Fisheries and Oceans Canada
Pêches et Océans Canada

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September 1, 2005

Our file *Notre référence*
NU-00-0068

Mr. Greg Missal
Vice-President, Nunavut Affairs
Tahera Diamond Corporation
803 – 121 Richmond Street West
Toronto, ON M5H 2K1

Dear Mr. Missal:

Subject: Follow up to the Site Visit on August 18, 2005

Fisheries and Oceans Canada (DFO) appreciates the cooperation and hospitality shown by the staff at the Jericho Diamond Mine during our site visit on August 18, 2005. The development of the mine and site infrastructure appears to be progressing according to schedule. The purpose of the DFO site visit was to inspect the infrastructure components that were predicted to have an impact on fish and fish habitat and to ensure compliance with the *Fisheries Act* Authorization (dated April 15, 2005). As a result of the site visit, there were several items that were identified that needed to be addressed, which your Mine Manger, Roland Jones, committed to address. These include the following items:

1. With respect to the causeway, a road surface was constructed along the top of the causeway, using a mixture of crushed stone. The material extended over the shoulders of the causeway, resulting in fines (silt) along the causeway-water interface. This represents a source of silt to the waterbody that needs to be addressed while the silt curtains are still in place and weather conditions are still favorable. The use of clean, washed material as a top dressing could avoid the entry of sediments to the waterbody from the causeway. However, if the top dressing needs to include materials with fines, a barrier needs to be installed along the edges of the causeway to prevent continued entry of fines into the water during construction and operation. Photographs would suffice as indication that this has been addressed.

2. The pump house frame currently extended over the end of the causeway and it was therefore indicated that additional work may be necessary to address this. Could you provide me an overview of what needs to be done at the end of the causeway to address the pump house, i.e. what needs to be done, when, how, etc.

3. As discussed, the sediment curtains installed in the channel(s) are ineffective and result in significant maintenance to ensure sediment does not migrate towards Carat Lake. This was particularly evident in Stream C1, but is apparent in other

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watercourses throughout the mine site. As a result, effort should be directed at preventing sediment from migrating from the source, thereby avoiding the need to install sediment curtains directly in the channel. Two options to consider include surrounding areas such as roads with silt curtain and/or isolating the water courses with silt curtains. The surrounding terrestrial vegetation could also be used to disperse runoff and collect sediment, thereby preventing sediment/silt from actually entering the watercourse in the first place. Please provide an outline of how this will be addressed and photos showing the concern has been addressed.

Roland indicated that EBA Engineering was in the process of finalizing the drawings for the diversion channel and the water crossing for the water intake road. A few items need to be addressed in the submitted plans:

4. The culvert that was installed at the time of the site visit needs to be replaced, ideally with the final structure (i.e. bridge, open bottom culvert etc). The main issue with the temporary culvert is the size, the downstream elevation being higher then the channel (i.e. perched) and the ineffectiveness of the culvert in moving water (i.e. resulting in a "French drain"). It was also noted that sediment deposition occurs at the downstream end of the culvert, indicating that there are obvious problems with the culvert. It is noted on Drawing Number 1CT004.06 – W – 2 (in the NWB application) that there is a reference to the water crossing, but only that it will be buried culvert or open channel crossing. It also references cross-section C – C[1], which does not appear in the application. Furthermore, there does not appear to be a reference to a 900 mm culvert. Since EBA is finalizing the plans for the water crossing and the diversion channel, it is suggested that the details be reviewed at that time. However, items that will need to be included in the water crossing plans include:

    i. Appropriate alignment of the water crossing structure (i.e. bridge, open bottom culvert, etc) with the diversion channel. This will ensure that the channel is not directed into the side of the structure, which could cause downstream scouring;

    ii. Maintaining an open channel through the water crossing section. This can be accomplished by constructing a bridge or open bottom culvert and allowing the channel to run on "natural" substrate. If the bridge or open bottom culvert can't be justified, then a culvert should be buried at least 20% in the substrate to allow a defined channel to be maintained; and,

    iii. The structure needs to be size to accommodate the bankfull flows (i.e. the flows the fill the defined channel), and therefore the width of the culvert should be slightly greater then the bankfull width. The structure(s) should also be designed to accommodate the peak flows as well. Flow data collected for the baseline reports and channel dimensions will help determine the appropriate size.

5. With respect to the diversion channel, several items that need to be addressed include:

i. Flow data and channel dimensions should be reviewed to ensure the dimensions of the diversion channel replicates the natural channel. Within the area of the diversion channel, the natural channel appears to be approximately 1 m wide at bankfull flows. This is supported by the baseline information collected for this section. Therefore, the low flow channel in the diversion channel should be similar, i.e approximately 1 metre wide. The conceptual plans submitted in the NWB application also reference a wider high flow channel (approximately 3 m). Depending on the flow data this may be appropriate, however your hydrologists /engineer would be better positioned to determine what is needed and provide that rationale in the submitted plans.

ii. The *Fisheries Act* authorization also notes several conditions which need to be addressed (i.e. a gradient that supports fish passage, the construction of pools at each end of the lower 150 metre section, meanders, riffles, boulders etc). The NWB Water License also identifies specific requirements, which need to be considered as well (i.e. narrowing of the dissipation pools, the use of temporary cofferdams to control sediment during the initial implementation, stabilization of the banks which considers vegetation, etc).

Again, we would like to thank the staff at the Jericho Mine for their assistance during our site visit and look forward to working cooperatively with Tahera to address the identified items. Should you have any questions or comments, please contact me directly by telephone at (867) 979 – 8011 or by FAX at (867) 979 – 8039.

Yours sincerely,

Original Signed by:

Derrick Moggy
Habitat Management Biologist
Fisheries and Oceans Canada – Eastern Arctic Area

Copy: Roland Jones – Tahera Diamond Corporation
Stephanie Briscoe – Nunavut Impact Review Board
Philippe Di Pizzo – Nunavut Water Board