Fisheries & Oceans Canada

INTERVENTION COMMENTS

Jericho Diamond Project

2004-11-30

Table of Contents

1.	INTRODUCTION			5
2.	REGULATORY REVIEW AND RECOMMENDATIONS			
	2.1	Water Intake Design		6
	2.2	2.2 Stream C1:		
		2.2.1	Channel Design and Construction	7
		2.2.2	Water flow during operation and at closure	7
	2.3	3 Water flows in Stream C3		8
	2.4	2.4 Use of Explosives		9
	2.5	2.5 Fish Salvage Program		
	2.6	No Net Loss Plan:		
		2.6.1	Conceptual Agreement	10
		2.6.2	Design Drawings for Enhancements	10
		2.6.3	Baseline Fisheries Collection and Monitoring Plan	10
		2.6.4	Performance Bonding	11
3.	CONC	LUSIO	N.	12

Executive Summary

Fisheries & Oceans Canada (DFO) has reviewed the application and addendum submitted to the Nunavut Water Board (NWB) by Tahera Diamond Corporation (TDC), and took into consideration the outstanding items as a result of the environmental review process that were to be addressed during the regulatory review process. Therefore, the purpose of these comments is to provide expert advice to the NWB to assist in their review of this project.

Water Intake: The *Freshwater Intake End-of-Pipe Fish Screen Guidelines* have been developed to protect fish with a minimum fork length of 25 mm since most eggs and fish larvae remain in bottom substrates until they reach the fry state. Since the current design is not addressed by the guidelines, several options were presented by DFO to TDC to resolve this issue. TDC responded by redesigning the causeway and water intake, such that the intake pipe will extend from the causeway into sufficiently deep water.

The construction of a causeway perpendicular to the shoreline has the potential to reduce the quality of adjacent fish habitat, due to the accumulation of silts along the edge of the causeway, adjacent to the shoreline. Tahera has agreed to monitor the potential effects the causeway may have on the movement of sediment along the shoreline and consider appropriate measures to mitigate the effect if there is evidence of sediment build up.

Stream C1: Due to the current uncertainty of water quality in the end pit at closure, DFO supports the approach to develop the diversion channel for long-term use. DFO suggested the channel include long, narrow pools and potentially riparian vegetation, in addition to the other "fish-friendly" features typical of adjacent natural channels. It would be favorable to further investigate the feasibility of improving the connection to the lower section, should monitoring demonstrate the need. Given the experience with the Panda Diversion Channel at the EKATI™ Diamond mine, it will be important to ensure mitigation measures are addressing permafrost concerns, particularly during the initial operation of the channel. Tahera has agreed to submit revised design drawings that include adjustments to the dissipation pools, and potentially riparian vegetation along the banks, if feasible. TDC agreed that stream characteristics and fish use of Stream C1 will be monitored as part of the Aquatic Effects Monitoring Program. DFO recommends that frequent monitoring occur during the operation of the diversion channel, and the use of pools and temporary cofferdams be used to control sediment.

During operation, a portion of the watershed will be converted to an open pit and surrounding waste rock and ore piles. It is expected that runoff water may not meet water quality guidelines and will therefore require treatment at the Processed Kimberlite Containment Area (PKCA). This loss in flows may result in changes in fish utilization of Stream C1, which TDC has predicted will not be significantly different due to the influence of the existing berm which effectively splits the flows in Stream C1. However, the water flow currently reconvenes just upstream of the mouth of Stream C1 and it would be expected that the loss in flows, during operations, will be different then existing conditions and may affect fish utilization. While DFO supports a centralized location for water treatment, we would prefer that any water not requiring treatment be maintained in Stream C1 to the extent possible. However, based on a review of the NWB submission, it was not clear that this would be the case. Therefore, monitoring of fish utilization in the lower section of Stream C1 should be completed to verify the predictions made by TDC.

Should water quality be appropriate for discharge to Stream C1 at closure, TDC has indicated that the diversion channel could be abandoned and the end-pit lake put on-line. However, evaporation in the end pit lake could result in further losses to the flows in Stream C1. TDC has1 estimated this to be at least 6.5%, which could be reduced due to changes in landforms and runoff characteristics around the pit. As well, DFO expressed concern that the end pit lake may act as a nutrient sink thereby robbing the downstream section of Stream C1 of valuable nutrients.

However, TDC stated background concentrations in the Project area waterbodies represent ultraoligotrophic conditions, and the effect would therefore be inconsequential since the aquatic biological communities are pre-adapted to these conditions. TDC indicated that a connection between the end-pit lake and Stream C1 could be enhanced, should it be demonstrated that the end-pit lake could be put online with Stream C1. DFO recommends that the options to re-instate the flows in the channel be further considered during operation and resolved prior to closure, as water quality concerns become better understood. TDC committed to DFO to maintain the diversion channel as a permanent structure should conditions dictate.

Stream C3: DFO supports Environment Canada and the NWB in the need for determining the best available technology for the treatment of water discharging to Stream C3. DFO encourages the Water Board to further consider those options and scenarios that ensure water quality is maintained in a stringent fashion, while still maintaining flows in Stream C3 for the benefit of fish and fish habitat, to the extent possible.

With respect to the increased flows due to the operation of the PKCA, DFO has concerns that increased flows could lead to erosion along the channel. TDC is confident that erosion will not be a concern and has stated that a qualified hydrologist will survey Stream C3 on an annual basis, and recommend appropriate mitigation measures to address any erosion concerns. DFO recommends that the mitigation plan be developed to ensure fish habitat is maintained or improved, during operation and at closure, compared to pre-existing conditions. Furthermore, the monitoring plan should rely on early indicators to identify any erosion concerns.

Use of Explosives: The use of explosives adjacent to fish habitat has the potential to destroy fish and fish habitat. The *Guidelines for the Use of Explosives In or Near Canadian Fisheries Water* was developed to provide information to proponents on the conservation and protection of fish and fish habitat from impacts arising from blasting. TDC has revised their blasting assessment and agreed to incorporate mitigation measures into the blasting plan to meet the intent of the Guidelines which ensure impacts to fish and fish eggs will be minimized.

Fish Salvage Program: Works or undertakings occurring in fish-bearing waters have the potential to destroy fish and therefore, requires a program to salvage and relocate fish to an appropriate location prior to construction. Tahera has provided an updated protocol which is appropriately designed for the Jericho Diamond Project and has agreed to solicit local community input on the ultimate use of fish.

No Net Loss Plan (NNLP): DFO has indicated to TDC that acceptance of the conceptual NNLP can occur, provided minor revisions are incorporated. TDC has committed to work with DFO in completing the detailed drawings for the enhancements associated with the NNLP. In addition, the implementation of the enhancements will require the development of a timeline and construction plan which minimizes impacts on fish and water quality prior to implementation. TDC has agreed to provide DFO a monitoring program to demonstrate enhancements are effective in achieving their goals. This will be based on the collection of adequate baseline fisheries data for the areas of enhancement. Performance bonding under the *Fisheries Act* Authorization will be in place prior to implementation of the NNLP.

Conclusion: Overall, the environmental review and the regulatory phases have identified impacts to fish and fish habitat. DFO is satisfied, the mitigation measures presented in the NWB submission, in addition to our recommendations, will adequately address the identified concerns. Furthermore, DFO is confident the NNLP will adequately address residual losses to fish habitat through the development of enhancements that demonstrate No Net Loss of fish habitat within the affected watersheds. DFO looks forward to participating in the NWB Final Hearings and encourages the NWB to consider our recommendations in minimizing the impacts to fish and fish habitat.

1. INTRODUCTION

The *Fisheries Act* provides Fisheries & Oceans Canada (DFO) with is regulatory powers to conserve and protect fish and fish habitat. This is accomplished through the administration of the habitat and pollution protection provisions of the *Fisheries Act* which are binding on all levels of government and the public. These include areas such as:

- the prohibition against the harmful alteration, disruption or destruction (HADD) of fish habitat unless authorized by DFO s.35(2)
- the provision of sufficient water flows s. 22
- passage of fish around migration barriers s. 20 and 21
- screening of water intakes s. 30
- prohibition against the destruction of fish by means other than fishing unless authorized by DFO – s. 32
- prohibition to deposit deleterious substances unless by regulation s.36 (3)

Environment Canada administers the section dealing with deleterious substances on behalf of DFO although the Minister of Fisheries and Oceans is still accountable for this portion of the *Act*.

The Policy for the Management of Fish Habitat (1986), and supporting documents, gives direction to Habitat Management staff on when and how HADDs can be authorized. The Policy and supporting documents outline the decision framework and criteria to be used when reviewing specific development proposals. Generally, proponents are to avoid or minimizes HADDs to fish habitat through relocation, redesign, and/or mitigation techniques, where feasible. It is only after these steps are taken that any remaining HADD to fish habitat is considered for Authorization by the Minister. If a HADD is deemed acceptable and the Minister issues an Authorization, the Policy generally requires that fish habitat be created as compensation for the loss incurred as a result of HADD. Policy also provides a hierarchy of preference for deciding upon the level, type and location of compensation works.

The Policy also contains numerous proactive, non-regulatory strategies which provide means to promote the conservation and protection of fish habitat. Due to resource limitations, historically DFO has concentrate upon the site-specific section 35 Authorization process; however, concurrent with the renewal of the Habitat Management program presently being implemented, increase emphasis and resources are being placed on proactive, no-regulatory strategies such a stewardship, integration of fish habitat protection measures into land and water use planning, and public awareness and education.

Under the *Nunavut Land Claims Agreement*, DFO participates in the environmental review process led by the Nunavut Impact Review Board (NIRB) and the regulatory review process led by the Nunavut Water Board (NWB). In this context, DFO has reviewed the application and addendum submitted to the NWB by Tahera Diamond Corporation (TDC), and taken into consideration the outstanding items as a result of the environmental review process that were to be addressed during the regulatory review process. Therefore, the purpose of these comments is to provide expert advice to the NWB to assist in their review of this project and fulfill DFO's commitments under the environmental review and the *Fisheries Act*. The recommendations presented in this submission may subject to change or additions as new information is brought forward by the proponent or identified during the public hearing. Should new information be obtained, any changes in DFO's recommendation will be brought to the attention of the NWB.

2. REGULATORY REVIEW AND RECOMMENDATIONS

2.1. Water Intake Design:

The use of the water intake has the potential to result in losses of fish due to entrainment and impingement. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself. The *Freshwater Intake End-of-Pipe Fish Screen Guidelines* have been developed to provide protection of freshwater fish with a minimum fork length of 25 mm (approximately 1 inch) since most eggs and fish larvae remain in bottom substrates until they reach the fry state (i.e, 25 mm fork length). The water intake design submitted by TDC to the NWB includes an intake pump well casing, at the offshore end of the causeway and will be surrounded by clean rock fill to serve as a filtration system. Furthermore, TDC identified that the incorporation of the clean rock fill will increase the amount and quality of habitat specifically spawning habitat for Burbot, Lake trout, Round whitefish and Slimy sculpin. Since the guidelines don't address the protection of fish eggs, several options were presented to TDC to resolve the issue. Similar concerns were identified with the same design at the Snap Lake Diamond Project and resulted in the water intake design being revised accordingly.

RESOLUTION/RECOMMENDATION:

TDC has responded by redesigning the proposed water intake, such that the intake pipe will
extend from the causeway into sufficiently deep water. The causeway length and
configuration will remain the same to accommodate the water intake infrastructure and to
facilitate vehicle access.

TDC's concern with the short-term issues associated with the construction of the buried pipe and potential maintenance issues resulted in the preference for the causeway option. Furthermore, use of flow-through culverts was considered but rejected due to the concerns with heaving associated with ice formation. The construction of a causeway perpendicular to the shoreline has the potential to interfere with the movement of sediment along the shoreline due to wave action and lake currents. This interference may result in the accumulation of fine sediments along the nearshore area adjacent to the causeway. TDC has identified that the nearshore area, at the proposed location of the causeway, consists of boulders and large cobbles which is typically preferred by fish over fine sediments. Although the causeway has been moved to avoid potential spawning areas for Lake trout and possibly Arctic char, the potential to reduce the quality of fish habitat adjacent to the causeway may still result. DFO has suggested that mitigation options to avoid this impact, such as burying the intake pipe or the incorporation of flow-through culverts into the causeway, be considered.

RESOLUTION/RECOMMENDATION:

• Tahera has agreed to monitor the potential effects the causeway may have on the movement of fine sediments along the shoreline. The Draft Aquatics Effects Monitoring Plan will be adjusted to examine this potential issue, which will be compared to reference sites, to ascertain whether there is an increase in sediment deposition rate. Tahera will consider appropriate measures in order to mitigate the effect if there is evidence of sediment build up.

2.2. Stream C1

2.2.1. Channel Design and Construction

TDC has acknowledged that water quality in the end pit at closure can not be determined at this time with certainty. Therefore, the use of the diversion channel may continue beyond the expected life of the mine and should be designed for long-term use. DFO supports this approach as well as the commitment to design the diversion channel to accommodate fish habitat characteristics typical of adjacent natural channels. Several features have been incorporated into

the design of the lower "fish friendly" section, including a low flow channel, meanders, and a series of pools and riffles. Understanding the dissipation pools have been designed to reduce water flow energy, it would be beneficial from a fish habitat standpoint to reduce the width of dissipation pool, at the downstream end of the "fish-friendly" section. Based on the site visit completed by DFO in September 2004, it was apparent that riparian vegetation, such as shrubs, grows well along the upper section of Stream C1. Riparian vegetation provides nutrients to the channel which benefits fish habitat, and should be considered since it is expected this will be a key component missing in the new channel. The limited fish passage to upstream sections may be confused with the lack of baseline fisheries data collected prior to the construction of the berm and therefore it would be favorable to investigate the feasibility of improving the connection to the lower section. An investigation of the risk of permafrost was completed in 1996, which indicated that the active layer ranged from 1 to 2.5 metres deep. TDC has indicated that the channel will be constructed 1 metre into the active layer. Based on experiences with constructing channels in the North, it will be important to ensure mitigation measures are addressing permafrost concerns, particularly during the initial operation of the channel.

RESOLUTION/RECOMMENDATION:

- Tahera agreed to submit revised detailed design drawings that will include adjusting the
 design of the two channel diversion energy dissipation pools to become a narrow, longer pool
 configuration. Furthermore, TDC will investigate the feasibility of incorporating riparian
 vegetation along the banks and include this in the revised No Net Loss Plan.
- TDC agreed that stream characteristics and fish use of Stream C1 will be monitored as part
 of the Aquatic Effects Monitoring Program. If monitoring establishes that fish cannot access
 the upper section of Stream C1 due to physical barriers in the lower section, TDC will
 consider modifying the lower channel to improve fish access.
- DFO recommends that frequent monitoring occur during the early operation of the diversion channel to ensure that any erosion be identified and acted upon immediately.
- DFO recommends that the use of the pools and temporary cofferdams replace the use of silt curtains across the channel, to control sediment. Furthermore, stabilization along the banks of the channel considers the use of vegetation.

2.2.2. Water flow during operation and at closure:

During operation, a portion of the watershed will be converted to an open pit with surrounding waste rock and ore piles. It is expected that water quality standards may not be met by runoff water from these areas and will therefore require that the water be redirected to the Processed Kimberlite Containment Area (PKCA) for treatment. This loss in flows may result in changes in fish utilization of Stream C1. TDC has predicted that the change in water flows during operation will not be significantly different then existing conditions due to the existing berm which effectively splits the flows in Stream C1. However, the water flows currently combine just upstream of the mouth of Stream C1. Therefore, it would be expected that the loss in flows at the mouth of Stream C1 during operations, will be different then existing conditions. While DFO supports a centralized location for water treatment, we would prefer that any water not requiring treatment be directed back to Stream C1 to maintain normal flows to the extent possible. However, based on a review of the NWB submission, it was not clear that this would be the case. Therefore, monitoring of fish utilization in the lower section of Stream C1 should be completed to verify the predictions made by TDC.

RESOLUTION/RECOMMENDATION:

 Tahera provided clarification on the implementation and use of Ponds A, B and C and agreed to revise their Aquatic Effects Monitoring Program to ascertain whether the change in flows would affect habitat utilization in the lower section of Stream C1.

At closure, TDC has indicated that they can not predict with certainty whether water quality in the pit will meet the appropriate water quality guidelines for discharge to Stream C1. However, should water quality meet the required standards for discharge to Stream C1, TDC has indicated that the diversion channel will be abandoned and the end-pit lake will be put on-line. DFO expressed concern that evaporation in the end pit lake could result in further losses to the flows in Stream C1 that had not been accounted for. TDC provided an estimate of the pit lake evaporation which was approximately 6.5% of the annual pre-mining flow volume. However, they noted that the landforms and runoff characteristics around the pit will differ from pre-mining conditions. Therefore, the evaporation losses will likely be less, and there may not be a measurable difference in Stream C1 flows after the pit fills. DFO was also concerned that the depth of the end pit lake may act as a nutrient sink thereby robbing the downstream section of Stream C1 of valuable nutrients. However, TDC stated that the background concentrations in Project area waterbodies represent ultra-oligotrophic conditions to which the aquatic biological communities are pre-adapted to. Therefore, TDC insisted that further reduction in nutrient concentrations would be inconsequential since aquatic biota would be resistant to such changes. DFO questioned the feasibility of creating a channel connecting the lower section of Stream C1 with the pit, if it is demonstrated that the end-pit lake could be put online with Stream C1. TDC stated that a connection could be enhanced by re-contouring the mine pit perimeter to funnel runoff towards Stream C1 and engineering a channel similar to the proposed Stream C1 diversion channel which would provide a well-defined connection between the end pit lake and the downstream section of Stream C1.

RESOLUTION/RECOMMENDATION:

- TDC committed to maintain the diversion channel, as a permanent structure beyond closure should water quality dictate.
- DFO recommends that this issue be further considered during operation and resolved prior to closure, when water quality concerns and the options available to re-instate the flows in the channel are better understood.

2.3. Water Flows in Stream C3

DFO supports Environment Canada and the NWB in determining the best available technology for the treatment of water in Stream C3. Several scenarios have been presented to ensure water quality is adequate to protect aquatic life but may result in the need to eliminate water flows in Stream C3 for periods up to two years. We would encourage the Board to consider those options that ensures water quality is maintained in a stringent fashion, while still giving due consideration to the maintenance of flows in Stream C3 for the benefit of fish and fish habitat, to the extent possible.

RESOLUTION/RECOMMENDATION:

• DFO recommends that consideration be given to maintaining water flows in Stream C3 during operation, provided water quality objectives will be ensured for the protection of aquatic life.

With respect to the increased flows due to the operation of the PKCA, DFO has concerns that any flows above the 2 year return period, typically referred to as the channel-defining flows, could lead to erosion along the channel. Tahera is proposing to release water in Stream C3 that generally follows the natural hydrograph, at discharge levels above background but within normal

ranges. However, the duration of the higher flows is expected to last for much of the open water season. Since the channel is ill-defined, it will be important to demonstrate that the increased flows do not lead to the scouring and erosion outside the normal flow paths. TDC is confident that erosion will not be a concern, but has stated that a qualified hydrologist will survey Stream C3 on an annual basis, and recommend appropriate mitigation measures to address any erosion concerns. Furthermore, TDC has indicated that a mitigation plan may include any necessary armoring along the channel.

RESOLUTION/RECOMMENDATION:

- TDC committed to have a qualified hydrologist evaluate Stream C3 and develop a suitable
 mitigation and monitoring plan to be implemented prior to the discharge of water from Long
 Lake/PKCA. The monitoring program has to be of sufficient frequency and duration to
 ensure early detection of erosion.
- DFO recommends that the mitigation plan be developed to ensure fish habitat is maintained or improved, during operation and at closure, compared to pre-existing conditions.
 Furthermore, the monitoring plan should rely on early indicators to identify any erosion concerns.

2.4. Use of Explosives:

DFO's *Guidelines for the Use of Explosives In or Near Canadian Fisheries Water* was developed to provide information to proponents on the conservation and protection of fish and fish habitat from impacts arising from the use of confined or unconfined explosives. The use of explosives adjacent to the fish habitat has the potential to destroy fish due to instantaneous pressures changes, which may affect the swim bladder of finfish. Furthermore, the peak particle velocity associated with blasting has the potential to affect spawning beds during the period of egg incubation. As a result of refraction due to ice cover on lakes, a more conservative value (50 kPa) then the guidelines (100 kPa) is currently required in Northern environments. Therefore, the NWB submission included the revised calculations to meet this guideline. However, it does not include the impact on Stream C1, which provides habitat to fish species approximately one hundred metres upstream of the mouth. As a result, the potential still exists that blasting in the pit may impact fish in Stream C1.

RESOLUTION/RECOMMENDATION:

TDC's revised assessment has been received by DFO and demonstrates that the potential
effects of the blast zone on fish in the lower section of Stream C1 should meet the intent of
the Guidelines. Furthermore, TDC has agreed to incorporate mitigation measures into the
blasting plan ensure impacts to fish and fish eggs are minimized.

2.5. Fish Salvage Program

Since DFO has developed a *General Fish-Out Protocol for Lakes to be Lost due to Mining Development*, works or undertakings occurring in fish-bearing waters has the potential to destroy fish and therefore, should include a program to salvage and relocate fish to an appropriate location prior to construction. TDC has indicated during environmental review that the protocol would be modified to meet the needs of the Jericho Diamond Project and would be applied to the dewatering of Long Lake for the construction of the Processed Kimberlite Containment Area (PKCA).

RESOLUTION/RECOMMENDATION:

- TDC has provided an updated protocol which is appropriately designed for the Jericho Diamond Project and has agreed to solicit local community input on the ultimate use of fish.
- DFO recommends that community interests are taken into consideration in the implementation of the Fish Salvage program and the use of the fish.

2.6. No Net Loss Plan (NNLP)

2.6.1 Conceptual Agreement

In general, DFO is satisfied with the use of the accounting framework to objectively determine the losses of the fish habitat. Furthermore, the framework demonstrates that the enhancement components of the NNLP will provide sufficient gains in fish habitat for the Jericho Diamond Project. DFO has indicated to TDC that agreement on the conceptual NNLP can be achieved, provided minor revisions are incorporated. These changes include the addition of the unnamed pond, west of Long lake, Stream C3, the causeway, and the monitoring plan. Furthermore, any change in project components identified at the NWB Final Hearings should be reflected in the revised NNLP.

RESOLUTION/RECOMMENDATION:

• TDC has agreed to revise the NNLP, subject to the outcome of the NWB Final Hearing.

2.6.2 Design Drawings for Enhancements

Preferably, fish habitat gains should target the fish habitat type that was lost. Although the feasibility associated with re-creating a lake presents significant challenges, TDC has identified limiting habitat such as rearing/foraging as the main habitat type to be enhanced in the NNLP. This will be accomplished through the development of underwater shoals by TDC in the project area, to provide rearing/foraging habitat for all age classes and species of fish. While DFO generally accepts this concept, DFO encourages the incorporation of diversity in the enhancement (i.e. varying substrate sizes, incorporation of varying cover types, varying shapes of the enhancement, etc), particularly where comparisons can be made with other enhancements designs. Detailed drawings will be required for submission to DFO for review and approval. In addition, the enhancements will require the development of a timeline and construction plan, using best management practice, which minimizes impacts on fish and water quality and requires review and approval by DFO prior to implementation. Where blasting may be necessary, in or around the water (i.e. to mitigate barriers), it should be demonstrated by TDC that impacts to fish will be mitigated.

RESOLUTION/RECOMMENDATION:

• TDC has committed to incorporating diversify into the fish habitat enhancements, provide a timeline on the provision of detailed designs subject to the DFO Authorization, provide a plan to mitigate the implementation of the enhancements, and to provide a plan to demonstrate the compensatory works have been completed according to the plan.

2.6.3 Baseline Fisheries Collection and Monitoring Plan

DFO will require that a monitoring plan be submitted and approved, prior to the implementation of the NNLP. In order to ensure the enhancements have achieved their objectives and goals, a revised monitoring plan is required to demonstrate the effectiveness of the enhancements. It will be important to ensure that sufficient baseline fisheries data has been collected to demonstrate that the enhancements are achieving the expected goals. Although some baseline fisheries data has been collected for several of the proposed areas of enhancement, any gaps such as current habitat characterization and fish utilization in the proposed enhancement areas, and the ability of fish to pass those areas where barrier mitigation is proposed, should be addressed.

RESOLUTION/RECOMMENDATION:

• TDC has agreed to provide monitoring program which demonstrates that the enhancements are effective in achieving their goals, based on adequate baseline fisheries data for the areas of enhancement.

2.6.4 Performance Bonding

TDC has committed to implement the enhancement components of the NNLP, which will be further outlined in the conditions of the *Fisheries Act* Authorization. However, typical of projects of this scale and nature, DFO requires that Performance Bonding to ensure that the obligations and commitments made by TDC, with respect to the NNLP, are completed according to the timelines identified and the manner agreed to.

RESOLUTION/RECOMMENDATION:

TDC has agreed to provide DFO a cost break down for the construction and monitoring
associated with the enhancement measures, which include the shoal construction, causeway
reclamation, and the construction of the "fish friendly" diversion channel. The cost break
down will be reviewed by DFO, which will form the basis of the performance bond that TDC
will prepare for DFO.

3. CONCLUSION

Overall, the environmental review and the regulatory phases have identified impacts to fish and fish habitat. DFO is satisfied, the mitigation measures presented in the NWB submission, in addition to our recommendations, will adequately address the identified concerns. Furthermore, DFO is confident the NNLP will adequately address residual losses to fish habitat through the development of enhancements that demonstrate No Net Loss of fish habitat within the affected watersheds. DFO looks forward to participating in the NWB Final Hearings and encourages the NWB to consider our recommendations in minimizing the impacts to fish and fish habitat.