuity of structures were conducted. Shear strength properties were also evaluated.

Structural Analysis

Detailed structural analysis of the surface cell mapping data led to the delineation of three preliminary structural domains based on lithology and location relative to the major NNW trending diabase dyke on the east side of the pit. Distinct structural differences were evident between the granite rock and the diabase dyke, and in the granite itself on either side of the diabase dyke. Consequently, the granite was subdivided into two structural domains designated Granite (West of Diabase Dyke) and Granite (East of Diabase Dyke). The diabase dyke was designated as its own structural domain.

Kinematic Analyses

At the Jericho Mine, the rocks are generally of sufficient intact strength and competency that bench and interramp stability will primarily be controlled by geologic structure rather than by the strength of the rock mass. Kinematic analyses were conducted to identify possible structurally controlled failure mechanisms that could occur on individual benches and interramp slopes.

To encompass the wide range of possible slope orientations that may be developed in each structural domain, kinematic analyses were conducted for a number of slope orientations representing 30° slope sectors. In the Granite (West of Diabase Dyke) structural domain, 12 different slope sectors were analysed, spanning the full 360° range of possible slope dip directions. In the Granite (East of Diabase Dyke) domain, only four different slope sectors were analysed, and in the Diabase Dyke, seven slope sectors were analysed. While several different slope sectors were analysed for each structural domain, similar failure mechanisms or controls may be defined in one or more slope sectors.

Evaluation of Kinematic Controls and Breakback

The expected breakback angle, β_w, is the angle to which the bench face will break back, on average, due to the occurrence of critical failures. Based on statistical (treating each failure mode equally) and semi-empirical (accounting for importance of each failure mode based on population/development and continuity) analyses of breakback, and on actual observed bench performance in the starter pit, design β_w angles were selected for various ranges in slope dip directions (design sectors) in each of the three structural domains.

RECOMMENDED PRELIMINARY INTERRAMP SLOPE DESIGN

The basic parameters used to define the geometry of a benched slope are illustrated in Fig. 1, and recommended preliminary slope design criteria are summarized in Table 1. Applicable slope design criteria depend on the structural domain and slope dip direction.

The following assumptions are made with respect to bench design at the Jericho Mine:

- Bench pre-shear holes will be drilled vertically (90°).
- Triple benches, 22.5m total height, will be pre-sheared using a continuous (single pass) pre-shear row (total depth of pre-shear row is 22.5m plus any sub-grade). However, the triple bench will be mined in three 7.5m high single benches.
- Regulatory requirements define a minimum berm width of 8m.
- The main diabase dyke essentially projects vertically from surface through the base of the ultimate pit.

For rockfall catchment protection, a minimum (effective) berm width of 9m after breakback, is recommended for the 22.5m high triple benches. The berm widths reported in Table 1 include the 9m effective width plus the expected breakback. Note that no additional berm width to account for potential crest breakback has been included in the calculation of berm width for design, as good bench crest performance was observed in the starter pit.

Where a pit wall transitions through two or more adjacent design sectors with different slope design criteria, blending of the designs will be required to establish a practical overall pit design. Transition zones should be located in the design sector with the steeper slope design to avoid oversteepening.

LIMITATIONS

The criteria presented in this design memorandum are subject to revision based on continued bench documentation, mapping and slope performance during the current and subsequent mining phases. If good controlled blasting practices result in less than expected breakback over large areas of the pit slopes, the possibility exists to reduce the design berm width and steepen the interramp slope angles.

We trust the above is adequate for your present needs. Please give us a call if you have any questions, comments or concerns.

PITEAU ASSOCIATES ENGINEERING LTD.

Alan F. Stewart, P.Eng.

Michael F. Scholz, P.Eng.

TABLE I
SUMMARY OF RECOMMENDED PRELIMINARY INTERRAMP SLOPE DESIGNS

PRELIMINARY STRUCTURAL DOMAIN	SLOPE DIP DIRECTION [1] (°)	BREAKBACK ANGLE ASSUMED IN DESIGN [2], β_w (°)	RECOMMENDED PRELIMINARY INTERRAMP SLOPE DESIGNS [3,4]			
			BENCH HEIGHT, H (m)	BENCH FACE ANGLE, β (°)	BERM WIDTH, L (m)	INTERRAMP SLOPE ANGLE, θ (°)
Granite (West of Diabase Dyke)	345 - 075	80	22.5	90	13	60.0
	075 - 105	76			14.6	57.0
	105 - 255	80			13	60.0
	255 - 345	70			17.2	52.6
Granite (East of Diabase Dyke)	225 - 315	80	22.5	90	13	60.0
Diabase Dyke	165 - 345	76	22.5	90	14.6	57.0

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Notes:
1. Range of dip directions of the proposed ultimate pit walls over which the recommended design is considered valid. An east-facing slope has a dip direction of 090°, a south-facing slope has a dip direction of 180°, etc.
2. Angle to which bench face is expected to breakback, based on an assessment of the apparent plunge or dip and relative occurrence (i.e., importance) of all critical plane and wedge failure modes as well as slope performance to date.
3. Calculated interramp slopes for triple benches, assuming benches breakback to the apparent plunge of critical failures considered to control bench stability (β_w). Incorporates minimum effective berm width (i.e., berm width remaining after breakback) of 9m for triple bench.
4. See Fig. 1 for an illustration of bench geometry parameters.

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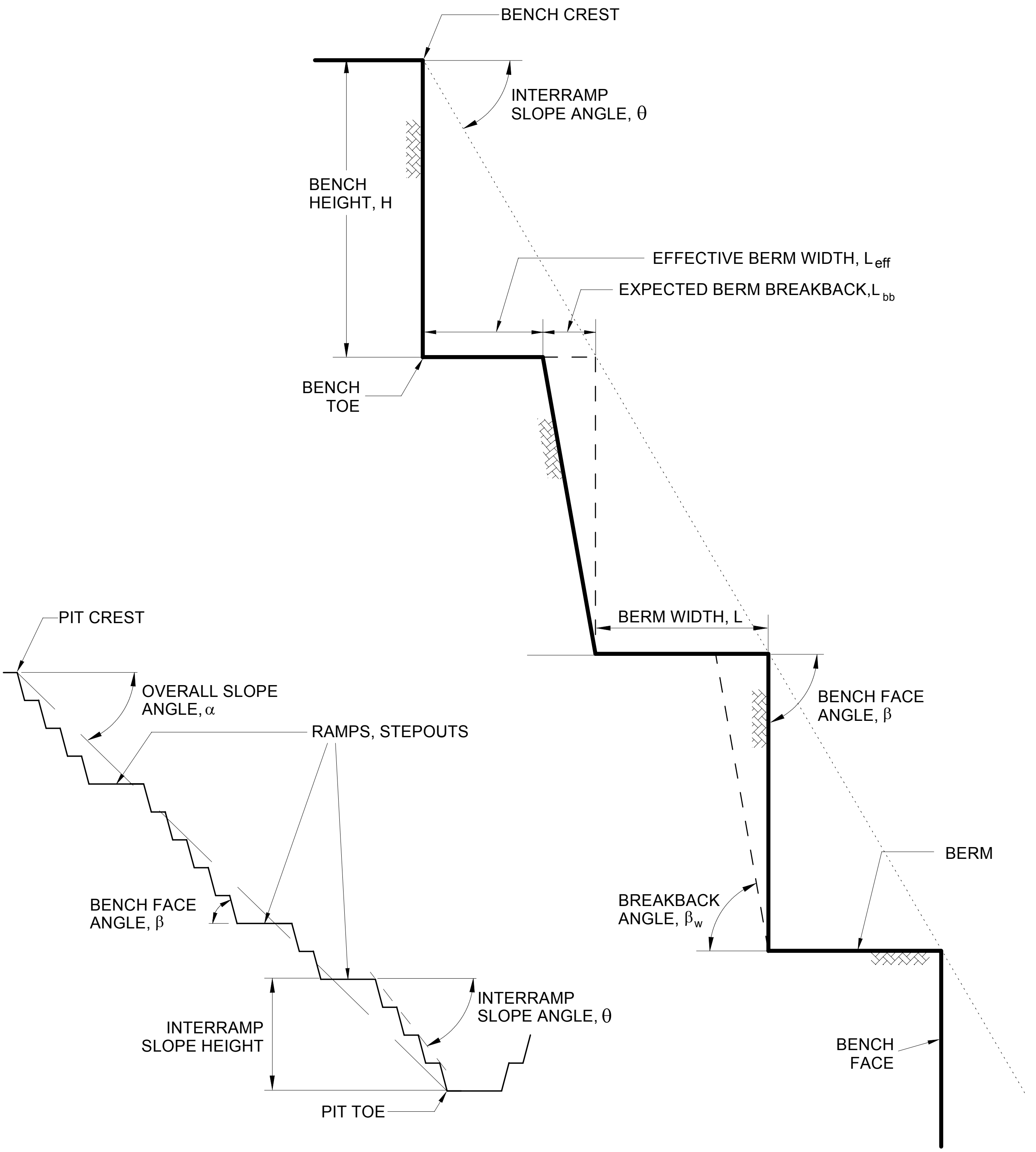

Note: A minimum 9m effective catch bench width for 22.5m high triple benches is assumed in bench designs.

TAHERA DIAMOND CORPORATION
JERICHO PIT
OPEN PIT DESIGN REVIEW

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BASIC SLOPE GEOMETRY PARAMETERS

BY:	DATE:
MFS	SEP 05
APPROVED:	FIG: 1