

TMI_876-RG(2)-01

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_876-RG(2)-01	RG(2)-01	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 10.1.2, 10.1.3
				Reference to EIS / Appendix	Section 14; Appendix II
				Cross-reference to Round 1 IRs	TMI_008-EA(1)-08
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> <li data-bbox="835 721 1986 841">J The response to IR# TMI_008 provides some information that can help to determine effects under subsection 5(2) of CEAA 2012. Section 14 of the revised EIS provides some additional information on “federal considerations”, however, it does not link strongly to Appendix II, the conceptual fish habitat offsetting plan from which many fundamental details needed to understand effects under subsection 5(2) can be drawn. <li data-bbox="835 850 1986 1003">J The Agency requires a further understanding of the federal authorizations that will be required, and the conceptual fish habitat offsetting measures that are being considered. IR# FFH(2)-02 relates to the conceptual offset habitat plans; the accounting of fish habitat loss and offset habitat created, provided in response to IR# FFH(2)-02, will serve as a starting point in responding to this IR. The Agency recommends that IR# FFH(2)-02 be completed before preparing the response to this IR, and that this IR be considered step- by-step. <li data-bbox="835 1013 1986 1166">J The Agency requires information on the project activities that will be undertaken to overprint or alter the watercourses that are authorized by federal decisions, along with the project activities that will be undertaken to create new habitat as authorized by these same federal decisions, in order to understand the potential changes to the environment, including ecosystem habitats, in those areas. If TMI has not selected a preferred conceptual offset plan, then information for any feasible offset habitat options will need to be provided. <li data-bbox="835 1175 1986 1357">J The Agency notes that no federal decisions are required for this project under the Migratory Birds Convention Act, 1994 or the Species at Risk Act, and therefore, these legislations need not be considered in determining effects under subsection 5(2) of CEAA 2012. The Agency also notes that any changes to the environment that are directly linked or necessarily incidental to the federal authorization under the Explosives Act, related to facilities for the manufacture and storage of explosives, will likely be minor; therefore, no questions related to that federal decision will be posed in this IR. 	

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				<p><u>Specific Question / Request for Information:</u></p> <p>A. Drawing from the accounting conducted in response to FFH(2)-02, provide a map that clearly indicates the watercourses that would be overprinted or reduced through a federal authorization, distinguishing those alterations that would be authorized under Section 35 of the Fisheries Act, or through a Schedule 2 amendment under the Metal Mining Effluent Regulations. In the same map, clearly indicate any new habitat that would be created under these authorizations. If TMI has not selected a preferred conceptual offset plan, offsetting measures proposed under any feasible offset habitat option must be shown in this map.</p> <p>B. Provide a table that describes any activities required to overprint or reduce the watercourses shown in the map provided for Question A, and that describes any activities required to construct and maintain each offsetting measure shown in the same map. For example, identify activities necessary for the creation of a new watercourse, such as the removal of vegetation or a wetland in an area, or the building of a trench.</p> <p>C. Identify changes to the environment that may be caused by each of the activities identified in Question B, other than the ones captured under paragraphs 5(1)(a) and 5(1)(b) of CEAA 2012. For example, identify changes to the environment arising from the creation of a new watercourse, which may include changes to water quality and quantity, changes to air quality from emission of particulate matter, loss of terrestrial habitat for particular flora and fauna such as beaver ponds, or loss of riparian areas and wetlands.</p> <p>D. Identify potential effects related to the changes to the environment identified in Question C, including effects to health and socio-economic conditions (including navigation), physical and cultural heritage, and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, other than the ones captured under paragraph 5(1)(c) of CEAA 2012.</p> <p>E. Identify valued components from the list in Table 6.1.3.21-1 of the revised EIS, other than those already assessed under subsection 5(1) of CEAA 2012, which may be affected by those changes identified in Questions C and D. Examples of valued components to retain may include wetlands, amphibians and reptiles. It is possible that new valued components that are not included in Table 6.1.3.21-1 may need to be considered to capture all effects under subsection 5(2) of CEAA 2012.</p> <p>F. Given the changes to the environment and potential impacts identified in Questions C and D, describe the potential adverse effects, including effects associated with changes to the environment, to each valued component identified in Question E that are directly linked or necessarily incidental to each federal decision, including those that may not have already been identified in the revised EIS.</p> <p>G. Identify the mitigation measures to avoid, reduce or compensate potential adverse effects identified in Question F.</p> <p>H. Characterize the residual adverse effects identified in Question F after applying mitigation measures identified in Question G.</p> <p>I. Describe a follow-up program, including objectives and any monitoring measures, which will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures in Question G, if required. Include the follow-up measures in the overall Follow-Up Program to be prepared in response to IR# EA(2)-01.</p>

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				<p><u>Draft Response:</u></p> <p><u>Part A:</u> TMI_876-RG(2)-01_Figure_1 provides a map that clearly indicates the watercourses that would be overprinted or reduced through a federal authorization, distinguishing between those that would be authorized under Section 35 of the Fisheries Act as well as those authorized through a Schedule 2 amendment under the Metal Mining Effluent Regulations. This figure also illustrates two constructed watercourse/waterbodies that are being considered for offsetting / compensation.</p> <p><u>Part B:</u> Table 1 documents the areas considered for authorization under Section 35 of the Fisheries Act and through a Schedule 2 amendment under the Metal Mining Effluent Regulations.</p> <table border="1" data-bbox="793 651 1959 1373"> <thead> <tr> <th colspan="6" data-bbox="793 651 1959 724">Table 1: Authorization under Section 35 of the Fisheries Act and through a Schedule 2 amendment under the Metal Mining Effluent Regulations</th> </tr> <tr> <th data-bbox="793 724 989 824">Reach</th> <th data-bbox="989 724 1184 824">General Reach / Wetland Location</th> <th data-bbox="1184 724 1394 824">Specific Reach / Wetland Location</th> <th data-bbox="1394 724 1593 824">Habitat Alteration</th> <th data-bbox="1593 724 1793 824">Authorization Required</th> <th data-bbox="1793 724 1959 824">Area of Fish Habitat Loss (m²)</th> </tr> </thead> <tbody> <tr> <td data-bbox="793 824 989 1005">Blackwater Creek Tributary 1 Reach 1</td> <td data-bbox="989 824 1184 1005">Downstream end of Blackwater Creek Tributary 2, upstream to the berm that surrounds the operations area.</td> <td data-bbox="1184 824 1394 1005">Same as General Reach Location.</td> <td data-bbox="1394 824 1593 1005">Flow temporarily reduced or eliminated.</td> <td data-bbox="1593 824 1793 1005">Section 35</td> <td data-bbox="1793 824 1959 1005">777</td> </tr> <tr> <td data-bbox="793 1005 989 1133">Blackwater Creek Tributary 1 Reach 2</td> <td data-bbox="989 1005 1184 1373" rowspan="3">Upstream end of Blackwater Creek Tributary 2 downstream to berm that surrounds the operations area.</td> <td data-bbox="1184 1005 1394 1133">Upstream-most wetland located partially within proposed open pit.</td> <td data-bbox="1394 1005 1593 1133">Overprinted by open pit.</td> <td data-bbox="1593 1005 1793 1133">Section 35</td> <td data-bbox="1793 1005 1959 1133">13,244</td> </tr> <tr> <td data-bbox="793 1133 989 1261">Blackwater Creek Tributary 1 Reach 2</td> <td data-bbox="1184 1133 1394 1261">Mid-reach wetland located entirely within proposed open pit.</td> <td data-bbox="1394 1133 1593 1261">Overprinted by open pit.</td> <td data-bbox="1593 1133 1793 1261">Section 35</td> <td data-bbox="1793 1133 1959 1261">3,097</td> </tr> <tr> <td data-bbox="793 1261 989 1373">Blackwater Creek Tributary 1 Reach 2</td> <td data-bbox="1184 1261 1394 1373">Downstream-most wetland located immediately upstream of berm</td> <td data-bbox="1394 1261 1593 1373">Overprinted by open pit.</td> <td data-bbox="1593 1261 1793 1373">Section 35</td> <td data-bbox="1793 1261 1959 1373">22,084</td> </tr> </tbody> </table>	Table 1: Authorization under Section 35 of the Fisheries Act and through a Schedule 2 amendment under the Metal Mining Effluent Regulations						Reach	General Reach / Wetland Location	Specific Reach / Wetland Location	Habitat Alteration	Authorization Required	Area of Fish Habitat Loss (m ²)	Blackwater Creek Tributary 1 Reach 1	Downstream end of Blackwater Creek Tributary 2, upstream to the berm that surrounds the operations area.	Same as General Reach Location.	Flow temporarily reduced or eliminated.	Section 35	777	Blackwater Creek Tributary 1 Reach 2	Upstream end of Blackwater Creek Tributary 2 downstream to berm that surrounds the operations area.	Upstream-most wetland located partially within proposed open pit.	Overprinted by open pit.	Section 35	13,244	Blackwater Creek Tributary 1 Reach 2	Mid-reach wetland located entirely within proposed open pit.	Overprinted by open pit.	Section 35	3,097	Blackwater Creek Tributary 1 Reach 2	Downstream-most wetland located immediately upstream of berm	Overprinted by open pit.	Section 35	22,084
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						surrounding the operation area.			
						Reach connecting upstream-most wetland to mid-reach wetland and	Overprinted by open pit.	Section 35	86
						Reach connecting mid-reach wetland to downstream-most wetland.	Overprinted by open pit.	Section 35	195
				Blackwater Creek Unnamed Tributary Reach 1	The Unnamed Tributary of Blackwater Creek from the headwaters to the confluence with Blackwater Creek main channel	Same as General Reach Location	Flow temporarily reduced or eliminated	Section 35	327
				Blackwater Creek Tributary 2 Reach 1	Downstream end of Blackwater Creek Tributary 2 upstream to the berm that surrounds the operation area.	Same as General Reach Location.	Flow temporarily reduced or eliminated.	Section 35	856
				Blackwater Creek Tributary 2 Reach 2	Blackwater Creek Tributary 2 reach contained within the berm that surrounds the operation area.	Reach from berm at downstream end to wetland located within operation area.	Overprinted by Tailings Storage Facility.	Schedule 2	237
			Wetland located within operations area.			Overprinted by Tailings Storage Facility.	Schedule 2	1,445	
			Blackwater Creek Tributary 2 as well as T2-A and T2-B R1 upstream of wetland and within			Overprinted by Tailings Storage Facility.	Schedule 2	2,560	

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					berm that surrounds operation area.										
				Blackwater Creek Tributary 2 Reach 3	Blackwater Creek Tributary 2 reach upstream of the berm that surrounds the operation area.	Reach from berm surrounding operations area upstream to proposed diversion channel.									
					Flow temporarily reduced or eliminated.	Section 35									
						140									
				Total Area (m ²) Considered for Authorization under Section 35 of the Fisheries Act			40,806								
				Total Area (m ²) Considered for Schedule 2 amendment under the Metal Mining Effluent Regulations.			4,242								
<p>Table 2 documents the activities required to construct and maintain the offsetting measures as shown in the attached Figure 876-RG(2)-01-Figure_1:</p>															
<table border="1"> <thead> <tr> <th colspan="3" data-bbox="793 773 1959 816">Table 2 Activities Required to Construct and Maintain Fish Offsetting Measures</th> </tr> <tr> <th data-bbox="793 816 1035 943">Offset / Compensation Measure</th> <th data-bbox="1035 816 1709 943">Activities Required for Construction and Maintenance of Offsetting Measure</th> <th data-bbox="1709 816 1959 943">Area of Fish Habitat Provided by Offsetting / Compensation Measure (m²)</th> </tr> </thead> <tbody> <tr> <td data-bbox="793 943 1035 1393"> Realignment of Blackwater Creek Tributary 2 </td> <td data-bbox="1035 943 1709 1393"> Blackwater Creek Tributary 2 must be diverted to convey non-contact water around the proposed Project site. The most direct route to convey this water was provided as a drawing in the Fish Habitat Offsetting document. Construction of the diversion will involve excavation of a diversion channel with a downvalley length of 1,219 m. To facilitate construction of this channel a narrow corridor will need to be cleared along the route of the proposed realignment. The channel will then be excavated along this cleared corridor. The majority of the channel will be constructed in ecosites described as "Spruce-Pine/Feathermoss: Fresh, Sandy-Coarse Loamy Soil" and "Spruce-Pine/Feathermoss: Moist, Silty-Clayey Soil". The channel will also be connected to the two tributaries of Blackwater Creek Tributary 2 which are located to the east of the proposed Tailings Storage Facility. </td> <td data-bbox="1709 943 1959 1393"> 3,047 </td> </tr> </tbody> </table>							Table 2 Activities Required to Construct and Maintain Fish Offsetting Measures			Offset / Compensation Measure	Activities Required for Construction and Maintenance of Offsetting Measure	Area of Fish Habitat Provided by Offsetting / Compensation Measure (m ²)	Realignment of Blackwater Creek Tributary 2	Blackwater Creek Tributary 2 must be diverted to convey non-contact water around the proposed Project site. The most direct route to convey this water was provided as a drawing in the Fish Habitat Offsetting document. Construction of the diversion will involve excavation of a diversion channel with a downvalley length of 1,219 m. To facilitate construction of this channel a narrow corridor will need to be cleared along the route of the proposed realignment. The channel will then be excavated along this cleared corridor. The majority of the channel will be constructed in ecosites described as "Spruce-Pine/Feathermoss: Fresh, Sandy-Coarse Loamy Soil" and "Spruce-Pine/Feathermoss: Moist, Silty-Clayey Soil". The channel will also be connected to the two tributaries of Blackwater Creek Tributary 2 which are located to the east of the proposed Tailings Storage Facility.	3,047
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				<table border="1" data-bbox="793 277 1959 776"> <tr> <td data-bbox="793 277 1035 776">Creation of New Pond for Fish Habitat</td> <td data-bbox="1035 277 1709 776"> <p>This offsetting measure would involve the excavation of two new ponds to provide fish habitat. The ponds will be located adjacent to Blackwater Creek immediately downstream of the confluence with Blackwater Creek Tributary 1.</p> <p>The ponds will be located within Treasury Metal's current property boundary of claims and dispositions. Construction of the ponds will require the clearing of approximately 6 ha of land adjacent to the Blackwater Creek floodplain to enable the excavation of the proposed ponds. A portion of this clearing will occur within the wetland area adjacent to the creek; however, the majority of the clearing will be performed in the adjacent upland areas associated with forested areas and existing developed land located to the east of Blackwater Creek and north of Blackwater Creek Tributary 3.</p> <p>The ponds will be connected Blackwater Creek via short outlet channels (one channel connecting each pond to the Creek). Construction of these outlet channels will require a small extent of disturbance to the banks of Blackwater Creek.</p> </td> <td data-bbox="1709 277 1959 776">60,000</td> </tr> </table> <p><u>Part C:</u> TMI_876-RG(2)-01_Table_3 provides a listing of the bio-physical and socio-economics changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the construction of the fish compensation habitat. A qualitative assessment was otherwise provided.</p> <p><u>Part D:</u> TMI_876-RG(2)-01_Table_3 provides a description of the potential effects of bio-physical and socio-economics changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the construction of the fish compensation habitat. A qualitative assessment was otherwise provided.</p> <p><u>Part E:</u> The list of VCs that were provided in Table 6.1.3.21-1 of the revised EIS (April 2018) fully encompasses all the potential effects from the construction of the fish habitat offset. Therefore, no new VCs were required to assess the potential effects of the construction of the fish compensation habitat. The VCs that would be affected from the construction of the fish compensation habitat other than those under subsection 5(1) of CEAA 2012 are provided in TMI_876-RG(2)-01_Table_3.</p> <p><u>Part F:</u> TMI_876-RG(2)-01_Table_3 provides a listing of the bio-physical and socio-economics changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the construction of the fish compensation habitat, along</p>	Creation of New Pond for Fish Habitat	<p>This offsetting measure would involve the excavation of two new ponds to provide fish habitat. The ponds will be located adjacent to Blackwater Creek immediately downstream of the confluence with Blackwater Creek Tributary 1.</p> <p>The ponds will be located within Treasury Metal's current property boundary of claims and dispositions. Construction of the ponds will require the clearing of approximately 6 ha of land adjacent to the Blackwater Creek floodplain to enable the excavation of the proposed ponds. A portion of this clearing will occur within the wetland area adjacent to the creek; however, the majority of the clearing will be performed in the adjacent upland areas associated with forested areas and existing developed land located to the east of Blackwater Creek and north of Blackwater Creek Tributary 3.</p> <p>The ponds will be connected Blackwater Creek via short outlet channels (one channel connecting each pond to the Creek). Construction of these outlet channels will require a small extent of disturbance to the banks of Blackwater Creek.</p>	60,000
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				<p>with the associated bio-physical and socio-economics effects. TMI_876-RG(2)-01_Table_3 also identifies the adverse effects that are likely to result from the construction of the fish compensation habitat.</p> <p><u>Part G:</u> The mitigation measures to avoid, reduce or compensate potential adverse effects from the construction of the fish compensation habitat are provided in TMI_876-RG(2)-01_Table_3.</p> <p><u>Part H:</u> The residual adverse effects associated with the construction of the have been characterized either quantitatively, when applicable, or qualitatively in TMI_876-RG(2)-01_Table_3.</p> <p><u>Part I:</u> As part of the Round 2 information request process, Treasury Metals have received several questions related to the follow-up programs described in Section 21 of the revised EIS. To capture the responses to these Round 2 questions, and provided a consolidated update the Follow-up Program, Treasury Metals has prepared the Goliath Gold Project Follow-up Program Addendum to accompany the responses to the Round 2 information requests. This document effectively captures all of the responses to Round 2 information requests regarding eh aspects of the follow-up monitoring program for the Project, and will also be used to verify the predictions outlined in the response to other parts of TMI_876-AC(2)-01. No changes are required to the Follow-up Program as a result of the fish compensation habitat construction. There will likely be required monitoring under the MMER that will be developed in consultation with ECCC and DFO.</p>
				<p><u>Agency Comment on Draft Response:</u></p> <p>The activities identified in RG(2)-01B, Table 2 and analyzed in TMI_876-RG(2)-01_Table_1 only relate to the construction and maintenance of new fish offsetting habitat. No activities are mentioned for the overprinting or reduction of watercourses that would be authorized under Schedule 2 of MDMER or section 35 of the Fisheries Act (e.g., filling of a watercourse with rock or overburden, removal of habitat that is along the edges of the waterbodies).</p> <p>The analysis that is provided through RG(2)-01C to I must be carried through for activities related to the overprinting or removal of waterbodies.</p> <p><u>Specific response to Agency Comment:</u></p> <p>The response to Part B has been revised to include a description of the activities related to the overprinting and reduction of watercourses that would be authorized under Schedule 2 of MDMER and Section 35 of the Fisheries Act (Table 1b). The responses to Parts C through H have also been revised to reflect the changes to Part B and an effects assessment has been provided for the activities related to overprinting and reduction of watercourses that would be authorized under Schedule 2 of MDMER and Section 35 of the Fisheries Act (Table 3b).</p> <p><u>Final Response:</u></p> <p><u>Part A:</u></p>

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				<p>TMI_876-RG(2)-01_Figure_1 provides a map that clearly defines the watercourses that would be overprinted or reduced through a federal authorization, distinguishing between those that would be authorized under Section 35 of the Fisheries Act as well as those authorized through a Schedule 2 amendment under the Metal and Diamond Mining Effluent Regulations. This figure also illustrates two constructed watercourse / waterbodies that are being considered for offsetting / compensation.</p> <p><u>Part B:</u></p> <p>Table 1a documents the areas of fish bearing habitat that correspond to TMI_876-RG(2)-01_Figure_1 considered for authorization under Section 35 of the Fisheries Act and through a Schedule 2 amendment under the Metal and Diamond Mining Effluent Regulations. In total, 50,559 m² of fish bearing habitat will be lost due to the Project under Section 35 of the Fisheries Act and 4,242 m² of fish bearing habitat will be lost due to the Project under Schedule 2 of the Metal and Diamond Mining Effluent Regulations. Table 1b describes the mine related activities required that will result in the loss of the fish bearing habitat described in Table 1a.</p> <p>In order to meet the offsetting / compensation requirements stipulated under the Fisheries Act and the Metal and Diamond Mine Effluent Regulations, two (2) fish habitat / compensation ponds and the diversion channel for the upstream sections of Blackwater Creek Tributary 2 have been proposed. TMI_876-RG(2)-01_Figure_1 illustrates the locations of the two (2) proposed ponds and the diversion channel. Table 2a documents the total area for both of the proposed fish offsetting / compensation habitat. In total, 63,047 m² of fish habitat is planned to be constructed to offset the 54,801 m² of habitat loss. Table 2b describes the mine related activities required to construct both the offsetting / compensation ponds and the diversion channel.</p> <table border="1" data-bbox="793 963 1959 1365"> <caption>Table 1a: Watercourses Overprinted or Reduced under Section 35 of the Fisheries Act and through a Schedule 2 amendment under the Metal Mining Effluent Regulations</caption> <thead> <tr> <th>Reach</th> <th>General Reach / Wetland Location</th> <th>Specific Reach / Wetland Location</th> <th>Habitat Alteration</th> <th>Authorization Required</th> <th>Area of Fish Habitat Loss (m²)</th> </tr> </thead> <tbody> <tr> <td>Blackwater Creek Tributary 1 Reach 1</td> <td>Downstream end of Blackwater Creek Tributary 1, upstream to the berm that surrounds the operations area.</td> <td>Same as General Reach Location.</td> <td>Flow temporarily reduced or eliminated.</td> <td>Section 35</td> <td>777</td> </tr> <tr> <td>Blackwater Creek Tributary 1</td> <td>Upstream end of Blackwater Creek</td> <td>WLD4b(Pond1) located partially within proposed open pit.</td> <td>Overprinted by open pit.</td> <td>Section 35</td> <td>13,244</td> </tr> </tbody> </table>	Reach	General Reach / Wetland Location	Specific Reach / Wetland Location	Habitat Alteration	Authorization Required	Area of Fish Habitat Loss (m ²)	Blackwater Creek Tributary 1 Reach 1	Downstream end of Blackwater Creek Tributary 1, upstream to the berm that surrounds the operations area.	Same as General Reach Location.	Flow temporarily reduced or eliminated.	Section 35	777	Blackwater Creek Tributary 1	Upstream end of Blackwater Creek	WLD4b(Pond1) located partially within proposed open pit.	Overprinted by open pit.	Section 35	13,244
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				Reach 2	Tributary 1 downstream to berm that surrounds the operations area.	WLD4b(Pond2) located entirely within proposed open pit.	Overprinted by open pit.	Section 35	3,097
						WLD4a(Pond) located immediately upstream of berm surrounding the operation area.	Overprinted by open pit.	Section 35	22,084
						Reach connecting WLD4b(Pond1) to WLD4b(Pond2)	Overprinted by open pit.	Section 35	86
						Reach connecting WLD4b(Pond2) to WLD4a(Pond).	Overprinted by open pit.	Section 35	195
				Blackwater Creek Unnamed Tributary Reach 1	The Unnamed Tributary of Blackwater Creek from the headwaters to the confluence with Blackwater Creek main channel	Same as General Reach Location	Flow temporarily reduced or eliminated	Section 35	327
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				Blackwater Creek Tributary 2 Reach 2	Blackwater Creek Tributary 2 reach contained within the berm that surrounds the operation area.	Reach from berm at downstream end to WLD2(Pond) located within operation area.	Overprinted by Tailings Storage Facility.	Schedule 2	237
						WLD2(Pond) located within operations area.	Overprinted by Tailings Storage Facility.	Schedule 2	1,445
						Blackwater Creek Tributary 2 as well as T2-A and T2-B R1 upstream of WLD2(Pond) and	Overprinted by Tailings Storage Facility.	Schedule 2	2,560

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						within berm that surrounds operation area.			
				Blackwater Creek Tributary 2 Reach 3	Blackwater Creek Tributary 2 reach upstream of the berm that surrounds the operation area.	Reach from berm surrounding operations area upstream to proposed diversion channel.	Flow temporarily reduced or eliminated.	Section 35	140
				Blackwater Creek Tributary 4 WLD5(Pond)	The open water portion of the wetland within the Zone of Influence (ZOI) that is underlain by a granular deposit southeast of the Project	Same as General Wetland Location	Dewatering of the open pit could temporarily drain the pond within WLD5 (conservatively assumed 100% loss of the fish habitat).	Section 35	5,864
				Blackwater Creek Tributary 4 Reach 1	The open water portion of the wetland within the Zone of Influence (ZOI) that is underlain by a granular deposit southeast of the Project	Same as General Wetland Location	Dewatering of the open pit could temporarily drain the portion of Blackwater Creek Tributary 4 that is underlain by the kame deposit (conservatively assumed to be 100% loss of fish habitat).	Section 35	793
				Hoffstrom's Bay Tributary Reach 1	Includes all of the watercourse upstream of Thunder Lake	Same as General Reach Location	Flow temporarily reduced or eliminated.	Section 35	3,096
Total Area (m ²) Considered for Authorization under Section 35 of the Fisheries Act									50,559
Total Area (m ²) Considered for Schedule 2 amendment under the Metal Mining Effluent Regulations.									4,242
Table 1b: Activities Required to Overprint or Reduce under Section 35 of the Fisheries Act and through a Schedule 2 amendment under the Metal Mining Effluent Regulations									
Reach		General Reach / Wetland Location		Activities Required to Overprint or Reduce Flows					
Blackwater Creek Tributary 1 Reach 1		Downstream end of Blackwater Creek Tributary 1, upstream to the		As part of site preparation and construction phase, a perimeter runoff and seepage collection system will be constructed around the operations area. This perimeter and runoff collection system will transect Blackwater Creek Tributary 1 at the most upstream point of Reach 1. This loss of upstream catchment to Blackwater Creek					

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response		
					berm that surrounds the operations area.	Tributary 1 Reach 1 is predicted to result in a 95% flow reduction during operations, closure and post-closure phase until the open pit fills with water and discharges into Blackwater Creek Tributary 1.
				Blackwater Creek Tributary 1 Reach 2	Upstream end of Blackwater Creek Tributary 1 downstream to berm that surrounds the operations area.	The upstream portion of Blackwater Creek Tributary 1 (Reach 2) will be overprinted by mine infrastructure within the operations area. The beaver dams within this reach will be removed and the water allowed to drain. Fish salvage will be conducted once the tributary is drained and fish will be relocated to another nearby watercourse within the Blackwater Creek system. Once fish salvage is complete, the overburden will be stripped and placed in the overburden stockpile.
				Blackwater Creek Unnamed Tributary Reach 1	The Unnamed Tributary of Blackwater Creek from the headwaters to the confluence with Blackwater Creek main channel	As part of site preparation and construction phase, a perimeter runoff and seepage collection system will be constructed around the operations area. A large portion of the catchment area for Blackwater Creek Unnamed Tributary Reach 1 will be isolated once the berm surrounding the operations area is constructed, resulting in an estimated 65% loss in flow. The activities related to constructing the perimeter runoff and seepage collection system include the excavation of the perimeter ditch and placing the excavated material adjacent to the ditch for the construction of the perimeter berm. At this point, Blackwater Creek Unnamed Tributary (Reach 1) will be lost.
				Blackwater Creek Tributary 2 Reach 1	Downstream end of Blackwater Creek Tributary 2 upstream of the confluence with Blackwater Creek to the berm that surrounds the operation area.	As part of site preparation and construction phase, a perimeter runoff and seepage collection system will be constructed around the operations area. A large portion of the catchment area for Blackwater Creek Tributary 2 Reach 1 will be isolated once the berm surrounding the operations area is constructed. This is predicted to result in an 85.5 % loss in flow to Blackwater Creek Tributary 2 Reach 1. The activities related to constructing the perimeter runoff and seepage collection system include the excavation of the perimeter ditch and placing the excavated material adjacent to the ditch for the construction of the perimeter berm. At this point, the downstream portions of Blackwater Creek Tributary 2 (Reach 1) will be lost.
				Blackwater Creek Tributary 2 Reach 2	Blackwater Creek Tributary 2 reach contained within the berm that surrounds the operation area.	As part of site preparation and construction phase, a perimeter runoff and seepage collection system will be constructed around the operations area. The portion of Blackwater Creek Tributary 2 contained within the operations area will be lost once the perimeter runoff and seepage collection system is constructed, effectively removed the upstream catchment area from the tributary. The activities related to constructing the perimeter runoff and seepage collection system include the excavation of the perimeter ditch and placing the excavated material adjacent to the ditch for the construction of the perimeter berm. At this point, Blackwater Creek Tributary 2 Reach 2 will be lost.
				Blackwater Creek Tributary 2 Reach 3	Blackwater Creek Tributary 2 reach upstream of the	The small reach of Blackwater Creek Tributary 2 (Reach 3) will be isolated once the Blackwater Creek Tributary 2 diversion channel has been constructed. Construction of the diversion will involve excavation of a diversion channel with a downvalley length of 1,219 m. To facilitate construction of this channel a narrow corridor will

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
					<p>berm that surrounds the operation area.</p> <p>need to be cleared along the route of the proposed diversion. The channel will then be excavated along this cleared corridor. Once this channel is constructed, Blackwater Creek Tributary 2 Reach 3 will be lost.</p>
				Blackwater Creek Tributary 4 WLD5(Pond)	<p>The open water portion of the wetland within the Zone of Influence (ZOI) that is underlain by a granular deposit southeast of the Project</p> <p>During the operations phase of the Project groundwater will be drawn down to provide a safe, dry working environment for the mine workings. This has been conservatively assumed to drain the open water portion of WLD5 underlain by a kame deposit and potentially connected to the groundwater drawdown. The direct activities related to groundwater dewatering includes the installation of groundwater wells within the Treasury Metals property and pumping water from these wells and discharging it to the minewater pond.</p>
				Blackwater Creek Tributary 4 Reach 1	<p>The open water portion of the wetland within the Zone of Influence (ZOI) that is underlain by a granular deposit southeast of the Project</p> <p>During the operations phase of the Project groundwater will be drawn down to provide a safe, dry working environment for the mine workings. This has been conservatively assumed to drain the portion of Blackwater Creek Tributary 4 that is underlain by a kame deposit and potentially connected to the groundwater drawdown. The direct activities related to groundwater dewatering includes the installation of groundwater wells within the Treasury Metals property and pumping water from these wells and discharging it to the minewater pond.</p>
				Hoffstrom's Bay Tributary	<p>Includes all of the watercourse upstream of Thunder Lake</p> <p>As part of site preparation and construction phase, a perimeter runoff and seepage collection system will be constructed around the operations area. This perimeter and runoff collection system will enclose a portion of the catchment for Hoffstrom's Bay Tributary, which is predicted to result in a permanent reduction in flow of 7.8%. None of the construction activities are predicted to overlap with the watercourse. During the operations phase, groundwater will be drawn down to provide a safe, dry working environment for the mine workings. This will result in a further 6.6% reduction in flow during the operations and closure phases. The direct activities related to groundwater dewatering includes the installation of groundwater wells within the Treasury Metals property and pumping water from these wells and discharging it to the minewater pond.</p>
<p>Table 2a Activities Required to Construct and Maintain Fish Offsetting Measures</p>					
Offset / Compensation Measure		Area of Fish Habitat Provided by Offsetting / Compensation Measure (m ²)			
Diversion of Blackwater Creek Tributary 2		3,047			
Creation of New Pond for Fish Habitat		60,000			

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response								
				<table border="1"> <thead> <tr> <th colspan="2" data-bbox="793 277 1955 313">Table 2b Activities Required to Construct and Maintain Fish Offsetting Measures</th> </tr> <tr> <th data-bbox="793 313 1228 370">Offset / Compensation Measure</th> <th data-bbox="1228 313 1955 370">Activities Required for Construction and Maintenance of Offsetting Measure</th> </tr> </thead> <tbody> <tr> <td data-bbox="793 370 1228 743">Diversion of Blackwater Creek Tributary 2</td> <td data-bbox="1228 370 1955 743"> <p>Blackwater Creek Tributary 2 must be diverted to convey non-contact water around the proposed Project site. The most direct route to convey this water was provided as a drawing in the Fish Habitat Offsetting document.</p> <p>Construction of the diversion will involve excavation of a diversion channel with a downvalley length of 1,219 m. To facilitate construction of this channel a narrow corridor will need to be cleared along the route of the proposed diversion. The channel will then be excavated along this cleared corridor.</p> <p>The majority of the channel will be constructed in ecosites described as "Spruce-Pine/Feathermoss: Fresh, Sandy-Coarse Loamy Soil" and "Spruce-Pine/Feathermoss: Moist, Silty-Clayey Soil".</p> <p>The channel will also be connected to the two tributaries of Blackwater Creek Tributary 2 which are located to the east of the proposed Tailings Storage Facility.</p> </td> </tr> <tr> <td data-bbox="793 743 1228 1166">Creation of New Pond for Fish Habitat</td> <td data-bbox="1228 743 1955 1166"> <p>This offsetting measure would involve the excavation of two new ponds to provide fish habitat. The ponds will be located adjacent to Blackwater Creek immediately downstream of the confluence with Blackwater Creek Tributary 1.</p> <p>The ponds will be located within Treasury Metal's current property boundary of claims and dispositions. Construction of the ponds will require the clearing of approximately 6 ha of land adjacent to the Blackwater Creek floodplain to enable the excavation of the proposed ponds. A portion of this clearing will occur within the wetland area adjacent to the creek; however, the majority of the clearing will be performed in the adjacent upland areas associated with forested areas and existing developed land located to the east of Blackwater Creek and north of Blackwater Creek Tributary 3.</p> <p>The ponds will be connected to Blackwater Creek via short outlet channels (one channel connecting each pond to the Creek). Construction of these outlet channels will require a small extent of disturbance to the banks of Blackwater Creek.</p> </td> </tr> </tbody> </table> <p data-bbox="793 1219 863 1247"><u>Part C:</u></p> <p data-bbox="793 1256 1976 1344">TMI_876-RG(2)-01_Table_3a provides a listing of the bio-physical and socio-economics changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the removal of fish habitat as a result of the Project. A quantitative assessment was provided where applicable, and a qualitative assessment was otherwise provided.</p> <p data-bbox="793 1354 1892 1412">Likewise, TMI_876-RG(2)-01_Table_3b provides a listing of the bio-physical and socio-economic changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the construction of the fish</p>	Table 2b Activities Required to Construct and Maintain Fish Offsetting Measures		Offset / Compensation Measure	Activities Required for Construction and Maintenance of Offsetting Measure	Diversion of Blackwater Creek Tributary 2	<p>Blackwater Creek Tributary 2 must be diverted to convey non-contact water around the proposed Project site. The most direct route to convey this water was provided as a drawing in the Fish Habitat Offsetting document.</p> <p>Construction of the diversion will involve excavation of a diversion channel with a downvalley length of 1,219 m. To facilitate construction of this channel a narrow corridor will need to be cleared along the route of the proposed diversion. The channel will then be excavated along this cleared corridor.</p> <p>The majority of the channel will be constructed in ecosites described as "Spruce-Pine/Feathermoss: Fresh, Sandy-Coarse Loamy Soil" and "Spruce-Pine/Feathermoss: Moist, Silty-Clayey Soil".</p> <p>The channel will also be connected to the two tributaries of Blackwater Creek Tributary 2 which are located to the east of the proposed Tailings Storage Facility.</p>	Creation of New Pond for Fish Habitat	<p>This offsetting measure would involve the excavation of two new ponds to provide fish habitat. The ponds will be located adjacent to Blackwater Creek immediately downstream of the confluence with Blackwater Creek Tributary 1.</p> <p>The ponds will be located within Treasury Metal's current property boundary of claims and dispositions. Construction of the ponds will require the clearing of approximately 6 ha of land adjacent to the Blackwater Creek floodplain to enable the excavation of the proposed ponds. A portion of this clearing will occur within the wetland area adjacent to the creek; however, the majority of the clearing will be performed in the adjacent upland areas associated with forested areas and existing developed land located to the east of Blackwater Creek and north of Blackwater Creek Tributary 3.</p> <p>The ponds will be connected to Blackwater Creek via short outlet channels (one channel connecting each pond to the Creek). Construction of these outlet channels will require a small extent of disturbance to the banks of Blackwater Creek.</p>
Table 2b Activities Required to Construct and Maintain Fish Offsetting Measures												
Offset / Compensation Measure	Activities Required for Construction and Maintenance of Offsetting Measure											
Diversion of Blackwater Creek Tributary 2	<p>Blackwater Creek Tributary 2 must be diverted to convey non-contact water around the proposed Project site. The most direct route to convey this water was provided as a drawing in the Fish Habitat Offsetting document.</p> <p>Construction of the diversion will involve excavation of a diversion channel with a downvalley length of 1,219 m. To facilitate construction of this channel a narrow corridor will need to be cleared along the route of the proposed diversion. The channel will then be excavated along this cleared corridor.</p> <p>The majority of the channel will be constructed in ecosites described as "Spruce-Pine/Feathermoss: Fresh, Sandy-Coarse Loamy Soil" and "Spruce-Pine/Feathermoss: Moist, Silty-Clayey Soil".</p> <p>The channel will also be connected to the two tributaries of Blackwater Creek Tributary 2 which are located to the east of the proposed Tailings Storage Facility.</p>											
Creation of New Pond for Fish Habitat	<p>This offsetting measure would involve the excavation of two new ponds to provide fish habitat. The ponds will be located adjacent to Blackwater Creek immediately downstream of the confluence with Blackwater Creek Tributary 1.</p> <p>The ponds will be located within Treasury Metal's current property boundary of claims and dispositions. Construction of the ponds will require the clearing of approximately 6 ha of land adjacent to the Blackwater Creek floodplain to enable the excavation of the proposed ponds. A portion of this clearing will occur within the wetland area adjacent to the creek; however, the majority of the clearing will be performed in the adjacent upland areas associated with forested areas and existing developed land located to the east of Blackwater Creek and north of Blackwater Creek Tributary 3.</p> <p>The ponds will be connected to Blackwater Creek via short outlet channels (one channel connecting each pond to the Creek). Construction of these outlet channels will require a small extent of disturbance to the banks of Blackwater Creek.</p>											

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p>offsetting / compensation habitat proposed. A quantitative assessment was provided where applicable, and a qualitative assessment was otherwise provided.</p> <p><u>Part D:</u> TMI_876-RG(2)-01_Table_3a provides a listing of the bio-physical and socio-economics changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the removal of fish habitat as a result of the Project. A quantitative assessment was provided where applicable, and a qualitative assessment was otherwise provided. Likewise, TMI_876-RG(2)-01_Table_3b provides a listing of the bio-physical and socio-economic changes to the environment, other than those under subsection 5(1) of CEAA 2012, likely to result from the construction of the fish offsetting / compensation habitat proposed. A quantitative assessment was provided where applicable, and a qualitative assessment was otherwise provided.</p> <p><u>Part E:</u> TMI_876-RG(2)-01_Table_3a and TMI_876-RG(2)-01_Table_3b provide a descriptions of the predicted effects, other than those under subsection 5(1) of CEAA 2012, to the VCs listed in Table 6.1.3.21-1 of the revised EIS (April 2018) likely to result from the removal of fish habitat as a result of the Project, and the construction of the fish offsetting / compensation habitat, respectively. The list of VCs that were provided in Table 6.1.3.21-1 of the revised EIS (April 2018) fully encompasses all the potential effects from the removal of fish habitat or the construction of the fish habitat offset. Therefore, no new VCs were added to the assessment provided in the revised EIS (April 2018).</p> <p><u>Part F:</u> TMI_876-RG(2)-01_Table_3a provides a listing of the adverse effects to bio-physical and socio-economics, other than those under subsection 5(1) of CEAA 2012, likely to result from the removal of fish habitat as a result of the Project. A quantitative assessment was provided where applicable, and a qualitative assessment was otherwise provided. Likewise, TMI_876-RG(2)-01_Table_3b provides a listing of the adverse effects to bio-physical and socio-economic, other than those under subsection 5(1) of CEAA 2012, likely to result from the construction of the fish offsetting / compensation habitat proposed. A quantitative assessment was provided where applicable, and a qualitative assessment was otherwise provided.</p> <p><u>Part G:</u> The mitigation measures to avoid, reduce or compensate potential adverse effects from the removal of fish habitat and the construction of the fish offsetting / compensation habitat are provided in TMI_876-RG(2)-01_Table_3a and TMI_876-RG(2)-01_Table_3b, respectively.</p>

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p><u>Part H:</u> The residual adverse effects associated with the removal of fish habitat or the construction of fish compensation habitat have been characterized either quantitatively, when applicable, or qualitatively in TMI_876-RG(2)-01_Table_3a. The residual adverse effects associated with the construction of fish offsetting / compensation habitat have been characterized either quantitatively, when applicable, or qualitatively in TMI_876-RG(2)-01_Table_3b.</p> <p><u>Part I:</u> No specific modifications to the Follow-Up Program were identified as a result of the analyses presented in Parts A, through H of this response. All of the effects associated with the activities presented in Tables 2b and 2c, and the effects described in table 3 and 3b are captured in the Goliath Gold Project Follow-up Program Addendum. The Goliath Gold Project Follow-Up Program Addendum supersedes Section 13 of the revised EIS (April 2018), and has been provided as part of the Round 2 response process.</p>

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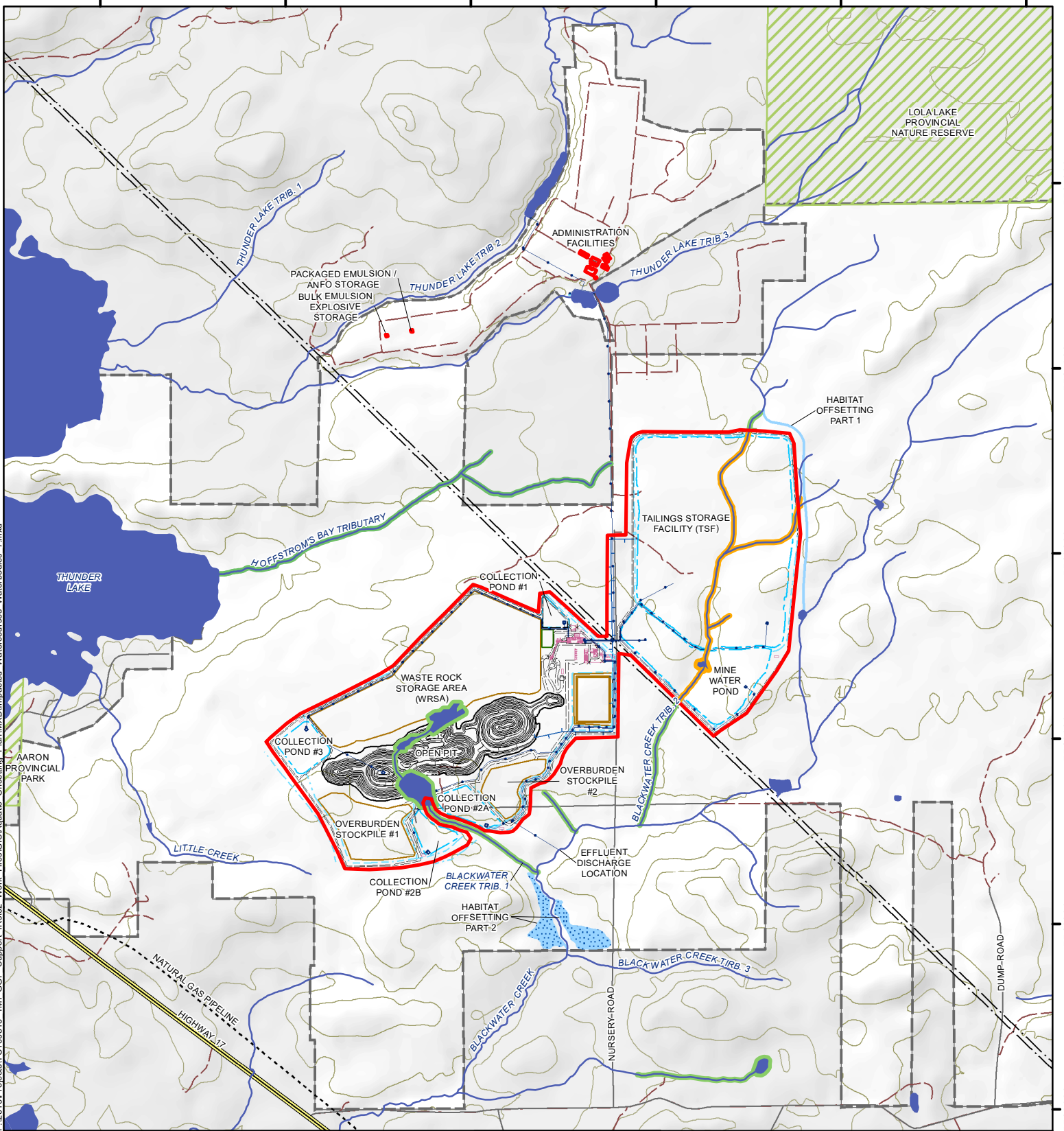
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LEGEND

<ul style="list-style-type: none"> --- Hydro Line - - - Natural Gas Pipeline == Highway — Local Street - - - Resource / Recreation Trail ▨ Provincial Park / Nature Reserve ■ Watercourse / Waterbody — Contours (10 m interval) ▭ Property Boundary of Claims and Dispositions ▭ Area Beyond Property Boundary 	<p>Site Infrastructure</p> <ul style="list-style-type: none"> — Operations Area — Access Haul Roads — Pipeline — Ditching — Emergency Spillway — Fisheries Impacts — Schedule 2 — Section 35 <p>Habitat Offsetting Options</p> <ul style="list-style-type: none"> — Part 1: Blackwater Creek Tributary 2 Diversion (0.3 ha) — Part 2: Potential New Pond / Basin Along Blackwater Creek (6 ha) 	<ul style="list-style-type: none"> — Processing Plant and Ancillary Facilities — Security Fence — Stockpile
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0 250 500 1,000 1,500 2,000 Metres

NOTES:
 - Watercourses represent pre-development conditions based on LIO database, as modified by KBM.

Datum: NAD83
 Projection: UTM Zone 15N



GOLIATH GOLD PROJECT

Fisheries Impacts Compensation and Offsetting Locations

PROJECT N°: TC160516	TMI_876-RG(2)-01_Figure_1	
SCALE: 1:28,000	DATE: November 2018	

TMI_876-RG(2)-01_Table_3a: Changes to the Environment due to the Removal of Fish Habitat

Discipline	Valued Components	Indicators	Paragraphs 5(1)(a), 5(1)(b), 5(1)(c) or Paragraph 5(2) of CEAA 2012	Potential Effect	Mitigation / Avoidance Measures	Residual Adverse Effect	
Terrain and Soils	Natural landscapes	Viewscapes	Paragraph 5(2)	The viewscapes will not be altered as a result of activities related to overprinting fish habitat and activities that would result in reductions in flows to an extent that would affect fish habitat.	- Spills and leaks from construction equipment will be contained and remediated as soon as possible following the incident. The contacted soil will be removed and disposed of at an off-site facility.	There are no anticipated residual effects to soil chemistry following the implementation of the mitigation measure.	
	Overburden	Erosion of disturbed overburden		No overburden will be removed as a result of activities related to overprinting fish habitat and activities that would result in reductions in flows to an extent that would affect fish habitat.			
Geology and Geochemistry	Soil chemistry	Changes in soil chemistry	Paragraph 5(2)	There is the potential for changes in soil chemistry as a result of accidental spills and leaks from heavy equipment during activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	- All internal combustion engines will be fitted with appropriate muffler systems	The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will occur prior to the formation of the pit lake.	
	Pit lake water quality	Concentrations of indicator compounds		It is expected that the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will be conducted using the same construction fleet as for the other site preparation and construction activities. However, the sources of noise associated with these activities would be of a lesser intensity and duration than the effects associated with other site preparation and construction activities.			
Noise	Environmental noise levels	Equivalent noise levels, L_{eq}	Paragraph 5(2)	The limited amount of equipment required for activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat is not expected to result in increased areas with noise levels above 50 dBA. The effects are expected to last a relatively short period of time compared to the other site preparation and construction activities.	- All internal combustion engines will be fitted with appropriate muffler systems	Activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would result in noise levels that are elevated above background. However, there would be no noise effects that exceed what was already predicted for the site preparation and construction phase. There would be residual noise effects, but they would be of a lower magnitude than already predicted for the site preparation and construction phase.	
	Noise disturbance to wildlife (including SAR)	Area predicted L_{eq} above 50 dBA		There is no blasting associated with the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat of watercourse around the Project.			
	Blasting noise and vibration	Peak sound pressure level Peak particle velocity		It is expected that the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will be conducted using the same construction fleet as for the other site preparation and construction activities. However, the sources of noise associated with these activities would be of a lesser intensity and duration than the effects associated with other site preparation and construction activities.			
	Noise related health effects	Absolute sound pressure, LDN Percent highly annoyed, %HA		- All internal combustion engines will be fitted with appropriate muffler systems			
Light	Light trespass	Ambient light levels	Paragraph 5(2)	Activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat is only anticipated to occur during the daytime hours. Therefore no artificial light would be used.			
Air Quality	Air quality	Concentrations of indicator compounds	Paragraph 5(2)	During the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat, there will be changes to air quality due to emissions from construction equipment (i.e., emission from vehicle exhaust and dust emissions from ground disturbance).	- Ensure that all internal combustion engines are properly maintained and all emission control systems (e.g., diesel particulate filters) are in good working order. - A best management practices plan for dust will be implemented on the site to provide specific directions for operators. - Would use equipment already at the site so there would be no net increase of emissions from the Project	There would likely be a small change in air quality from the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat for a relatively short duration. These changes are anticipated to be much less than those predicted for the other site preparation and construction activities.	
Climate	Project GHG emissions	Annual equivalent carbon dioxide emissions (eCO ₂)	Paragraph 5(2)	During the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat, there will be GHG emissions from the construction equipment (i.e., CO ₂ emission from vehicle exhaust).	Ensure that all internal combustion engines are properly maintained and all emission control systems (e.g., diesel particulate filters) are in good working order. Would use equipment already at the site so there would be no net increase of emissions from the Project	There would likely be a small increase in GHG emissions from the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat for a relatively short duration. These changes are anticipated to be much less than those predicted for the other site preparation and construction activities.	
	Changes in climate due to the Project	Changes in annual temperature Changes in annual precipitation		The GHG emissions from activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat are not sufficient enough to materially change the regional or local climate.			
SurfaceWater Quality	Surface water quality	Concentration of indicator compounds	Paragraph 5(2)	Potential increase in TSS from increase in erosion and dust deposition during activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	- A best management practices plan for dust will be implemented on the site to provide specific directions for operators. - use silt fencing along the side of construction activities that are adjacent to watercourses - natural riparian vegetation will be left undisturbed as much as practicable	With the implementation of mitigation measures, there are no residual adverse effects to surface water quality.	
Surface Water Quantity	Surface water quantity	Increase in surface water flows	Paragraph 5(2)	The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not increase the surface water flow of surrounding waterbodies and watercourses.		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not increase the surface water flow of surrounding waterbodies and watercourses.	
		Decrease in surface water flows		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not decrease the surface water flow of surrounding waterbodies and watercourses.			
		Changes in lake levels		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not alter the lake levels of Thunder Lake or Wabigoon Lake as it does not divert any water away from these lakes.			
Groundwater Quality	Groundwater quality	Concentration of indicator compounds	Paragraph 5(2)	The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the groundwater quality.			
Groundwater Quantity	Groundwater quantity	Decrease in groundwater elevations in private water wells	Paragraph 5(2)	The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the groundwater quantity.			
Wildlife and Wildlife Habitat	Wildlife species at risk	Common Nighthawk Northern Myotis/Little Brown Myotis Barn Swallow	Paragraph 5(1)(a)				
	Ungulates	Moose	Paragraph 5(2)	There will be no loss of Moose habitat as a result of the activities related to activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.			
	Furbearers	American Marten	Paragraph 5(2)	There will be no loss of American Marten habitat as a result of the activities related to activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	No mitigation measures	Loss of 4.78 ha of potential beaver habitat due to the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	
		American Beaver					
	Upland birds	Upland birds	Paragraph 5(1)(a)				
	Wetland birds	Marsh birds	Paragraph 5(1)(a)				
	Small mammals	Small mammals	Paragraph 5(2)	There will be no loss of small mammal habitat as a result of the activities related to activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.			
Reptiles and amphibians	Reptiles and amphibians	Paragraph 5(2)	Loss of 31.9 ha of potential reptile and amphibian habitat due to the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	No mitigation measures	Loss of 31.9 ha of potential reptile and amphibian habitat due to the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.		
Invertebrates	Terrestrial invertebrates	Paragraph 5(2)	There will be no loss of terrestrial invertebrate habitat as a result of the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.				
Migration Birds	Upland birds Wetland birds	Paragraph 5(1)(a)					
Fish and Fish Habitat	Stream-resident fish populations	Direct loss or alteration of habitat	Paragraph 5(1)(a)				
		Changes in flows or water levels					
	Changes in water quality						
	Blasting						
	Direct loss or alteration of habitat						
Migratory fish populations	Changes in flows or water levels						
	Changes in water quality						
Lake-resident fish populations	Direct loss or alteration of habitat						
	Changes in flows or water levels						
Fish species at risk	Changes in water quality						
	Blasting						
	Blasting						
Wetlands and Vegetation	Wetlands	Wetland extent	Paragraph 5(2)	Loss of 31.9 ha of wetlands due to activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	No mitigation measures	Loss of 31.9 ha of wetlands due to activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.	
		Wild rice					
		Floating Marsh Marigold (<i>Caltha natans</i>)					
	Vegetation communities	Predominantly coniferous forest	Paragraph 5(2)	There will be no loss of predominantly coniferous forest as a result of the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.			
Predominantly deciduous forest		There will be no loss of predominantly deciduous forest as a result of the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.					
Shrubland areas		There will be no loss of shrubland areas as a result of the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.					
Potential berry harvesting areas		There will be no loss of potential berry harvesting areas as a result of the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.					
Land use planning and policies	Land use planning and policies	Conflict with accepted land uses as stipulated in approved land use plans	Paragraph 5(2)	No potential effects as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat do not interfere with any land use planning or policies.			
		Overlap with protected areas					
	Aggregate operations	Change in access to aggregate resources					No potential effects as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat do not interfere with aggregate operations or resources.
		Change in demand of aggregate resources extraction					
	Forestry	Change in access to forestry resources					No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to forestry resources.
		Loss of forestry resources					There will be no loss of forestry resources as a result of the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat.
Mineral exploration	Change in access to mineral claims for exploration and production	No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to mineral claims for exploration and production.					
	Change in access to fisheries resources	No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to fisheries resources.					
	Change in the abundance of fisheries resources	The tributaries that will be affected by the Project are on patent land held by Treasury Metals and are not currently available for Non-aboriginal purposes. Notwithstanding, the fish habitat lost as a result of the Project will also be compensated for at a minimum ratio of 1:1. As a result, there are no potential effects on abundance of fisheries resources to Non-aboriginal					
Fishing - recreational and commercial	Fishing - recreational and commercial	Change in access to fisheries resources	No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the surface water quality of surrounding waterbodies and watercourses. Therefore, there are no potential effects to contaminant levels in fish from the fish compensation habitat.				
		Change in contaminant levels in fish					

TMI_876-RG(2)-01_Table_3a: Changes to the Environment due to the Removal of Fish Habitat

Discipline	Valued Components	Indicators	Paragraphs 5(1)(a), 5(1)(b), 5(1)(c) or Paragraph 5(2) of CEAA 2012	Potential Effect	Mitigation / Avoidance Measures	Residual Adverse Effect	
Land and Resource Use	Hunting	Diminished experience of being on the land	Paragraph 5(2)	The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.			
		Change in access to wildlife resources		No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to wildlife resources for Non-aboriginal peoples.			
		Change in abundance of wildlife resources		The areas where wildlife abundance may change as a result of activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat are solely on patent land held by Treasury Metals and is not currently available to Non-aboriginal peoples.			
		Diminished experience of being on the land		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.			
	Trapping	Change in access to wildlife resources		No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to wildlife resources for Non-aboriginal peoples.			
		Change in abundance of wildlife resources		The areas where wildlife abundance may change as a result of activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat are solely on patent land held by Treasury Metals and is not currently available to Non-aboriginal peoples.			
		Diminished experience of being on the land		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.			
	Cottagers and outfitters	Diminished experience of being on the land		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.			
		Change in access to cottage and/or outfitter areas		No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to cottages and/or outfitter areas.			
	Other recreational uses	Change in clientele for outfitters with lodges located near the Project		The activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat will not change the clientele for outfitters with lodges located near the Project.			
		Change in access for residents and visitors to public lands for non-consumptive purposes		No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to public lands for non-consumptive purposes.			
		Change in access for residents and visitors to public lands for consumptive purposes		No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with access to public lands for consumptive purposes.			
Change in abundance of berries, mushrooms and/or other vegetation used for consumption		The areas where the abundance of berries, mushrooms and/or other vegetation used for consumption may change as a result of activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat are solely on patent land held by Treasury Metals and is not currently available to Non-aboriginal peoples.					
Social	Population demographics	Population change	Paragraph 5(2)	No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with any regional or local social aspects.			
		Capacity of education services					
	Education	Education attainment					
		Project-specific Training					
	Infrastructure and services	Municipal Services					
		Community services (e.g., health, social services)					
	Housing and property values	Housing availability					
		Property values					
	Public safety	Crime rate					
		Capacity of emergency services					
Transportation and traffic	Requests for emergency services by Project						
	Road network capacity and conditions						
Economics	Labour force, labour participation and employment	Labour income employment	Paragraph 5(2)	No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not interfere with the regional or local economics.			
		Income levels and categories					
	Cost of living	Current prevailing cost of living					
		Housing prices and affordability					
	Real estate	Municipal taxes and contribution to economic development projects					
		Local business availability					
	Existing businesses	Taxes and revenues					
		Government revenues					
Human Health	Non-Indigenous Human Health	Subsurface/Construction Worker	Paragraph 5(2)	No potential effect as the activities related to overprinting fish habitat and activities that would result in reductions in flow to an extent that would affect fish habitat would not affect human health.			
		Outdoor Worker					
		Indoor Worker					
		Site Visitor, or Harvester					
		Resident					
	Indigenous Human Health	Resident					Paragraph 5(1)(c)
		Site Visitor, or Harvester					
		Subsurface/Construction Worker					
		Outdoor Worker					
		Indoor Worker					
Heritage Resources	Archaeological sites	Archaeological sites	Paragraph 5(2)	A Stage 1 and Stage 2 archaeological and cultural heritage assessment of the site determined that there was low potential for archaeological resources	- If previously undocumented archaeological resources are discovered, the person discovering the resources will stop alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. - Do not allow new ground altering activities to occur in areas where an archaeological assessment has not been completed. Once an archaeological assessments has been completed ground altering activities.	No residual adverse effects	
		Historic heritage sites		Historic heritage sites	A Stage 1 and Stage 2 archaeological and cultural heritage assessment of the site determined that there was low potential for historic heritage sites.	- If previously undocumented archaeological resources are discovered, the person discovering the resources will stop alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. - Do not allow new ground altering activities to occur in areas where an archaeological assessment has not been completed. Once an archaeological assessments has been completed ground altering activities.	No residual adverse effects
Aboriginal Peoples	Human health	Risk Assessment for Indigenous Human Health	Paragraph 5(1)(c)				
	Harvesting and gathering of plant material	Wild rice					
		Berry Harvesting					
		Medicinal plant harvesting					
		Changes in access					
	Hunting	Diminished on-the-land experience					
		Ungulates					
		Furbearers					
		Waterfowl					
	Trapping	Changes in access					
		Diminished on-the-land experience					
		Furbearers					
Fishing	Sport fish						
	Commercial fishing						
	Baitfish						
Cultural and spiritual	Changes in access						
	Diminished on-the-land experience						
Socio-economic factors	Cultural or spiritual sites						
	Traditional Travel routes						
	Diminished on-the-land experience						
	Economic effects						
	Social effects						

TMI_876-RG(2)-01_Table_3b: Changes to the Environment due to the Construction of the Fish Offsetting / Compensation Habitat

Discipline	Valued Components	Indicators	Paragraphs 5(1)(a), 5(1)(b), 5(1)(c) or Paragraph 5(2) of CEAA 2012	Potential Effect	Mitigation / Avoidance Measures	Residual Adverse Effect
Terrain and Soils	Natural landscapes	Viewscapes	Paragraph 5(2)	The viewscape will not be altered as a result of activities related to the construction of the fish compensation ponds and the Blackwater Creek Tributary 2 diversion channel.		
	Overburden	Erosion of disturbed overburden		The overburden stripped during the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will be stored into the overburden stockpile until it is required in the closure phase. It is possible that soils erode during the construction of the fish compensation habitat once the vegetation is stripped.	- Vegetate the overburden stockpile as soon as practicable - Activities on the overburden stockpile will be minimized and stockpiles left undisturbed until closure activities are underway	There is the potential for erosion of disturbed overburden during the construction of the fish compensation habitat.
	Soil chemistry	Changes in soil chemistry		There is the potential for changes in soil chemistry as a result of accidental spills and leaks from construction equipment during the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel	- Spills and leaks from construction equipment will be contained and remediated as soon as possible following the incident. The contacted soil will be removed and disposed of at an off-site facility.	There are no anticipated residual effects to soil chemistry following the implementation of the mitigation measure.
Geology and Geochemistry	Pit lake water quality	Concentrations of indicator compounds	Paragraph 5(2)	There will be no interaction between the fish compensation habitat and the pit lake in the closure or post-closure phases.		
Noise	Environmental noise levels	Equivalent noise levels, L _{eq}	Paragraph 5(2)	It is expected that the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will be done using the same construction fleet as for the other site preparation and construction activities. However, the sources of noise associated with these construction activities would be of a lesser intensity duration than the effects associated other site preparation and construction activities.	- All internal combustion engines will be fitted with appropriate muffler systems	Construction of the fish compensation habitat would result in noise levels that are elevated above background. There would be no noise effects from the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel that would exceed what was already predicted for the site preparation and construction phase. There would be residual noise effects, but they would be of a lower magnitude than already predicted for the site preparation and construction phase.
	Noise disturbance to wildlife (including SAR)	Area predicted L _{eq} above 50 dBA		The limited amount of equipment required for the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel are not expected to result in increased areas with noise levels above 50 dBA. The effects are expected to last a relatively short period of time compared to the other site preparation and construction activities.	- All internal combustion engines will be fitted with appropriate muffler systems	The noise effects from the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will last a relatively short period of time and are not expected to result in increased areas with noise levels above 50 dBA.
	Blasting noise and vibration	Peak sound pressure level Peak particle velocity		The construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel is not expected to require any blasting. If blasting is required, it would be done in a manner that minimizes any effects to levels well below those predicted for the other site preparation and construction activities.	- Implement a modern blasting program that minimizes the blast area, the overall amount of explosives required, and through detonating procedures, minimize the amount of explosives per delay. - Adjust blasting practices if effects of vibration to spawning shoals is identified	Blasting is not anticipated to be required for the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel. If blasting is required, it would be done in a manner that minimizes any effects to levels well below those predicted for the other site preparation and construction activities.
	Noise related health effects	Absolute sound pressure, LDN Percent highly annoyed, %HA		It is expected that the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will be done using the same construction fleet as for the other site preparation and construction activities. However, the sources of noise associated with these construction activities would be of a lesser intensity duration than the effects associated other site preparation and construction activities, but would occur in different locations.	- All internal combustion engines will be fitted with appropriate muffler systems	Construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would result in noise levels that are elevated above background. There would be no noise effects from the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel that would exceed what was already predicted for the site preparation and construction phase. There would be residual noise effects, but they would be of a lower magnitude than already predicted for the site preparation and construction phase.
Light	Light trespass	Ambient light levels	Paragraph 5(2)	Construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel is only anticipated to occur during the daytime hours. Therefore no artificial light would be used.		
Air Quality	Air quality	Concentrations of indicator compounds	Paragraph 5(2)	During construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel, there will be changes to air quality as a result of construction vehicles (i.e., emission from vehicle exhaust and dust emissions from ground disturbance).	- Ensure that all internal combustion engines are properly maintained and all emission control systems (e.g., diesel particulate filters) are in good working order. - A best management practices plan for dust will be implemented on the site to provide specific directions for operators. - Would use equipment already at the site so there would be no net increase of emissions from the Project	There would likely be a small increase in air quality from the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel for a relatively short duration. These changes are anticipated to be much less than those predicted for the other site preparation and construction activities.
Climate	Project GHG emissions	Annual equivalent carbon dioxide emissions (eCO ₂)	Paragraph 5(2)	During construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel, there will be GHG emissions from the construction equipment (i.e., emission from vehicle exhaust).	- Ensure that all internal combustion engines are properly maintained and all emission control systems (e.g., diesel particulate filters) are in good working order. - Would use equipment already at the site so there would be no net increase of emissions from the Project	There would likely be a small increase in GHG emissions from the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel for a relatively short duration. These changes are anticipated to be much less than those predicted for the other site preparation and construction activities.
	Changes in climate due to the Project	Changes in annual temperature Changes in annual precipitation		The GHG emissions from the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel are not sufficient enough to materially change the regional or local climate.		
Surface Water Quality	Surface water quality	Concentration of indicator compounds	Paragraph 5(2)	Potential increase in TSS from increase in erosion and dust deposition during activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.	- A best management practices plan for dust will be implemented on the site to provide specific directions for operators. - use silt fencing along the side of construction activities that are adjacent to watercourses - natural riparian vegetation will be left undisturbed as much as practicable	With the implementation of mitigation measures, there are no residual adverse effects to surface water quality.
Surface Water Quantity	Surface water quantity	Increase in surface water flows	Paragraph 5(2)	There would be an increase in surface water flows into the main channel of Blackwater Creek in perpetuity with the addition of the upstream Blackwater Creek Tributary 2 catchment area. This equates to a 27.3% increase in the flow from the confluence of the diversion channel and Blackwater Creek main channel, to the confluence of the Blackwater Creek main channel and Blackwater Creek Tributary 2.	No mitigation measures	There would be an increase of 27.3% in flow to the mainstem of Blackwater from the from the confluence of the diversion channel and Blackwater Creek main channel, to the confluence of the Blackwater Creek main channel and Blackwater Creek Tributary 2.
		Decrease in surface water flows		There would not a decrease in flows to any of the watercourses around the Project as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel. The diversion channel around the TSF would increase the flow to the main channel of Blackwater Creek. The compensation ponds are located within the Blackwater Creek main channel catchment area and overflow into the Blackwater Creek main channel.		
		Changes in lake levels		The activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not alter the lake levels of Thunder Lake or Wabigoon Lake as it does not divert any water away from these lakes.		
Groundwater Quality	Groundwater quality	Concentration of indicator compounds	Paragraph 5(2)	There will be no changes to groundwater quality as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.		
Groundwater Quantity	Groundwater quantity	Decrease in groundwater elevations in private water wells	Paragraph 5(2)	There will be no changes to groundwater quantity as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.		
Wildlife and Wildlife Habitat	Wildlife species at risk	Common Nighthawk	Paragraph 5(1)(a)			
		Northern Myotis/Little Brown Myotis Barn Swallow				
	Ungulates	Moose	Paragraph 5(2)	loss of 0.88 ha of potential habitat	No mitigation measures	loss of 0.88 ha of potential habitat
	Furbearers	American Marten	Paragraph 5(2)	loss of 4.83 ha of potential habitat	No mitigation measures	loss of 4.83 ha of potential habitat
		American Beaver		creation of 6.02 ha of potential habitat	No mitigation measures	creation of 6.02 ha of potential habitat
	Upland birds	Upland birds	Paragraph 5(1)(a)			
	Wetland birds	Marsh birds				
Small mammals	Small mammals	Paragraph 5(2)	There will be no net loss of small mammal habitat as a result of the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.			
Reptiles and amphibians	Reptiles and amphibians	Paragraph 5(2)	creation of 6.02 ha of potential habitat	No mitigation measures	creation of 6.02 ha of potential habitat	
Invertebrates	Terrestrial invertebrates	Paragraph 5(2)	There will be no net loss of terrestrial invertebrates habitat as a result of the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.			
Migratory Birds	Upland birds Wetland birds	Upland birds Marsh birds	Paragraph 5(1)(a)			
Fish and Fish Habitat	Stream-resident fish populations	Direct loss or alteration of habitat	Paragraph 5(1)(a)			
		Changes in flows or water levels				
	Changes in water quality					
	Blasting					
Migratory fish populations	Direct loss or alteration of habitat	Paragraph 5(1)(a)				
	Changes in flows or water levels					
Changes in water quality						
Blasting						
Lake-resident fish populations	Direct loss or alteration of habitat	Paragraph 5(1)(a)				
	Changes in flows or water levels					
Changes in water quality						
Blasting						
Fish species at risk	Direct loss or alteration of habitat	Paragraph 5(1)(a)				
	Changes in flows or water levels					
Changes in water quality						
Blasting						
Wetlands and Vegetation	Wetlands	Wetland extent	Paragraph 5(2)	Loss of 2.26 ha of natural wetland habitat	Fringe area of the constructed fish compensation ponds will be wetland habitat	It is anticipated that the fringe area of the fish compensation ponds create more wetland habitat than the wetland habitat that is overprinted. Therefore, there is anticipated to be no net loss of wetland habitat.
		Wild rice				
	Floating Marsh Marigold (<i>Caltha natans</i>)	There were no Wild rice or Floating Marsh Marigold in the vicinity of the proposed fish compensation habitat and Blackwater Creek Tributary 2 diversion channel. These two species of vegetation were only observed at the mouth of Blackwater Creek within the LSA. As there will be no changes to water quality or overprinting of these two species as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel, there are no anticipated effects to Wild rice and Floating Marsh Marigold.				

TMI_876-RG(2)-01_Table_3b: Changes to the Environment due the the Construction of the Fish Offsetting / Compensation Habitat

Discipline	Valued Components	Indicators	Paragraphs 5(1)(a), 5(1)(b), 5(1)(c) or Paragraph 5(2) of CEAA 2012	Potential Effect	Mitigation / Avoidance Measures	Residual Adverse Effect	
Land and Resource Use	Vegetation communities	Predominantly coniferous forest	Paragraph 5(2)	Loss of 4.83 ha of coniferous forest	No mitigation measures	Loss of 4.83 ha of coniferous forest	
		Predominantly deciduous forest		Loss of 0.88 ha of deciduous forest	No mitigation measures	Loss of 0.88 ha of deciduous forest	
		Shrubland areas		Loss of 1.95 ha of shrubland	No mitigation measures	Loss of 1.95 ha of shrubland	
		Potential berry harvesting areas		Loss of 4.84 ha of potential berry harvesting habitat	No mitigation measures	Loss of 4.84 ha of potential berry harvesting habitat	
	Land use planning and policies	Conflict with accepted land uses as stipulated in approved land use plans	Paragraph 5(2)	No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel does not interfere with any land use planning or policies.			
		Overlap with protected areas		No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel does not overprint any aggregate operations or resources.			
	Aggregate operations	Change in access to aggregate resources	Paragraph 5(2)	No potential effect as there will be no access restrictions to forestry resources as a result of the activities related to the construction of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.			
		Change in demand of aggregate resources extraction		Loss of 5.71 ha of forest			
	Forestry	Change in access to forestry resources	Paragraph 5(2)	The merchantable timber removed during the construction of the fish compensation habitat will be made available to the forestry licence holder			
		Loss of forestry resources		Loss of 5.71 ha of forestry resource			
Mineral exploration	Change in access to minimal claims for exploration and production	Paragraph 5(2)	No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel does not overprint mineral resources or exploration opportunities.				
Fishing - recreational and commercial	Change in access to fisheries resources	Paragraph 5(2)	No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not interfere with access to fisheries resources.				
	Change in the abundance of fisheries resources		Addition of 6.02 ha of baitfish habitat available for baitfishing during the post-closure phase of the Project		Addition of 6.02 ha of baitfish habitat available for baitfishing during the post-closure phase of the Project		
	Change in contaminant levels in fish		The water quality of the fish compensation habitat is anticipated to meet regulatory criteria. Therefore, there are no potential effects to contaminant levels in fish from the fish compensation habitat.				
	Diminished experience of being on the land		The activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.				
Hunting	Change in access to wildlife resources	Paragraph 5(2)	No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not interfere with access to wildlife resources for Non-aboriginal peoples.				
	Change in abundance of wildlife resources		Loss of 6.02 of potential terrestrial hunting areas - gain of 6.02 of aquatic hunting areas for waterfowl		Loss of 6.02 of potential terrestrial hunting areas - gain of 6.02 of aquatic hunting areas for waterfowl		
	Diminished experience of being on the land		The activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.				
Trapping	Change in access to wildlife resources	Paragraph 5(2)	No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not interfere with access to wildlife resources for Non-aboriginal peoples.				
	Change in abundance of wildlife resources		Loss of 6.02 of potential terrestrial trapping areas - gain of 6.02 of aquatic trapping areas for beaver		Loss of 6.02 of potential terrestrial trapping areas - gain of 6.02 of aquatic trapping areas for beaver		
	Diminished experience of being on the land		The activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.				
Cottagers and outfitters	Diminished experience of being on the land	Paragraph 5(2)	The activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will not alter the experience of being on the land outside of patent lands held by Treasury Metals. As a result, there are no potential effects on experience of being on the land.				
	Change in access to cottage and/or outfitter areas		No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not interfere with access to cottages and/or outfitter areas.				
Other recreational uses	Change in clientele for outfitters with lodges located near the Project	Paragraph 5(2)	The activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel will not change the clientele for outfitters with lodges located near the Project.				
	Change in access for residents and visitors to public lands for non-consumptive purposes		No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not interfere with access to public lands for non-consumptive purposes.				
	Change in access for residents and visitors to public lands for consumptive purposes		No potential effect as the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel would not interfere with access to public lands for consumptive purposes.				
	Change in abundance of berries, mushrooms and/or other vegetation used for consumption		The areas where the abundance of berries, mushrooms and/or other vegetation used for consumption may change as a result of activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel are solely on patent land held by Treasury Metals and is not currently available to Non-aboriginal peoples.				
Social	Population demographics	Population change	Paragraph 5(2)	No potential effect to local or regional social aspects as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.			
		Capacity of education services					
	Education	Education attainment					
		Project-specific Training					
	Infrastructure and services	Municipal Services					
		Community services (e.g., health, social services)					
	Housing and property values	Housing availability					
		Property values					
	Public safety	Crime rate					
		Capacity of emergency services					
Transportation and traffic	Requests for emergency services by Project						
	Road network capacity and conditions						
Economics	Labour force, labour participation and employment	Labour income employment	Paragraph 5(2)	No potential effect to local or regional economics as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.			
		Income levels and categories					
	Cost of living	Current prevailing cost of living					
	Real estate	Housing prices and affordability					
	Economic development	Municipal taxes and contribution to economic development projects					
	Existing businesses	Local business availability					
	Government revenues	Taxes and revenues					
Human Health	Non-Indigenous Human Health	Subsurface/Construction Worker	Paragraph 5(2)	No potential effect to human health as a result of the activities related to the construction of the fish compensation habitat and Blackwater Creek Tributary 2 diversion channel.			
		Outdoor Worker					
		Indoor Worker					
	Indigenous Human Health	Site Visitor, or Harvester		Paragraph 5(1)(c)			
		Resident					
		Resident					
Heritage Resources	Archaeological sites	Archaeological sites	Paragraph 5(2)	A Stage 1 and Stage 2 archaeological and cultural heritage assessment of the site determined that there was low potential for archaeological resources	- If previously undocumented archaeological resources are discovered, the person discovering the resources will stop alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. - Do not allow new ground altering activities to occur in areas where an archaeological assessment has not been completed. Once an archaeological assessments has been completed ground altering activities.	No residual adverse effects	
		Historic heritage sites		A Stage 1 and Stage 2 archaeological and cultural heritage assessment of the site determined that there was low potential for historic heritage sites			- If previously undocumented archaeological resources are discovered, the person discovering the resources will stop alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. - Do not allow new ground altering activities to occur in areas where an archaeological assessment has not been completed. Once an archaeological assessments has been completed ground altering activities.
	Historic heritage sites	Historic heritage sites					
		Historic heritage sites					
Aboriginal Peoples	Human health	Risk Assessment for Indigenous Human Health	Paragraph 5(1)(c)				
	Harvesting and gathering of plant material	Wild rice					
		Berry Harvesting					
		Medicinal plant harvesting					
		Changes in access					
	Hunting	Diminished on-the-land experience					
		Ungulates					
		Furbearers					
	Trapping	Waterfowl					
		Changes in access					
Fishing	Diminished on-the-land experience						
	Sport fish						
	Baitfish						
	Commercial fishing						
Cultural and spiritual	Changes in access						
	Diminished on-the-land experience						
Socio-economic factors	Cultural or spiritual sites						
	Traditional Travel routes						
	Diminished on-the-land experience						
	Economic effects						
	Social effects						