Fisheries and Oceans Canada
Pêches et Océans Canada

Eastern Arctic Area
P.O. Box 358
Iqaluit, Nunavut
X0A 0H0

Secteur de l'Arctique de l'est
Boîte postale 358
Iqaluit, NU
X0A 0H0

May 31, 2005

Your file *Votre référence*
NWB1JER0410/TR/D15

Our file *Notre référence*
NU-00-0068

Ms. Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Via Electronic Mail
licensing@nwb.nunavut.ca

Dear Ms. Beaulieu:

Subject: Specification for the Fresh Water Intake Causeway – Jericho Diamond Mine.

Fisheries and Oceans Canada (DFO) would like to thank the Nunavut Water Board for the opportunity to review the specification for the construction of the causeway and water intake for the Jericho Diamond Mine.

Based on a review of the Specification for the Fresh Water Intake Causeway, as submitted by SRK Consulting (Canada) Inc. on behalf of Tahera Diamond Corporation, dated April 2005, DFO offers the following comments/recommendations related to the construction of the Fresh Water Intake Causeway to protect fish and fish habitat:

General Comments:
Extraction of water via intake from any water body is prohibited under Section 30 of the *Fisheries Act* unless the entrance of the intake is properly screened to prevent the entrainment of fish. Refer to the *Freshwater Intake End-of-Pipe Fish Screen Guideline* (DFO 1995), which is available upon request.

- It is not clear what the size of the pump will be and whether there will be capacity to pump in excess of the regulated amount. My understanding, based on the figure, is that the pump will have a capacity of 50-100 m3. Based on this flow rate, and the screen size proposed, there may be a risk that angilliform fish species present in Carat Lake (ie burbot) will not be protected during periods of pumping between 50-100 m3. Furthermore, the average flow rate licences by the Nunavut Water Board is 40 m3. It would be helpful for TDC to explain this discrepancy and account for any change in pumping rate. How will the protection of fish be ensured for periods of pumping in excess of 40 m3?
- Ensure that the holes in the screen are small enough that no fish of any size can pass through the screen and into the intake.

.../2

Canada

- The rate of water withdrawal should be such that fish do not become impinged on the screen.
- Make certain that the fish guard or screen is properly maintained, in a good state of repair, and is not removable except for renewal or repair.
- During the time in which a renewal or repair is being conducted, the entrance of the water intake should be closed in order to prevent the passage of fish into the intake.
- The *Fisheries Act* Authorization states that a 100 m long causeway has been authorized and should provide flexibility should it be needed, at least from DFO's perspective. However, NWB should be consulted if changes to the plans are necessary to meet design objectives that are inconsistent with the water license.
- The use of explosives in water should not be considered as a means of breaking through the ice as other methods should be sufficient to achieve the objective (i.e. the use of augers and/or equipment).
- As stated in the *Fisheries Act* Authorization, the margins of the causeway will be designed to support spawning, nursery and feeding habitat for fish species in Carat Lake, by using 0.5 m rock. This will minimize disturbance and maximize the development of fish habitat associated with causeway. However, a monitoring plan to determine the success of this fish habitat enhancement in meeting its goal needs to be submitted to DFO for review and approval.

<u>Specific Comments:</u>

- Section 1.6.1 - Please confirm the testing that will be done to confirm that waste rock used in the construction of the causeway will not be deleterious to fish. The margins of the causeway were accepted as compensation for the loss of fish habitat and it will be imperative that the rock used to construct the causeway will not have a deleterious effect on those fish that use this habitat. It is suggested that the means to test the material and what parameters will be tested be identified and submitted, with the results.
- Section 2.1 - The use of explosives in water should not be considered as a means of breaking through the ice as other methods should be sufficient to achieve the objective (i.e. the use of augers and/or equipment). The invert of the intake pipe should be confirmed once rock is set in place, to ensure that DFO guidelines are being met. The use of fines (i.e. sands) in the construction of the causeway should be restricted with their migration off site controlled through the use of silt curtains.
- Section 2.2 - What is the rationale for expanding the second phase to the west? Mitigation measures and design (small berm around the perimeter) should be included to prevent the migration of fines from the road surface to the water body.
- Section 2.3 - Suggest that the second phase include the use of silt curtains, regardless of the results of the first phase. The use of ice cover is likely to prevent the migration

.../3

of sediment from the location of the causeway during the first phase, with monitoring of TSS to confirm the sediment dispersing offsite, if any. However, there is a much greater risk that sediment will migrate off-site during open water conditions, particularly under windy conditions. In the event bad weather occurs during construction of the second phase, what contingency will be undertaken to ensure sedimentation does not occur off site and sediment control measures are maintained?

- Please elaborate on the periodical measurement protocol to be undertaken to ensure TSS remains below the Water License parameters.

- Figure 316996-SK-P-1000 identifies Alternative 1, which should be removed from the design as this was not approved and may lead to confusion.

Please be advised that a contravention of subsection 35(1) of the *Fisheries Act* could result from any change to the proposed plan or from failure to properly implement the conditions of the *Fisheries Act* Authorization. If these plans have changed, we should be consulted to determine if further review is required.

If there are any questions concerning the above, or if my understanding of the proposal is either incorrect, incomplete, or if there are changes to the proposed works or undertakings, 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

c.c.: Greg Missal – Benachee Resources Inc./Tahera Diamond Corporation