

DFO File No.: NU-02-0117  
Referral File No.: 02-HCAA-CA7-0117  
Authorization No.: 2

## AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT

**Authorization issued to:**

**TMAC Resources Inc.**  
40 King Street West, Suite 2100  
Toronto, ON  
M5H 3C1

## Location of Project

The jetty associated with the Doris North Project underground gold mine located on the southeastern shore of Roberts Bay in the West Kitikmeot Region of Nunavut. (UTM Zone 48, UTM Easting 541803, UTM Northing 7543202). Fish habitat compensation involves the creation of four (4) nearshore rock shoals located on the southeastern shore of Roberts Bay, just west of the jetty.

**Valid Authorization Period**

The valid authorization period for the harmful alteration, disruption or destruction of fish habitat associated with the construction of the jetty is:

From:  
August 28, 2008

To:  
December 30, 2009

The valid periods for other conditions of the authorization are as set out below.

**Description of Works or Undertakings (Type of work, schedule, etc.)**

The harmful alteration, disruption or destruction hereby authorized is the infilling of fish habitat, as a result of the jetty (95 metres long by 5 to 35 metres wide) construction to facilitate tugs and barges operating for the Doris North Project, affecting 1,760 square metres of fish habitat in Roberts Bay.

### Conditions of Authorization

1. The conditions of this Authorization notwithstanding, should the above works or undertakings, due to weather conditions, different soil or other natural conditions, or for any other reason, appear, in the opinion of the Department of Fisheries and Oceans ("DFO") likely to cause greater impacts than the parties previously contemplated, then DFO may direct TMAC Resources (hereafter referred to as the "Proponent"), and its agents, and contractors, to suspend or alter works and activities associated with the project, to avoid or mitigate adverse impacts to fisheries resources. DFO may also direct the Proponent and its agents, and contractors, to carry out at the Proponent's expense any works or activities deemed necessary by DFO to avoid or mitigate further adverse impacts to fisheries resources. In circumstances where DFO is of the view that greater impacts may occur than were contemplated by the parties DFO may also modify or rescind this authorization. If the authorization is to be changed the Proponent will be given an opportunity to discuss any proposed modifications or rescission.
2. Conditions that relate to the Proponent plan:

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- 2.1. The Proponent confirms that all plans and specifications relating to this authorization have been duly prepared and reviewed by appropriate professionals working on behalf of the Proponent. The Proponent acknowledges that they are solely responsible for all design, safety and workmanship aspects of all the works associated with this Authorization.
  - 2.2. The construction of the jetty shall comply with those criteria as identified within this Authorization. Harmful alteration, disruption or destruction of fish habitat other than that specifically identified within this Authorization is prohibited.
  - 2.3. Works and undertakings shall be conducted in accordance with the practices outlined in the following reports, and as approved by DFO:
    - 2.3.1. Jetty As-Built, Figure A7, prepared by SRK Consulting, dated September 2007.
    - 2.3.2. Doris North Project "No-Net-Loss" Plan (NNLP), Revision 6, December 2007 Final Report, prepared by Golder Associates Limited, dated December 20, 2007.
    - 2.3.3. Roberts Bay Fish Habitat Compensation Shoal Design, Project Number 07-1373-0018, Figure D11, signed and stamped by Nathan Schmidt (Golder Associates Limited), dated January 8, 2008.
    - 2.3.4. Email regarding marine construction blackout, addressed to Tania Gordanier (Fisheries and Oceans Canada), prepared by Terri Maloof (Miramar Hope Bay Limited), dated April 14, 2007.
    - 2.3.5. Revised Water License Application Support Document – Doris North Project, Nunavut, Canada, prepared by Miramar Hope Bay Limited, dated April 2007.
    - 2.3.6. Supporting Documents S10m Supplemental to Revised Water License Application Support Document– Doris North Project, Nunavut, Canada, prepared by Miramar Hope Bay Limited, dated April 2007.
    - 2.3.7. Memorandum regarding Miramar Doris North Project – Jetty Construction Timing and Monitoring, prepared by Golder Associates Limited, Gary Ash, dated June 21, 2007.
    - 2.3.8. Letter regarding Extension of Authorization for Works or Undertakings Affecting Fish Habitat NU-02-0117 (the Authorization), signed by Chris Hanks (Hope Bay Mining Ltd.), dated June 12, 2008.
    - 2.3.9. The above documents and drawings are hereafter referred to as the "Plan". Where contradictions exist, the most recent version shall apply.
  3. Conditions that relate to the mitigation of potential harmful alteration, disruption or destruction ("HADD") of fish habitat. The following measures shall be implemented to avoid the unauthorized HADD of fish habitat:
    - 3.1. No in-water work shall occur between July 15 and August 30 of any year to protect critical spawning and rearing periods for any fish species in Roberts Bay.
    - 3.2. A qualified biologist or environmental inspector shall be on site during all in-water construction, compensation and restoration works to ensure implementation of the designs as intended in the Plan and conditions of this Authorization.
    - 3.3. All materials and equipment used for the purpose of all work phases shall be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, debris, etc.) from entering the water.
      - 3.3.1. Any stockpiled materials shall be stored and stabilized above the ordinary high water mark of any water body.
      - 3.3.2. Vehicle and equipment re-fuelling and maintenance shall be conducted above the ordinary high water mark
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of any water body.

- 3.3.3. Any part of equipment entering the water shall be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water.
- 3.4. Only clean, competent, certified non-acid generating rock and material free of fine particulate matter shall be placed in the water.
- 3.5. Material used for habitat compensation features shall not be taken from below the ordinary high water mark or shoreline of any water body.
- 3.6. Sediment and erosion control measures shall be implemented prior to work, and maintained during the work phases, to mitigate impacts to fish and fish habitat.
- 3.6.1. All disturbed areas shall be stabilized upon completion of work and restored to a pre-disturbed state or better.
- 3.6.2. Sediment and erosion control measures shall be left in place and maintained until all disturbed areas have been stabilized.
4. Conditions that relate to the compensation for the loss of 1,760 square metres of fish habitat as defined in the Plan.
- 4.1. The amount of fish habitat compensation gained shall equate to 3143 square metres.
- 4.1.1. Four (4) rock shoals (31.25 metres long by 12.00 metres wide with a minimum depth of 1 metre below mean water level) shall be constructed nearshore, just west of the jetty.
5. Conditions that relate to Monitoring.
- 5.1. The approved Monitoring Plan shall be implemented in the following years: 2009, the year prior to mine construction, Year of mine construction, Year-2 of mine operation, Year-2 of active mine post-closure (i.e. year prior to jetty lowering to below high water level), Year-1 post-lowering of jetty, and Year-2 post-lowering of jetty. The detailed Monitoring Plan shall include, but not be limited to, the following:
- 5.1.1. The stability and successful utilization of all compensation features shall be assessed according to the schedule in 5.1 above.
- 5.1.1.1. The use of rock shoal structures as rearing and feeding habitat for fish shall be monitored using a Control/Impact (CI) design study as described in the Plan and according to the schedule in 5.1 above.
- 5.1.1.2. Fish presence shall be monitored using sampling methods as described in the Plan and according to the schedule in 5.1 above.
- 5.1.2. If at any time during the monitoring period, compensation features are not functioning as intended, measures shall be identified to reduce the risk of future failure and additional compensation shall be created to meet the No-Net-Loss guiding principle using an adaptive management approach.
- 5.2. A photographic record of before, during and after construction, showing that all works and undertakings have been completed according to the approved Plan and conditions of this authorization, shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area, on or before, **December 31, 2008** and according to the schedule in 5.1 above.
- 5.2.1. The photographic record shall include, but not be limited to, a record of the sediment and erosion control measures and compensation measures (i.e. the nearshore rock shoals).
- 5.2.2. The photographs for each pre-construction, during construction, post-construction time periods shall be
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taken from the same vantage point(s) and general direction.

- 5.2.3. All photographs shall be clearly labelled as to date and vantage points. The photographic vantage points and viewing directions shall be indicated, and clearly indexed to the photographs, on a plan view drawing of the construction site(s).
- 5.3. A written report summarizing the above monitoring results shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans – Fish Habitat Management, Eastern Arctic Area on, or before, **December 31, 2008** according to the schedule in 5.1 above.
- 5.4. The effects of the jetty on nearshore sediment transport shall be monitored during the following years: 2009, Year of mine construction, Year-2 of mine operation, Year-2 of active mine post-closure (i.e. year prior to jetty lowering to below high water level), Year-1 post-lowering of jetty.
- 5.4.1. Annual bathymetric surveys shall be conducted to determine the extent of sediment deposition adjacent to the jetty.
- 5.4.2. A written report summarizing the results of the bathymetric surveys shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans – Fish Habitat Management, Eastern Arctic Area on, or before, **December 31** of each year, according to the schedule in 5.4 above.
6. Any deviation from the approved plans, the construction schedule, mitigation, compensation and/or monitoring measures stated above must be discussed with, and approved in writing by the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area.
7. All mitigation, compensation and monitoring measures shall be implemented to the satisfaction of the Iqaluit, NU office of the Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area.
8. Conditions that relate to the financial security :
- 8.1. Pursuant to condition 6.0 of Authorization NU-02-0117.3, provision of a Letter of Credit by the Proponent to DFO in the amount of \$467,608 will also be accepted by DFO as security related to fulfilling all obligations under this Authorization.
- 8.2. The Letter of Credit may be used in any manner deemed appropriate to DFO in relation to this Authorization.
- 8.3. The Letter of Credit shall be returned upon satisfactory completion of all obligations, in particular habitat compensation works and monitoring required under this Authorization and Authorizations NU-02-0117.3 and NU-10-0028, to which the Letter of Credit also applies.
- 8.4. Where at any time DFO determines that the amount of security deposit it holds falls below an amount which, in DFO's view, is necessary to satisfy the Proponent's obligations under this Authorization, and Authorizations NU-02-0117.3 and NU-10-0028, DFO may request, in writing, that the Proponent deposit with DFO additional security in an amount and form determined at that time by DFO. The Proponent shall comply with DFO's request within 30 (thirty) days from the date it receives the request.
9. Written notification of the commencement of works or undertakings shall be provided to the Iqaluit, NU office of the Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area, by e-mail to [Georgina.Williston@dfo-mpo.gc.ca](mailto:Georgina.Williston@dfo-mpo.gc.ca) or fax at (867) 979-8039 prior to the initiation of said works or undertakings.
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The holder of this authorization is hereby authorized under the authority of section 35(2) of the *Fisheries Act*, R.S.C., 1985, c.F. 14, to carry out the work or undertaking described herein. This authorization is valid only with respect to fish habitat and for no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.

Failure to comply with any condition of this authorization may result in charges being laid under the *Fisheries Act*.

This authorization form shall be held on site and work crews shall be made familiar with the conditions therein.

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Date of Issuance: JUN 19 2013

Approved by: \_\_\_\_\_

David Burden

Title: A/ Regional Director General, Central and Arctic Region  
Fisheries and Oceans Canada

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