

Lake Manitoba and Lake St. Martin Outlet Channels Project – Technical Review Information Requests Round 2

List of Acronyms and Abbreviations

Acronym or Abbreviation	Definition
AEMP	Aquatic Effects Monitoring Plan
AIS	Aquatic Invasive Species
CAAQS	Canadian Ambient Air Quality Standards
CCME	Canadian Council of Ministers of Environment
CEAA	Canadian Environmental Assessment Act
CEMP	Construction Environmental Management Plan
DCP	Dust Control Plan
EAC	Environnemental Advisory Committee
ECCC	Environment and Climate Change Canada
EMP	Environmental Management Plan
EOC	Emergency Outlet Channel
FRWCS	Fairford River Water Control Structure
GUDI	Groundwater sources under direct influence
GWMP	Ground Water Management Plan
HC	Health Canada
HRPP	Heritage Resources Protection Plan
IAAC	Impact Assessment Agency of Canada
LAA	Localized Assessment Area
LMOC	Lake Manitoba Outlet Channel
LSMOC	Lake St. Martin Outlet Channel
LWR	Lake Winnipeg Regulation
NRCan	Natural Resources Canada
PDA	Project Development Area
PM2.5	Fine Particulate Matter
PR 239	Provincial Road 239
QMP	Quarry Management Plan
RAA	Regional Assessment Area
RHMP	Red-Headed Woodpecker Management Plan
RM	Rural Municipality
ROW	Right of Way
RVMP	Revegetation Management Plan
SAR	Species at Risk
SWMP	Surface Water Management Plan
TSP	Total Suspended Particles
TSS	Total Suspended Sediments
VC	Valued Component
VOC	Volatile Organic Carbons

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IR#	Referenced Round 1 IR(s)	Expert Dept. or group	EIS Guideline Reference	Context and Rationale	Information Request
IAAC-R2-01	IAAC-14 IAAC-15 IAAC-16 IAAC-23 IAAC-26 IAAC-70 SWMP GWMP	IAAC HC York Factory First Nation Hollow Water First Nation Lake St. Martin First Nation RM of Grahamdale	5 Engagement with Indigenous Groups and Concerns Raised 7.2.2 Predicted Changes to Groundwater, surface water and, and fluvial morphology 7.1.4 Ground Water and Surface Water	<p>The EIS Guidelines require the Proponent to assess changes to surface water quality, including seasonal changes in runoff entering watercourses and an assessment of groundwater and surface water interactions and potential changes to water quality. The EIS Guidelines also require an assessment of any local and regional potable surface water resources.</p> <p>The response to IAAC-14 states that the construction of the outside drain on the west side of the LMOC will provide a more direct route from cattle feedlots to Lake Manitoba during overland flooding events. In the response to IAAC-15, it is unclear if there are any groundwater sources under the direct influence (GUDI) of surface water that could be vulnerable to cattle operations runoff. In the Surface Water Management Plan (SWMP), it states that surface water in the vicinity of the LMOC and LSMOC is not being used for drinking, as such, drinking water quality standards do not apply. It is unclear how it was determined that traditional land users do not consume surface water that could be potentially affected by feedlot runoff. Furthermore, Lake St. Martin First Nation has a surface water intake on Lake St. Martin that provides water for domestic use. It is not clear how the potential changes in surface water quality may affect the use of surface water by Lake St. Martin First Nation.</p> <p>The response to IAAC-14 also proposes and describes a preferred mitigation option that requires the construction of wetlands for each point source of cattle operation runoff near LMOC to treat nutrient laden runoff prior to entering the outside drain along with other mitigations that are being considered. In the response to IAAC-15 and the Assessment of Passive Treatment Options for Cattle Operations Runoff in Vicinity of the LMOC – Final Report, it is unclear how or when affected domestic well users would be notified in the event that drinking water sources are impacted by the Project via cattle operations runoff. The response to IAAC-26 states that there will be a program to sample domestic wells in the vicinity of the LMOC during and post- construction and reporting the results to the Office of Drinking Water in Manitoba. The response to IAAC-15 states that additional mitigation/adaptive management would be considered if surface water quality impacts are deemed to be Project-related. However, it remains unclear how measured changes would be attributed to the Project or to other causes. Given the presence of <i>E.coli</i> and total coliforms in the groundwater baseline studies, an assessment of the effect pathway for the introduction of pathogens to local surface and/or groundwater is required.</p> <p>Based on the information provided, there is uncertainty about the effectiveness and feasibility of the engineered wetland option to mitigate potential effects of cattle feedlot runoff in surface water. Further, an assessment of potential GUDI that includes drought conditions is needed to understand changes to groundwater quality and potential effects to users of that resource. Given that Indigenous communities have requested monitoring for pesticides, and in consideration of any future recreational uses of impacted waters, the specific target pesticide analytes that will be monitored, as referenced in the response to IAAC-16, should be identified (as opposed to labeling “organochlorinated” as in Table IAAC-16-1). The selected pesticide analytes should reflect usage patterns for both surface water and groundwater within the region. The RM of Grahamdale has raised concerns that there has not been a domestic well inventory is incomplete therefore there is uncertainty on the effects to domestic-use wells in the RAA.</p>	<ul style="list-style-type: none"> a. Provide construction and operation details for the selected mitigation measure(s) for potential effects due to runoff from cattle feedlots near the LMOC, with consideration of effectiveness and feasibility. Provide an assessment of the preferred mitigation against others being considered. b. Describe monitoring and follow-up specific to the selected mitigation measure(s) for potential effects of cattle feedlot runoff. c. With respect to runoff from cattle feedlots, provide an assessment for the following: <ul style="list-style-type: none"> i. the potential effects to the health of Indigenous peoples resulting from changes to surface water quality from cattle feedlot runoff. This assessment should be specific, at minimum, to Lake St. Martin First Nation and traditional and recreational users in the Project area with consideration for future use of surface water resources; and ii. the potential effect to fish and fish habitat including subsequent effects to the current use of lands and resources by Indigenous peoples. d. Update Table IAAC-16-1 with the specific pesticide analytes that will be targeted in future surface water monitoring reflecting upstream use patterns and input from Indigenous communities and local residents. e. Confirm whether any GUDI sources have been identified that could be impacted by the anticipated cattle runoff and update the Surface Water Management Plan (SWMP) and/or Groundwater Management Plan (GWMP) to identify these areas and related management, monitoring and/or mitigation strategies. The response should consider drought conditions. f. Describe how a domestic well inventory has been completed and used for the purposes of the assessment of effects and how domestic well users will be consulted as part of the monitoring well selection process. g. Describe how an increase in bacterial concentrations in a surface water or groundwater source attributable to Project activities will be measured and determined. If changes to bacterial concentrations are determined to be attributed to the Project, provide associated triggers/thresholds for additional mitigations.

				An assessment of potential interactions between runoff from cattle feedlots near LMOC and the use of the surface water is required. Changes to surface water quality from cattle feedlots and the potential effects to fish and fish habitat also need to be assessed.	
IAAC-R2-02	IAAC-19 IAAC-21 IAAC-23 IAAC-26 IAAC-72 GWMP	IAAC ECCC NRCan	7.2.2 Predicted Changes to Groundwater 7.1.5 Fish and fish habitat 7.1.10 Indigenous Peoples	<p>The EIS Guidelines require the Proponent to present forecasted changes to the seepage of groundwater into surface water. The EIS Guidelines require an assessment of effects to fish and fish habitat for potentially affected surface water, as well as health and socio-economic conditions of Indigenous peoples including drinking water sources whether permanent, seasonal, periodic, or temporary.</p> <p>The response to IAAC-72 indicates that the quantification of effects to flows in the Buffalo Creek system cannot be predicted with a high degree of confidence before construction is complete and the amount of flow augmentation required will need to be determined based on concurrent studies of flows, wetland hydrology and fish habitat to determine the need for and optimization of the mitigation. Details for the studies referenced, a timeline for their completion and timing of subsequent mitigation(s) if required, are not provided.</p> <p>Quantification of changes in groundwater discharge to the Buffalo Creek complex is required to support the understanding of effects to fish and fish habitat, surface water, and wildlife habitat. Water within the peat unit of the Buffalo Creek system is predominately groundwater sourced from the confined bedrock aquifer, based on the groundwater chemistry (Lake St. Martin Outlet Channel Groundwater Quality Assessment - Final (KGS, 2021)). While the assessment of groundwater drawdown (Response of IAAC-19) shows less than 2 m of drawdown in this area, the water balance information indicates that during construction over 50% of the water which would normally discharge naturally to the Buffalo Creek system through groundwater springs will be intercepted by the LSMOC, dropping to 30% during long-term operations (Groundwater Balance in Region of Lake Manitoba/Lake St. Martin Outlet Channels (Stantec, 2021)). Based on these results, the channel will have an effect on the overall water balance for the Buffalo Creek Drainage System.</p> <p>Section 14.3.1, Table 6 of the Groundwater Management Plan (GWMP) outlines the proposed monitoring locations for piezometric changes, used to monitor groundwater-surface water effects at the Big Buffalo Lake Complex, and the Buffalo Creek complex. These locations are all listed as in the vicinity of these features. While monitoring in the vicinity of the feature will provide indication that the changes are occurring, they will provide limited time to adapt and mitigate. Additionally, as stated in the GWMP Section 15.2.2, the trigger for piezometric change at the LSMOC will be based on the trend analysis from a seasonal Mann-Kendall Test. This approach is a robust quantitative trigger method; however, it is most reliable when several years of data is available (i.e., with fewer years of monitoring data, the method is less likely to detect a trend, and thus less likely to trigger actions). As such, wells installed prior to the site clearing, may not have sufficient data to reliably use this trigger until several years into the operation of the channel. In the absence of conclusion supporting analyses, robust monitoring is required to facilitate adaptive management.</p> <p>At the time of the submission of the EIS, the Proponent had assumed that groundwater quality in the vicinity of the LSMOC was similar to the groundwater quality at the LMOC. Based on the data provided in Appendix IAAC-26A, groundwater in the LSMOC and LMOC differ notably in the concentrations of iron, with the LSMOC groundwater quality exceeding Canadian Council of Ministers of Environment (CCME) guidelines for the protection of aquatic life (dissolved iron: LSMOC - mean = 0.435 mg/L, maximum – 2.44 mg/L, LMOC – mean =</p>	<p>a. To support conclusions in the EA, provide:</p> <ol style="list-style-type: none"> i. quantitative estimates of groundwater discharge to surface water within the Buffalo Creek complex, and provide the methodologies used to derive the estimates; ii. sensitivity analysis of potential effects based on the high and low limits of the estimates of groundwater discharge to the Buffalo Creek System; iii. establish interim triggers to verify the EA predictions during construction and the initial operation phase of the Project until sufficient data are available to use trend analysis from a seasonal Mann-Kendall Test as proposed in the GWMP; and iv. provide monitoring locations for piezometric changes that will allow time to adapt and mitigate should monitoring indicate risk to the Big Buffalo Lake complex and/or the Buffalo Creek complex. <p>b. Assess the potential effects due to changes to flow in the Buffalo Creek system to Indigenous peoples, fish and fish habitat, migratory birds and species at risk within the Buffalo Creek system.</p> <p>c. Given the uncertainty regarding flow augmentation, provide precautionary mitigation measures for potential effects to VC's from changes to flows in the Buffalo Creek system in the absence of results from concurrent studies of flow, wetland hydrology and fish. The mitigation measures should take into account the extent of potential effects from multiple scenarios and at multiple thresholds for adaptive management.</p> <p>d. Provide additional discussion and analysis on whether the discharge of groundwater to the LSMOC may lead to elevated iron concentrations in surface waters and any potential for adverse effects.</p>

				<p>0.005 mg/L, maximum 0.154 mg/L). However, the response and discussion of iron in the LSMOC only addresses groundwater quality for drinking water uses and protection of the aquifer, and not the potential for any changes to surface water quality when groundwater discharges to surface waters via the LSMOC. Depending on the quantity of groundwater discharged to the channel, groundwater quality, and existing surface water quality conditions, may be potentially affected.</p> <p>Note that in relation to the LSMOC, the issue of groundwater discharge effects on surface water quality is also raised in the context and rationale for IAAC-19, 21, 23, and 24. Additionally, although surface water flow may dominate the wetland water balance during a portion of the year, groundwater from the carbonate aquifer appears to provide sustaining flows to the wetlands during low flow periods. Section 12.4 of the GWMP (MI, 2022) states that “It is highly unlikely that these naturally occurring spring discharge sites would cease to flow entirely...”, although this conclusion is not based on any quantitative analysis. As noted in previous IRs, the analysis of vegetation response to the emergency outlet channel is not considered an appropriate proxy for the potential effects of the LSMOC.</p> <p>Effects to groundwater quantity and quality, and groundwater-surface water interactions may affect drinking water sources, wetlands, surface waterbodies, and fish and fish habitat. Project interactions with groundwater may also affect Indigenous peoples, including Indigenous health and socioeconomic conditions and the current use of land and resources for traditional purposes.</p>	
IAAC-R2-03	IAAC-72 IAAC-23	IAAC	<p>7.1.4 Ground Water and Surface Water</p> <p>7.1.10 Indigenous Peoples</p>	<p>The EIS Guidelines require an assessment of any local and regional potable surface water resources as well as health and socio-economic conditions of Indigenous peoples including drinking water sources whether permanent, seasonal, periodic, or temporary.</p> <p>The response to IAAC-72 indicates that changing water levels during LSMOC operation may affect groundwater quality as some surface water will move into the aquifer immediately under the channel. The response states that repeated infiltration of small quantities of surface water may cause short-lived water quality changes to the regional bedrock aquifer resource in close proximity to the LSMOC. The response to IAAC-23 indicates that these short-term effects to groundwater will be limited in extent to the area under the channel and that water wells would not be impacted by the LSMOC construction or operation. The supporting analysis for these responses, Lake St. Martin Outlet Channel Groundwater Water Levels Assessment (KGS Group, 2021), notes that these mixed surface waters and groundwaters would migrate through the aquifer system to the next available discharge area located either within the LSMOC, at an existing downgradient artesian spring site or, in the longer term, possibly as groundwater baseflow to Lake Winnipeg. The effects to groundwater due to surface water infiltration to the bedrock aquifer in terms of changes to groundwater quality and the extent of effects is unclear.</p> <p>Effects to groundwater quantity and quality and groundwater-surface water interactions may affect drinking water sources, wetlands, surface waterbodies, and fish and fish habitat. Project interactions with groundwater may also affect Indigenous peoples, including Indigenous health and socio-economic conditions and the current use of land and resources for traditional purposes.</p>	<p>a. Assess the effects of surface water infiltration into the bedrock aquifer during LSMOC operation with consideration of seasonal variability including drought. The assessment shall include:</p> <ul style="list-style-type: none"> i. description of the artesian springs in the RAA; ii. assessment of water quality effects to receiving environments and related VCs, and clarification of the extent of effects; and iii. should the assessment indicate potential effects to Indigenous groups, these should be described for each affected group identified in the EIS Guidelines. <p>b. Describe measures that will be implemented to mitigate any adverse effects described in part a. Describe the monitoring and follow-up that will be implemented to validate the predictions of the assessment, confirm the effectiveness of mitigation measures, and respond to any unanticipated effects identified during monitoring. Describe how Indigenous groups will be involved in follow-up and monitoring.</p>

IAAC-R2-04	IAAC-14 IAAC-70 IAAC-88	IAAC ECCC York Factory First Nation Hollow Water First Nation Fisher River Cree Nation Lake St. Martin First Nation	7.2.2 Changes to Groundwater, Surface Water, and Fluvial Morphology 7.3.1 Fish and Fish Habitat 7.3.2 Migratory Birds	<p>The EIS guidelines requires the Proponent to assess the changes to groundwater, surface water and fluvial morphology as a result of the Project. Furthermore, the EIS Guidelines require the Proponent to describe potential changes to the habitat of migratory and non-migratory birds, including wetlands frequented by birds as well as potential adverse effects to fish and fish habitat.</p> <p>The response to IAAC-14 references proposed provincial regulation for nutrient management under <i>The Water Protection Act</i> to establish target concentrations for phosphorus and nitrogen for the four major tributaries. Specific mitigation measures for algal blooms in Lake Manitoba, Lake St. Martin and Lake Winnipeg are required to understand Project-effects on surface water quality.</p> <p>It is not clear how the requirements under the proposed legislation, or in the absence of the legislation, would mitigate algal blooms in Lake Manitoba, Lake St. Martin and Lake Winnipeg. The Agency needs to understand how the Proponent intends to ensure the Project does not contribute to the formation of algal blooms in Lake Manitoba, Lake St. Martin and Lake Winnipeg considering the potential for direct conveyance of anticipated runoff from cattle feedlot operations in the LMOC area.</p> <p>The response to IAAC-14 section 14.2 (b) Effects to Environment and Biophysical Valued Components, indicates that nutrient levels may increase in the north basin of Lake St. Martin due to increased conveyance of water by the Project. The potentially higher nutrient loads in the north basin of Lake St. Martin could lead to increased algal blooms and decreased dissolved oxygen levels, which may affect plant species composition and the abundance and diversity of invertebrate food sources.</p> <p>The response to IR IAAC-88 states: "Species potentially negatively affected by higher nutrient loads include dabbling ducks such as mallard (<i>Anas platyrhynchos</i>) and northern pintail (<i>Anas acuta</i>), and diving ducks such as common goldeneye (<i>Bucephala clangula</i>) and scaup spp." The release of a harmful substance to waters frequented by migratory birds is prohibited under the <i>Migratory Birds Convention Act</i>.</p> <p>The extent of the potential interactions between algal blooms, dissolved oxygen, plant species composition, diversity of invertebrate food sources and migratory birds and potential impact to fish and fish habitat remains unclear.</p>	<ul style="list-style-type: none"> a. Provide any additional details (such as extent of impacts, frequency, duration, parameter concentration estimates) that are currently available regarding potential adverse effects in the north basin of Lake St. Martin. Include predicted changes to aquatic nutrient levels, dissolved oxygen, and changes to waterfowl habitat components (water quality, plant community composition, plant and wildlife species abundance, diversity of invertebrate food sources) and impacts to fish and fish habitat. b. Describe the objectives for nutrient management in Lake Manitoba, Lake St. Martin and Lake Winnipeg. Confirm the specific mitigation measures that will be implemented to prevent increased algal blooms, decreased dissolved oxygen levels, and effects on invertebrates in the absence of the proposed provincial regulation in Lake Manitoba, Lake St. Martin and Lake Winnipeg. c. Describe the thresholds that will be used to evaluate and confirm when Project-managed water would become harmful to migratory birds. d. Provide an assessment of the potential effects to the health and socio-economic conditions of Indigenous peoples resulting from changes to surface water quality from nutrient loading and algal blooms.
IAAC-R2-05	IAAC-72	Hollow Water First Nation Lake St. Martin First Nation RM of Grahamdale	7.1.4 Ground Water and Surface Water	<p>The EIS Guidelines require a description of local and regional hydrogeology including any local and regional groundwater resource use, including potable water and agricultural water uses, and a description of their current use and potential for future use.</p> <p>Table IAAC-72-1 shows changes in the discharge rates for each of the groundwater discharge locations due to Project operation. Approximately 30% of the overall annual average discharge contributions to Lake Manitoba, Lake St. Martin, and Lake Winnipeg is planned to be redirected back to the lakes during operation via the Project depressurization system and channels. The total discharge (including the channels discharge) will be the same as during baseline conditions, equal to the average annual baseline discharge. It is unclear whether the carbonate aquifer recharge rate in the region will be reduced or diminished as a result of groundwater interception by the LMOC and LSMOC.</p>	<ul style="list-style-type: none"> a. Assess the effects to groundwater recharge resulting from the Project in the context of sustainability of the carbonate aquifer for use by future generations.

IAAC-R2-06	IAAC-16 SMP	IAAC	<p>3.1 Designated Project</p> <p>3.2 Project Activities</p> <p>7.1.7. Riparian, Wetland and Terrestrial Environments</p> <p>7.2.2 Changes to Groundwater, Surface Water, and Fluvial Morphology</p> <p>7.2.3 Changes to riparian, wetland and terrestrial environments</p>	<p>The EIS Guidelines requires the Proponent to include descriptions of Project activities including the location of each activity and predicted changes to the environment. Works for sediment control are considered an associated work and Project activity under Section 3.2 of the EIS Guidelines.</p> <p>The Sedimentation Management Plan (SMP) describes surface water discharge into offsite receiving areas and describes discharge into dense vegetation or settling ponds that are adjacent to work areas. It is not clear if management of this discharge would be required for construction, operation, or both. The response to IAAC-16 states that if surface water discharge parameters exceed applicable Canadian Council of Ministers of the Environment (CCME) guidelines and Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG) management thresholds for the protection of aquatic life and are attributed to the Project, that sedimentation ponds may be used to address both surface water and groundwater discharges.</p> <p>Information is required on the surface water and groundwater discharge, including locations of pump discharge points and mitigation for conditions when management thresholds are exceeded, to assess effects due to changes in surface water and groundwater quality.</p>	<ol style="list-style-type: none"> a. Provide plan view maps showing the potential locations and size of settling ponds and sedimentation ponds that will be used for surface water and groundwater discharge if management thresholds are exceeded. The potential locations and sizes could be included in the plan view map also requested in IAAC-R2-12. b. Clarify whether the ponds would be required during construction, operation, or both. c. Complete an assessment of potential effects from the construction and operation of the proposed ponds in part a. for: <ol style="list-style-type: none"> i. water quality, and for the potential off-site receiving environment(s) of surface water and groundwater discharge; ii. Indigenous peoples such as health and socio-economic conditions, the current use of lands and resources for traditional purposes, physical and cultural heritage, and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and iii. other areas of federal jurisdiction such as fish and fish habitat and Species at Risk. d. Discuss mitigation measures for potential effects associated with construction and operation of sedimentation and settling ponds. e. Provide monitoring and follow-up plans for the effects of surface water and groundwater discharge on receiving environment(s).
IAAC-R2-07	IAAC-14	Peguis First Nation	<p>7.1.4 Ground Water and Surface Water</p>	<p>The EIS guidelines requires the Proponent to assess the changes to groundwater, surface water, and fluvial morphology as a result of the Project. The EIS Guidelines require an assessment of potential effects to the health and socio-economic conditions of Indigenous peoples.</p> <p>The Proponent has developed a hydrodynamic model (KGS Lake St Martin Head Loss Analysis Report, 2021) re-designing the intake of the north channel. Due to this re-design of the intake of the north channel, updated and accurate modeling of head loss at the Lake St Martin Narrows is crucial in assessing future hydrodynamic conditions in Lake St Martin during channel operation.</p> <p>Peguis First Nation developed a model to predict head loss at the Lake St Martin Narrows. For predictions of the head loss between the south and north basins of Lake St Martin during the 2011 flood, the model developed by Peguis First Nation predicts a 57 cm headloss, while the Proponent's initial model predicts an 11 cm headloss. For predictions during the 2011 flood with the channels operating, the model developed by Peguis First Nation predicts a 76 cm headloss, while the Proponent's model predicts a 29 cm headloss. Clarity on the prediction and accuracy of the Proponent's headloss model is required to assess potential effects resulting from the changes to surface water flows.</p> <p>A sensitivity analysis focused on variation in head loss at the Lake St Martin Narrows would provide an understanding of the expected variation in predicted hydraulic parameters, and is required to validate the accuracy of the Proponent's predictions of water levels, discharges and flow velocities.</p>	<ol style="list-style-type: none"> a. Given the differences in head losses predicted by the Peguis First Nation and the Proponent's models, describe the following: <ol style="list-style-type: none"> i. potential effects to water levels, discharges and flow velocities in the Lake St Martin Narrows under flood conditions during channel operation; ii. potential effects on erosion, transport and deposition of sediment in Lake St Martin under flood conditions; iii. potential effects to the use of rip rap and armouring of the channels; and iv. potential effects to wetlands, fish and fish habitat, and the current use of lands and resources for Indigenous peoples. b. Provide a sensitivity analysis based on varying the head loss at the channels to understand potential effects on water levels, discharges and flow velocities. Consider the following: <ol style="list-style-type: none"> i. assess the head loss at increments of 20 cm between 30 cm and 90 cm for the 2011 flood with the channels operating; and ii. based on the results of the sensitivity analysis, describe potential effects on sediment erosion, sediment transport and deposition, fish and fish habitat, and resulting potential effects to the current use of lands and resources for Indigenous peoples, and health and socio-economic conditions of Indigenous peoples.

IAAC-R2-08	IAAC-14	ECCC	7.2.2 Changes to Groundwater, Surface Water, and Fluvial Morphology	<p>The EIS Guidelines require the Proponent to consider the predicted changes to surface water quality as a result of erosion and sedimentation.</p> <p>The response to IAAC-14 presents sediment transport modeling results for initial channel operation, and discusses modeled Total Suspended Sediments (TSS) levels in relation to the Canadian Council of Ministers of the Environment (CCME) Guideline for the Protection of Aquatic Life. Table IAAC-14-12 provides Lake Manitoba Outlet Channel (LMOC) Mitigation Case model results for a conceptual mixing zone edge located 200-300 m from the LMOC outlet. Table IAAC-14-13 provides Lake St. Martin Outlet Channel (LSMOC) Mitigation Case model results for a conceptual mixing zone edge located 500 m from the LSMOC outlet in Sturgeon Bay.</p> <p>Rationale is required to support the different sizes of the conceptual mixing zones. Justification should be provided for using a larger (i.e., 500 m) mixing zone for sediment modeling in Sturgeon Bay along with rationale for why sediment management is less effective at the LSMOC outlet (500m mixing zone) than the LMOC outlet (200-300m mixing zone).</p> <p>The Sediment Management Plan (SMP) Appendix 2A and Appendix 2B (Section 2.1.1 Target Levels) set out proposed target levels for management of TSS levels during in-lake construction (inlets and outlets) and commissioning, including 25 mg/L and 200 mg/L above background TSS. Citing the report “Effects of Sediment on Fish and Their Habitat. DFO Pacific Region Habitat Status Report 2000/01; Department of Fisheries and Oceans (DFO) Canada. January 2000”, Appendices 2A and 2B state: Both proposed action levels (i.e., 25 mg/L and 200 mg/L above background) identified above are below acutely lethal thresholds of suspended sediment for freshwater fish, which range from the hundreds to hundreds of thousands mg/L.</p> <p>The SMP does not discuss the proposed TSS target levels in relation to the CCME Guideline values for suspended sediments (TSS). Further, the SMP does not specify whether the proposed target levels would be protective of the most sensitive species in the local assessment area (LAA).</p> <p>Information regarding the mixing zones and TSS levels is necessary to understand the extent of potential effects to aquatic life including fish and fish habitat.</p>	<ol style="list-style-type: none"> a. Discuss whether the CCME Guideline for TSS could be met at the edge of a 200-300 m mixing zone in Sturgeon Bay, including a discussion of potential mitigation measures to effectively reduce TSS. <ol style="list-style-type: none"> i. If the CCME Guideline for TSS cannot be met at the edge of a 200-300 m mixing zone in Sturgeon Bay, provide a rationale for using a larger (i.e. 500 m) mixing zone for sediment modeling in Sturgeon Bay than that which was used for the LMOC outlet (i.e. 200 – 300 m) b. Provide a rationale for the proposed target levels for the management of TSS levels during in-lake construction (inlets and outlets) and commissioning (i.e., 25 mg/L and 200 mg/L above background TSS). c. Discuss the proposed TSS target levels in relation to: <ol style="list-style-type: none"> i. the CCME Guideline values for TSS ii. the most sensitive aquatic species in the LAA iii. any potential for sub-lethal or lethal effects on the most sensitive aquatic species iv. if the potential for sub-lethal or lethal effects is determined, provide mitigation measures and any follow-up program components and monitoring
IAAC-R2-09	IAAC-14 IAAC-17 SMP	ECCC IAAC Lake St. Martin First Nation Hollow Water First Nation	7.2.2 Changes to Groundwater, Surface Water, and Fluvial Morphology	<p>The EIS Guidelines require the Proponent to consider the predicted changes to surface water quality as a result of erosion and sedimentation.</p> <p>In the response to IAAC-14, the updated summary of residual effects on surface water quality suggests that the initial operation of the Project during commissioning will result in mobilization of sediment from the channels, leading to additional sediment sources. During commissioning, the associated one-time increase in TSS concentrations downstream of the LMOC and LSMOC is predicted to have a moderate magnitude effect on surface water quality within the LAA.</p> <p>The Proponent’s draft response to IAAC-14 (provided Fall 2021) indicated that commissioning is predicted to result in an exceedance of the water quality guideline for TSS and potentially for other sediment-associated water quality constituents in the LAA. The draft response stated that other sediment-associated water quality constituents, such as sediment-bound metals, may increase in concentration and may temporarily exceed</p>	<ol style="list-style-type: none"> a. Clarify whether concentrations of sediment-associated water quality constituents (such as nutrients and metals) could potentially exceed guidelines near the LMOC and LSMOC outlets during commissioning, and the potential source(s) of such exceedances. b. Provide details on potential sediment-associated water quality constituents (such as nutrients and metals), including extent of impacts, frequency, duration, and parameter concentration estimates. c. Discuss any potential contributions from residual nitrogen-based explosives on armour materials. d. Provide an assessment of the potential effects to the health and socio-economic conditions of Indigenous peoples resulting from changes to surface water quality from sediments. As part of the assessment, compare anticipated sediment concentrations to relevant drinking water guideline thresholds. Include an assessment

				<p>relevant water quality guidelines near the LMOC and LSMOC outlets during the initial Project operation. However, the draft response provided limited information regarding the potential exceedance of sediment-associated water quality parameters.</p> <p>The Proponent's final response to IAAC-14 does not indicate whether sediment-associated parameters could potentially exceed guidelines at channel outlets during commissioning. It is unclear whether concentrations of sediment-associated water quality constituents, including nutrients and metals, could exceed Canadian Council of Ministers of the Environment (CCME) Guidelines near LMOC and LSMOC during Project commissioning. It is not clear how sediment associated parameters compare to water quality guidelines for drinking water.</p> <p>It is unclear whether the potential mobilization and transport of any residual nitrogen-based explosives from armouring materials has been considered. Given that the full length of both channels will be armoured with crushed rock, potential contributions from residual explosives should be discussed.</p>	<p>on potential effects to the use of water in relation to the Lake St. Martin First Nation surface water intake.</p>
IAAC-R2-10	IAAC-30 IAAC-37 IAAC-84	IAAC ECCC DFO Interlake Reserves Tribal Council Manitoba Metis Federation Pinaymootang First Nation	<p>7.1.3 Topography and Soil</p> <p>7.2.2 Changes to groundwater, surface water, and fluvial geomorphology</p> <p>7.3.1 Fish and Fish Habitat</p> <p>7.4. Mitigation measures</p>	<p>The EIS Guidelines requires the Proponent to identify potential Project effects on soil instability and erosion as a result changes to surface water quality due to erosion and sedimentation. The EIS Guidelines also require the identification of potential adverse effects to fish and fish habitat, including as a result of water quality and sediment quality changes from storing water in and releasing water from the channels, inclusion of mitigation measures to eliminate, reduce or control the adverse environmental effects of a designated Project in the EA, as well as restitution for damage to the environment through replacement, restoration, compensation or other means.</p> <p>The response to IAAC-30 provides sediment modeling for initial commissioning of the channels, and describes mitigation measures to prevent erosion within the channels. While predicted sediment dispersion of modelled scenarios is provided, the modeling was not assessed against specific or sensitive fish and fish habitat within those dispersion areas. The response indicates that the changes in sediment deposition due to operation of the Project may not be discernible from existing conditions.</p> <p>The response to IAAC-37 provides quantitative estimates of habitat areas that will be impacted by the Project (Table IAAC-37-2). Modeling results indicate that approximately 2,700 to 5,500 tonnes of the estimated 12,000 tonnes of loose material that may initially be available to mobilize from the channel bed following construction are mobilized into Birch Bay over 4 days. The habitat potentially affected by sediment mobilization shown through modeling should be included as an impact to habitat as defined by the <i>Fisheries Act</i> (harmful alteration or disruption), presented in Table IAAC-37-2, and considered as part of the assessment of potential effects to fish and fish habitat. In addition, Table IAAC-37-2 does not appear to account for other potential effects to fish and fish habitat such as increased velocities at the Lake St. Martin Narrows, decreased water level in the north basin of Lake St. Martin, and sediment load from the shift in water flow from ice cover to open water in the outlet channels in the spring. Table 37-2 is lacking a complete description of spawning habitat for specific areas affected by the Project and it is stated that the degree in which spawning habitat in Lake St. Martin is unknown.</p> <p>Further, as the channels redirect floodwaters and sediment in a manner that would not occur without the Project, further information is required on transport and deposition from the floodwater and the channels during the operation phase (post-commissioning) to assess the effects of the Project on fish and fish habitat.</p>	<p>a. Provide a description of how habitat estimates in Table IAAC-37-2 were derived and describe how traditional knowledge was incorporated into the fish habitat assessment.</p> <p>b. Describe the potential effects to fish and fish habitat resulting from changes in flow velocity at the Lake St Martin Narrows, potential decreases in water levels in the north basin of Lake St. Martin, and sediment load from the shift in water flow from ice cover to open water in the outlet channels in the spring.</p> <p>i. Update Table IAAC-37-2 to include habitat affected by these potential changes.</p> <p>c. In addition to the modeling of sediment upon commissioning that has been provided, provide analysis of sediment transport under design flood conditions (approx. 1:300 year flood).</p> <p>i. using what is learned from all modeling and from Indigenous input, provide an assessment of potential effects of the distribution and deposition of sediment on fish and fish habitat (e.g., effects to spawning, nursery and rearing habitats, changes of food source and supply). This should include effects to fish habitat from mobilization of sediment, which was not accounted for in Table 37-2;</p> <p>ii. consider the mobilization of sediment and how sediment deposits could impact fish habitat, including through accumulation over multiple flood events during the operation of the Project;</p> <p>iii. for parts i. and ii., include consideration of sediment quality from IAAC-R2-09</p> <p>iv. update the significance assessment for fish and fish habitat in consideration of the above, as needed, with respect to timing, life cycles, sensitive habitats, and any other relevant metric;</p> <p>v. update as needed any mitigation measures, follow-up program components, and monitoring; and</p> <p>vi. provide evidence to support the statement that changes in sediment deposition due to operation of the Project may not be discernible from existing conditions.</p>

				In order to understand effects and evaluate the adequacy and effectiveness of proposed mitigation measures, an accurate accounting of potential affected fish habitat is required to understand the feasibility of fisheries offsetting as a viable mitigation for effects to fish and fish habitat for the Project.	<p>d. Describe how these effects will be mitigated or if they will be offset. If offsetting is the only measure to address effects, then describe how offsetting is expected to occur to the level of detail required to assess its feasibility and effectiveness.</p> <p>e. Provide an outline of how the concerns and recommendations from Indigenous groups have been addressed in a meaningful way and identify how traditional knowledge is incorporated into the development of mitigation measures and monitoring plans for impacts to fish and fish habitat from the construction and operation of the Project.</p>
IAAC-R2-11	IAAC-31	IAAC Hollow Water First Nation Lake St. Martin FN Manitoba Metis Federation	7.3.1 Fish and Fish Habitat	<p>The EIS Guidelines requires the Proponent to include descriptions of Project activities including real-time monitoring plans and fish rescue plans and locations. The EIS Guideline also require the Proponent to assess the current use of lands for traditional purposes including changes to access to areas and resources without difficulty or additional cost used to conduct an activity or practice, as well as the opening up of areas to non-Indigenous populations for access and use, and consideration of preferred areas, timing of harvest, and options for traveling there in a preferred manner. This assessment should also consider the experience of Indigenous peoples.</p> <p>The response to IAAC-31 indicates that the LSMOC is designed with drop structures to maintain a baseflow and dissolved oxygen concentrations during ice cover. Pools immediately upstream of each drop structure are intended to be deep enough under winter ice to provide over-wintering habitat for fish present in the channel. The modeling predicts the maintenance of dissolved oxygen concentrations under ice based on the assumption that full saturation of dissolved oxygen occurs at cold water intakes and at each drop structure. Clarity on real-time monitoring of dissolved oxygen and triggers for fish rescue operations is required.</p> <p>During drought conditions, there may be insufficient water to facilitate baseflow through the channels. Relative drought can occur in mid winter since extended cold temperatures both reduce flows and evaporate or sublime ice and snow during this period. The suggestion in this case is that any rewatering activities or baseflow is cut during this time to provide for continued flow through the Dauphin River system. Indigenous groups are concerned about how decisions about prioritizing specific fish and waterways will be made, and what criteria will be used to make decisions. It is not clear if fish rescue will occur if there is risk of fish mortality or stranding.</p> <p>Further information is required to evaluate the effectiveness of the proposed mitigation under environmental conditions that may not allow for baseflow to reduce adverse effects to fish.</p>	<p>a. Describe any real-time monitoring planned for dissolved oxygen in the channels and thresholds that may trigger adaptive management measures such as fish rescue operations.</p> <p>b. Describe any fish rescue plans and proposed locations, the triggers for requiring fish rescue, who will undertake the rescue, and the process for fish rescue under frozen conditions.</p> <p>c. Describe the operational plan for maintaining baseflow in the event of a drought or when there is a flood and the required draw down at the water control structure is below the water level in Buffalo Creek.</p>
IAAC-R2-12	IAAC-70 CEMP	IAAC	3.2 Project Activities 7.2.3 Changes to riparian, wetland and terrestrial environments 7.1.10 Indigenous peoples 7.3.3 Indigenous peoples	<p>The EIS Guidelines requires the Proponent to include descriptions of Project activities including the location of each activity. The EIS Guidelines also require the Proponent to assess current use of lands for traditional purposes including changes to access to areas and resources without difficulty or additional cost used to conduct an activity or practice, as well as the opening up of areas to non-Indigenous populations for access and use, and consideration of preferred areas, timing of harvest, and options of traveling in a preferred manner. The assessment should consider input from Indigenous groups, including traditional knowledge.</p> <p>The response to IAAC-70 states that temporary workspace locations and extents have not been determined. The Construction Environmental Management Plan (CEMP) indicates that temporary staging areas will be located in the right-of-way when feasible. Clarity on the location and size of temporary workspaces, and other Project activities, is required to complete an</p>	<p>a. Provide plan view maps showing the proposed locations and sizes of temporary workspaces, including temporary staging areas, construction camps, quarry and borrow areas, a quantitative assessment of the disturbances, and, considering these Project activities, provide:</p> <ul style="list-style-type: none"> i. a description of the potential effects to wetland area and sensitive habitats based on location and size; ii. provide a quantitative pre- and post-construction assessment of the wetland classes including estimates for the alteration of wetlands adjacent to the PDA and the associated effects to the current use of land and resources for traditional purposes, including access to preferred areas for traditional land use and experience;

				<p>assessment of effects on wetland areas and sensitive habitats for migratory birds, SAR and current use of lands by Indigenous peoples.</p> <p>Changes to vegetation and wildlife resources and associated effects such as access, availability, preference, and experience are of particular concern to Indigenous land users. This information is required to understand the effects of the Project to the current use of lands and resources for traditional purposes. The locations of Project activities are required to assess the potential effects to the physical and cultural heritage and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. Locations of Project activities is required to assess the potential impacts to the health and socio-economic conditions of Indigenous peoples.</p>	<ul style="list-style-type: none"> iii. an assessment of effects to physical and cultural heritage of Indigenous peoples and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; iv. describe how engagement with Indigenous groups has contributed to the development of the locations and extents of temporary workspaces; and v. describe the mitigation measures, follow-up program components, and monitoring that would be implemented to address the potential effects of the locations and sizes of these components on Indigenous groups.
IAAC-R2-13	IAAC-133 Wetland Compensation Plan Wetland Monitoring Plan	IAAC Hollow Water First Nation Fisher River Cree Nation Lake St. Martin First Nation RM of Grahamdale	<p>7.2.3 Changes to riparian, wetland and terrestrial environments</p> <p>7.3.5 Species at risk</p> <p>7.4 Mitigation Measures</p>	<p>The EIS Guidelines require that the EA consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project. Under CEAA 2012, mitigation measures includes “measures to eliminate, reduce or control the adverse environmental effects of a designated Project, as well as restitution for damage to the environment through replacement, restoration, compensation or other means”.</p> <p>Under Manitoba’s <i>The Water Rights Act</i>, Class III, Class IV, and Class V wetlands require compensation to offset and mitigate wetland impacts. In the Wetland Monitoring Plan and the Wetland Compensation Plan, a summary of wetland classes and estimated area impacted in the PDA are presented for both LMOC and LSMOC. The total area of wetlands requiring compensation intersected by LMOC is 237.1 ha, by PR 239 is 1.8 ha and by LSMOC is 0.1 ha. Based on the summary it appears that the Project will require a total of 239.0 ha of wetland compensation.</p> <p>The Wetland Compensation Plan discusses potential locations for anticipated compensation of the 239.0 ha of wetland potentially affected by the Project. In the response to IAAC-133, it is stated, “Manitoba Transportation and Infrastructure has begun to identify potential wetland enhancement, restoration, and protection Projects, including areas of local and regional crown lands. Manitoba Transportation and Infrastructure anticipates funds will be provided to a provincially approved wetland service provider, such as Manitoba Habitat Heritage Corporation, for some or all Project required wetland compensation. Information on the spatial, temporal or plan participation is currently unknown; however, information will be shared when available.”</p> <p>Due to the lack of clarity regarding the spatial and temporal plans for wetland compensation, there is uncertainty with respect to the effectiveness of wetland compensation to mitigate Project effects due to the loss of wetlands. Furthermore, it is not clear how wetland compensation for the purposes of mitigating Project effects will be managed to meet the spatial and temporal requirements and the inclusion of affected Indigenous groups if compensation is managed by a third-party service provider such as the Manitoba Habitat Heritage Corporation. Given the range of effects due to the direct loss of wetland habitat, an understanding of the general locations of compensation of wetland habitat is needed. It is unclear how compensation areas potentially identified on the provincial level (i.e. in other areas of the province that communities in the LAA may not access) may mitigate project effects in the LAA.</p> <p>Additional details surrounding wetland compensation is required to understand how the effects of the loss or alteration of wetlands.</p>	<ul style="list-style-type: none"> a. Describe the process that will determine wetland compensation locations. Describe how the process will take into consideration project-specific effects and the criteria or methodology for determining locations suitable for mitigating the loss of wetlands and related effects (e.g. to the current use of lands and resources for traditional purposes; migratory birds; Species at Risk). b. Describe mitigation measures, follow-up program components and monitoring that would be required for Project effects due to direct loss and alteration of wetlands. For potential effects to the current use of lands and resources for traditional purposes, include a discussion on preference and experience with respect to the locations. c. Provide additional details on how Indigenous groups and traditional knowledge will be included in wetland compensation planning (including the selection of locations as described in part a.), development, and monitoring.

IAAC-R2-14	IAAC-14 IAAC-53 IAAC-77 IAAC-132	IAAC INFC ECCC DFO Hollow Water First Nation Lake St. Martin First Nation RM of Grahamdale	7.2.2 Changes to Groundwater, Surface Water, and Fluvial Morphology 7.2.3 Changes to riparian, wetland and terrestrial environments	<p>The EIS Guidelines require the Proponent to assess the changes to groundwater, surface water and fluvial morphology as a result of the Project. Furthermore, the EIS Guidelines require the Proponent to describe potential adverse environmental effects of the Project associated with the introduction and/or spread of aquatic invasive species.</p> <p>The response to IAAC-14 states that to mitigate the reduction in Birch Creek basin drainage along the LMOC, a small, gated control structure (known as the Birch Creek Augmentation Structure) will be constructed to restore lost flow. The response to IAAC-122 indicates that the Birch Creek Augmentation Structure could provide a pathway for zebra mussels to enter Birch Creek but notes that conditions are not optimal for zebra mussels to survive in Birch Creek. It is also stated, “the effects that zebra mussels could have on Buffalo Creek are not fully known; however, the effects would primarily occur to species that reside in the creek. Those species are primarily forage species and are not used by local resource users.” Effects to fish and fish habitat include forage species and can lead to impacts to fish and fisheries depended upon by Indigenous peoples.</p> <p>The response to IAAC-77 states that aquatic invasive species, including zebra mussel, could colonize streams in the Buffalo Creek watershed while colonization in Birch Creek may be limited by winter conditions. The response to IAAC-77 indicates that an Aquatic Invasive Species (AIS) permit will be issued if a net benefit of improving fish habitat by supplementing flow is favored. However, specific mitigation to ensure listed AIS are removed from the water that will enter Buffalo and Birch Creeks is not clear.</p> <p>An assessment of the effectiveness and feasibility of the mitigation for re-watering Birch Creek is required to assess Project effects on water quality parameters, AIS, wetland function, SAR, and fish and fish habitat.</p>	<ol style="list-style-type: none"> Provide construction and operational details for the selected mitigation for re-watering Birch and Buffalo Creeks. Describe the anticipated effectiveness of mitigations and/or adaptive management responses to unanticipated effects of re-watering Birch and Buffalo Creeks. Complete effects analyses for the pathways of effects due to re-watering of Birch and Buffalo Creeks, including potential effects to SAR, fish and fish habitat, the health and socio-economic condition of Indigenous peoples, and the current use of lands and resources for traditional purposes due to changes in water quality, introduction of AIS, and changes in wetland function.
IAAC-R2-15	IAAC-97 IAAC-101 RVMP	IAAC INFC Hollow Water First Nation Interlake Reserves Tribal Council Pinaymootang First Nation Sagkeeng First Nation Sandy Bay First Nation Lake St. Martin First Nation	7.1.10 Indigenous peoples 7.3.3 Indigenous peoples	<p>The EIS Guidelines require the Proponent to present information to support an understanding of the current use of lands and resources for traditional purposes and an assessment of the changes in the quantity, quality, and availability of these resources. The assessment of potential effects to the current use of lands and resources for traditional purposes should consider: access to areas and resources without difficulty or additional cost used to conduct an activity or practice, the opening up of areas to non-Indigenous populations for access and use, preferred areas and options for traveling there in the preferred manner, and timing of harvest.</p> <p>The response to IAAC-97 states that the updated list of plant species of cultural significance (Table IR 101-2) does not change the EIS conclusion that the species are provincially common and that Project effects will not change abundance. However, the response to IAAC-101 states that “plant species of importance to Indigenous groups may not be locally abundant and could be adversely affected by the Project” and that Project “effects are not anticipated to substantially reduce or eliminate availability and access to lands, resources and cultural sites and areas”. Although plant species of cultural significance may be provincially available, it is expected that local species abundance and community composition will shift based on the anticipated changes to surface water, groundwater and/or wetlands. The Project will bisect the land and could affect access to preferred areas and preferred manner of travel to these areas. It is also not clear how Indigenous knowledge was incorporated into the Proponent’s assessment and conclusions.</p> <p>The Project may act as a barrier to access lands where plant species of cultural importance are harvested or alter the availability and access to preferred harvesting sites. Details on local changes in species abundance and changes in access to traditional land and resources is</p>	<ol style="list-style-type: none"> Describe potential effects on the abundance of identified culturally important plant species in the LAA, resulting from changes due to Project activities. Address how Indigenous groups will access species of commercial, cultural, and/or medicinal importance in the LAA, with specific reference to access points and infrastructure. The response should consider preference for areas and practices for traditional use of lands and resources. Describe how the traditional knowledge provided by Indigenous groups about culturally important species has been incorporated in the development of the revegetation prescriptions, as discussed in the Revegetation Management Plan.

				<p>required to understand the potential effects of the Project on the current use of land and resources for traditional purposes.</p> <p>Clarity is required on how traditional knowledge was incorporated into the Revegetation Management Plan to address potential effects to abundance of plant species of cultural importance.</p>	
IAAC-R2-16	IAAC-46 IAAC-49 IAAC-53 IAAC-54 IAAC-93	IAAC ECCC	<p>7.2.3 Changes to riparian, wetland and terrestrial environments</p> <p>7.3.5 Species at risk</p> <p>7.4 Mitigation Measures</p>	<p>The EIS Guidelines require the Proponent to describe mitigation measures in relation to species and/or critical habitat listed under the Species at Risk Act (SARA). These measures will be consistent with any applicable recovery strategy and action plans. Subsection 79(2) of SARA establishes a requirement to avoid or lessen all adverse effects of a Project on listed wildlife species and critical habitat, regardless of the significance of those effects.</p> <p>The response to IAAC-53 states that re-wetting the wetlands downgradient (east) of LMOC is unfeasible due to topography and shallow water levels in the channel when not in operation. However, the response to IAAC-93 indicates that northern leopard frog habitat exists along the eastern edge of the LMOC right-of-way and in wetlands adjacent to the Dauphin River from the 2016 field surveys. The response to IAAC-93 states that measurable changes in abundance and distribution of wildlife, including northern leopard frog, in the LAA is possible but a measurable change in the abundance of wildlife in the RAA is unlikely and will not threaten the long-term persistence or viability of the species within the RAA. Removal or modification of this species' ability to access these habitats may render the landscape unsupportive of the species' requirements, as separate sites are generally used for overwintering, breeding and foraging, and contiguity between these habitats is necessary for the species' survival.</p> <p>The response to IAAC-54 states that no compensation will be provided for yellow rail, as the primary and preferred habitat is Class II (temporary) wetlands, which is not a wetland class requiring compensation under <i>The Water Rights Act</i>. Other mitigation measures for potential effects to yellow-rail are unclear.</p> <p>Given the expected loss and/or alteration of wetland habitat along the LMOC, clarity on the effects to wetland-dependant species' use of wetland habitat (e.g., Yellow Rail, Least Bittern, and Northern Leopard Frog) is required. Clarity on species-specific mitigation is required to understand the potential effects of the Project on SAR habitat in wetland classes that do not require compensation under <i>The Water Rights Act</i>.</p>	<p>a. Describe the species-specific habitat fragmentation impacts for Northern Leopard Frog, discuss the severity of Project effects and provide appropriate mitigation measures to address the effects.</p> <p>b. Provide details on Northern Leopard Frog breeding ponds and overwintering areas that may be impacted by the Project, including locations, density/quantity, and how these areas may be impacted by the Project.</p> <p>c. Identify mitigation measures for altered habitat function affecting SAR such as Yellow Rail, specifically for wetland classes not requiring compensation under <i>The Water Rights Act</i>.</p> <p>d. Provide specific details on the mechanisms and thresholds that will trigger adaptive management due to observed adverse effects during monitoring of Species at Risk.</p>
IAAC-R2-17	IAAC-38 IAAC-92	ECCC	<p>7.2.3 Changes to riparian, wetland and terrestrial environments</p> <p>7.3.5 Species at risk</p> <p>7.4 Mitigation Measures</p>	<p>The EIS Guidelines require that the Proponent provide information to support the assessment of the potential effects of the Project on Species at Risk (SAR) and mitigations for these effects. Furthermore, the EIS Guidelines require consideration of changes to key habitat, movement corridors, and population numbers for species important to current use of lands and resources for traditional purpose.</p> <p>The response to IAAC-38 describes using crushed limestone rock as armour for the channel base and lower side slopes, with rock size between 25mm to 100mm. However, the use of larger rock to line the channel may prevent movement or increase injury and mortality risks to some wildlife species. This is a greater design change than originally contemplated in the EIS. The response to IAAC-92 indicates that parts of the channels will lack armouring and have rip rap applied, including at bridge crossings and channel curves due to high erosion risk.</p>	<p>a. Describe the predicted changes to wildlife movement (for both SAR (e.g. Northern Leopard Frog) and harvested wildlife) given the planned channel armouring, as well as details of proposed mitigation measures to address adverse effects.</p> <p>b. Describe Project effects to Northern Leopard Frog (i.e., change to movement, mortality), considering changes to Project design and the planned use of armouring materials.</p> <p>c. Describe predicted effects to SAR, including migratory birds, based on the Project's revised shoreline and wetted habitat footprints with respect to the LSMOC and LMOC inlet and outlet structures.</p>

				<p>The response to IAAC-38 also describes changes in the lake inlet and outlet structures. The LSMOC inlet is now proposed to extend further into Lake St. Martin. On the LMOC, structures will also extend further into Watchorn Bay of Lake Manitoba (at the inlet) and Birch Bay of Lake St. Martin (at the outlet).</p> <p>Clarification regarding the predicted effects to wildlife movement and mortality from the updates to the channel design (e.g. use of a rock channel armour) and inlet/outlet extensions is required to understand potential adverse effects to SAR, migratory birds and harvested wildlife.</p>	
IAAC-R2-18	IAAC-50	ECCC	<p>7.3.2 Migratory Birds</p> <p>7.3.5 Species at risk</p> <p>7.4 Mitigation Measures</p>	<p>The EIS Guidelines require the Proponent to provide information to support the assessment of effects to migratory birds. Section 5.1 of the <i>Migratory Birds Convention Act</i> prohibits the deposit of harmful substances to waters or areas frequented by migratory birds.</p> <p>The EIS notes: “Wetlands adjacent to the PR 239 route will also likely be indirectly affected by road salt and potentially oil and other petroleum products during road use. Ditches will be constructed adjacent to the road to channel road run-off, but water will likely still connect to natural adjacent wetlands” and, “Effects from use of the PR 239 re-route will similarly be adverse and likely limited to the LAA because water quality of wetlands adjacent to the road will be affected by road run-off. Effects timing is not applicable for PR 239 operation because water quality may be affected throughout the year. Effects will be infrequent during construction and continuous during operation. However, most effects should be offset with wetland compensation and are therefore considered low magnitude.”</p> <p>Adverse effects to migratory birds resulting from the release of harmful substances cannot be addressed through offsets. Information on mitigation measures related to the release of harmful substances, road salt, oil and other contaminants to waters frequented by migratory birds is required, in order to understand the residual effects associated with the Project.</p>	<p>a. Provide specific mitigation measures to address impacts from road salts, oil or other contaminants that are likely to enter waterways (i.e., describe how contaminated water runoff will be contained and hauled off site, to prevent it from getting into wetlands and other waterbodies frequented by migratory birds) during construction and operation phases.</p>
IAAC-R2-19	IAAC-51 RHMP	ECCC	<p>7.3.5 Species at risk</p> <p>7.4 Mitigation Measures</p>	<p>The EIS Guidelines require the Proponent to present an assessment of the potential effects of the Project on SAR that includes mitigation.</p> <p>In March 2021, during technical meetings facilitated by IAAC with the Proponent and ECCC, the Proponent indicated that it would adopt ECCC suggestions for passive observation and monitoring for Red-headed Woodpecker in the local and regional assessment areas to provide regional context.</p> <p>It is acknowledged that a residence description for Red-headed Woodpecker is under development and not yet publicly available. This information will aid the design of construction activities and assessment for the need for Species at Risk Act permits.</p> <p>However, in the response to IAAC-51 and the Red-headed Woodpecker Habitat Management Plan (RHMP), there are gaps related to the description of mitigation measures for the Red Headed Woodpecker.</p>	<p>a. Clearly identify the timing of application of the mitigation measures in the plan (i.e., the sequence of the application of the mitigation measure (habitat replacement) and the effect (habitat loss)).</p>
IAAC-R2-20	IAAC-46 IAAC-52 IAAC-92	ECCC	<p>7.1 Project setting and baseline information</p> <p>7.1.9 Species at Risk</p>	<p>The EIS Guidelines require the Proponent to include current baseline information in sufficient detail to support the assessment of effects of the Project on SAR. Subsection 79(2) of the <i>Species at Risk Act</i> (SARA) establishes a requirement to avoid or lessen all adverse effects of a Project on listed wildlife species and critical habitat, regardless of the significance of those effects.</p>	<p>a. Provide specific details for planned pre-construction surveys for the Project area’s wildlife species (migratory birds, SAR, species of cultural importance) through their seasonal uses of habitats. Include:</p> <ul style="list-style-type: none"> i. quantification of habitat conditions (e.g., vegetation community composition), and ii. species/local population abundance and density for the habitat requisites necessary to support each species.

			7.4 Mitigation Measures	<p>In order to implement setback-based mitigation and monitor predicted habitat-based Project effects to wildlife species that include SAR and valued wildlife, pre-construction SAR surveys are required. If pre-construction surveys are not considered feasible, SAR-specific habitat surveys should be carried out during the 4–5-year construction period, spatially and temporally, such that pre-disturbance population data is captured and sensitive habitat features are known for key species.</p> <p>Other than red-headed woodpecker and eastern-whip-poor-will, only general construction mitigations are provided for SAR. The response to IAAC-52 relies on setbacks and timing windows to reduce impacts and, if these measures cannot be implemented, alternative measures (e.g., amphibian exclusion fencing) would be considered. Mitigation is required to address residual effects, particularly for SAR, including northern leopard frog, little brown myotis and northern myotis. It is important to define key mitigation measures in order to understand any residual effects.</p>	<p>b. Provide species-specific mitigation measures, including the timing of such measures, to address potential effects during all phases of the Project (i.e. including construction, operation, and maintenance), during all seasons, for migratory birds, SAR, and species of cultural importance. The response may be consolidated and presented in a table.</p> <p>c. Identify occupied habitat and key areas of seasonal use where Project activities, including construction, are proposed that would introduce risk of mortality, specifically for overwintering amphibians and mammals through heavy machinery use and ground disturbance. Provide mitigation measures to avoid and lessen this effect.</p> <p>d. Provide details regarding intended avoidance periods for all Project activities during operation and maintenance of various Project components, such as mowing and shrub clearing, for all wildlife and SAR other than migratory birds.</p>
IAAC-R2-21	IAAC-89 IAAC-90	IAAC ECCC Hollow Water First Nation Lake St. Martin First Nation RM of Grahamdale	7.1.10 Indigenous peoples 7.4 Mitigation Measures	<p>The EIS Guidelines require the Proponent to present information to support an understanding of the current use of lands and resources for traditional purposes (including the wildlife it depends on) and an assessment of the changes in the quantity, quality, and availability of these resources. The EIS Guidelines require an assessment of changes to key habitat, movement corridors, and population numbers for species important to the current use of lands and resources for traditional purposes.</p> <p>The response to IAAC-89 and IAAC-90 states that the risk of wildlife mortality will be reduced through shrub or cover planting, access controls and signage. However, increased wildlife mortality should be anticipated in portions of the PDA and LAA where Project components remain accessible to off-road travel. Mitigation measures such as permanent blocks to access (log pile blocks, rock piles, temporary road and access trail rehabilitation, dense revegetation), monitoring patrols, increased anti-hunting enforcement, community-led education, and reporting mechanisms should be considered.</p> <p>Use of the Right of Way (ROW) by predator wildlife and hunters should be studied and monitored so adaptive management measures can be implemented, and fully developed in the Wildlife Monitoring Plan. The threshold to require adaptive management is defined as a significant increase in humans or predators, but what constitutes a ‘significant’ number is not quantified. Additionally, the distance between remote cameras along access points (1 km apart), may not accurately capture increased access and associated wildlife mortality. Further information on specific details for the mechanism and threshold to trigger adaptive mitigation is required.</p>	<p>a. Provide detail on alternative mitigation options for wildlife mortality effects (e.g., the use of monitoring patrols or other ways to manage public access) along the PDA and LAA where Project components will be accessible to off-road travel.</p> <p>b. Assess the Project effects on access to species of cultural importance, specifically moose, for hunting/trapping in the LAA by Indigenous peoples. Include a discussion with specific reference to access points and infrastructure.</p> <p>c. Provide specific details on the mechanisms and thresholds that will trigger adaptive management, and the additional mitigation measures proposed, related to increases in human and predator access and associated wildlife mortality within the Wildlife Monitoring Plan.</p>
IAAC-R2-22	IAAC-38 IAAC-65 IAAC-66 IAAC-69 IAAC-127	IAAC Norway House Cree Nation York Factory First Nation	7.1.10 Indigenous peoples 7.3.3 Indigenous peoples	<p>The EIS Guidelines require the Proponent to describe any residual environmental effects of the Project on VCs. For those VCs related to effects of changes to the environment on Indigenous peoples, the Proponent is required to discuss the residual effects with Indigenous groups and consider the view of Indigenous peoples in the determination of significance criteria.</p> <p>The response to IAAC-66 states that the modeling used to predict water level conditions in Lake Winnipeg estimates that with the Project, peak water levels could reach a maximum of 218.58 m, with daily water levels expected to be in the range of 0-7 cm during channel operation (data collected between 1976 and 2018). Norway House Cree Nation indicated that in 2022, Manitoba Hydro reported a wind eliminated water level of 218.69 m in Lake Winnipeg, an 11 cm increase over the predicted peak with the Project.</p>	<p>a. Provide an updated assessment of changes to water levels in Lake Winnipeg and downstream from the operation of the Project and include in the assessment:</p> <ol style="list-style-type: none"> i. limitations in outflow capacity for Lake Winnipeg; ii. the duration of increased water levels; and iii. anticipated effects of climate change on predicted water levels of Lake Winnipeg and downstream waterbodies. <p>b. Assess the potential downstream effects to the health and socio-economic condition of Indigenous peoples, and the current use of lands and resources for traditional and recreational purposes based</p>

				<p>In the response to IAAC-65 (notes for Table IAAC-65-1), it is described that water moves more efficiently from Lake Manitoba to Lake Winnipeg (shown as reduced overland flooding and duration in IAAC-38) and therefore it is not clear how the Project would remain analogous with the 7 cm increase in water levels for the 2011 flood in July. The response to IAAC-127 states, “Aside from the flood peaks, water levels in Lake Winnipeg and downstream may differ slightly at other times of the year. However, the dominant factor influencing operation of the Lake Winnipeg Regulation (LWR) is the overall amount of water inflow to the system, which varies widely from year to year. The differences in water levels in Lake Winnipeg and water bodies downstream of Lake Winnipeg associated with the Lake Manitoba Lake St Martin Channels Project are not expected to be discernible in the context of existing water level variations (Manitoba Hydro 2019, included as Volume 2, Appendix 6I of the Project EIS).” Appendix 6I of the EIS also concludes, “Under some flood conditions, the duration of maximum Lake Winnipeg outflow operations are extended in the case with the Lake Manitoba Lake St Martin Channels Project, resulting in longer periods of higher water levels along the Nelson River.” The effects of increased duration of high water levels experienced on the Nelson River from the operation of the Project have not been assessed. Appendix 6I does not consider recent modeling completed by the Proponent and it is unclear if Appendix 6I is still relevant considering additional modeling completed since the submission of the EIS.</p> <p>The 2019 report entitled “Impacts of Lake Manitoba and Lake St. Martin Outlet Channels Project on Downstream Water Levels” prepared by Manitoba Hydro states that “Manitoba Hydro may alter its operation to anticipate and mitigate the effect of higher intensity Lake Winnipeg inflows due to the LMB/LSM Channels Project.” Given that LWR operations regulate flow out of Lake Winnipeg and peak flood levels on Lake Winnipeg to reduce the number and severity of Lake Winnipeg shoreline flooding incidents, understanding the peak water levels on Lake Winnipeg due to operation of the Project is necessary to determine if there could be additional downstream effects (including the Nelson River) to Indigenous communities. The interaction between the operation of the LWR and the operation of the Project requires further consideration in order to assess potential adverse effects.</p> <p>An updated evaluation of water levels on Lake Winnipeg is required to understand the relative contribution of the outlet channels on potential effects of downstream peak flood levels. Periods of high water levels have the potential to adversely affect land and resource use by Indigenous peoples for traditional and recreational purposes and their health and socio-economic conditions.</p>	<p>on the revised assessment in a. and describe any required mitigation measures and monitoring and follow-up programs.</p> <p>c. Provide information on how Indigenous groups will be engaged and their views considered to determine mitigation measures and monitoring and follow-up programs.</p> <p>d. Provide information on the Lake Winnipeg Regulation (LWR) operations in relation to the operation of the Project. Describe magnitude and duration of downstream peak high water levels and maximum discharge periods from Lake Winnipeg associated with LWR operation in conjunction with operation of the Project.</p> <p>e. Complete a cumulative effects assessment on the Project and the LWR including mitigation measures for potential adverse cumulative effects to the health and socio-economic condition of Indigenous peoples, and the current use of lands and resources for traditional and recreational purposes.</p>
IAAC-R2-23	IAAC-14 IAAC-71 AEMP	IAAC Hollow Water First Nation RM of Grahamdale	7.6.1. Effects of potential accidents or malfunctions 7.6.2 Effects of the environment on the Project	<p>The EIS Guidelines requires the Proponent to assess the effects of the environment on the Project and accidents and malfunctions.</p> <p>The response to IAAC-71 indicates that to mitigate ice jams that create an overtopping risk, flow in the channels will be reduced. This flow reduction will not decrease past the requirements to maintain dissolved oxygen concentrations for aquatic organisms. Conversely, to mitigate fish mortality in the channels, dissolved oxygen (DO) concentrations will be maintained by increasing baseflow as indicated in IAAC-14 and the Aquatic Effects Monitoring Plan (AEMP). The AEMP indicates that DO monitoring will occur in the channels during the winter following commissioning, operation for flood mitigation, and after extended non-operation periods. The AEMP, Appendix 1, Figure 1-3 indicates three DO monitoring sites at each channel. The frequency and feasibility of DO monitoring during potential ice jam conditions is unclear. A mitigation measure for maintaining DO levels is to increase water flow, which seemingly works counter to the mitigation measure for ice jams (reduction of flow). It is not clear how the</p>	<p>a. Describe the methods of operation that will be implemented by the Proponent to reduce the risk of ice jams while maintaining dissolved oxygen levels for fish survival during Project operation.</p> <p>b. Describe the methods of operation for removing the potential hanging dam that may form in the LSMOC outlet and any potential effects on VCs, including on fish health and survival.</p> <p>c. Describe the effects of potential accidents and malfunctions associated with hanging ice dams.</p>

				<p>interaction between declining or critically low DO concentrations and ice jam conditions is to be addressed to ensure effects to fish are mitigated, while avoiding accidents and malfunctions related to ice jams.</p> <p>The response to IAAC-71 indicates that higher winter flows through LSMOC may create more frazil ice which has the potential to accumulate under the thermal lake ice cover on Lake Winnipeg. This accumulation has the potential to form a hanging dam that may cause water levels in the outlet and channel to rise and affect the hydraulic capacity of the channels. In the event that frazil ice does accumulate and an ice dam is formed in the outlet, clarity is required on methods of removal.</p> <p>Information on the methods to maintain or increase DO concentrations for fish survival during ice jam conditions is required to assess potential effects on fish health. Information on the removal methods of hanging dams is required to assess potential accidents and malfunctions associated with the Project.</p>	
IAAC-R2-24	IAAC-03 IAAC-122 CEMP	IAAC Fisher River Cree Nation Hollow Water First Nation	7.1.10 Indigenous peoples 7.3.3 Indigenous peoples 9. Monitoring and Follow up Programs	<p>The EIS Guidelines require the Proponent to assess current use of lands and resources for traditional purposes including changes in access to areas and resources without difficulty or additional costs to conduct an activity or practice, as well as areas allowing access to non-Indigenous populations for use, and consideration of preferred areas, timing of harvest, options for traveling in a preferred manner and to consider the experience by Indigenous peoples.</p> <p>The CEMP states that there are no nearby residents that will be affected by the increased noise associated with heavy machinery and equipment during construction of the LSMOC. Monitoring of the acoustic environment is proposed in the event of residential complaints related to construction noise. However, these measures are only in place for the LMOC whereas the LSMOC monitoring of the acoustic environment is absent and relies entirely on the complaint resolution process. This statement fails to account for the possibility of existing traditional land users in the area. For example, Fisher River Cree Nation has expressed concerns that the impact of long-term noise and activity from the construction will affect recovery of the moose population in the LAA. Fisher River Cree also noted noise will affect the eco-tourism and bear hunting experiences offered by their outfitting business in the LAA and RAA. In the response to IAAC-122 (Table IAAC-122-1). Kinonjeoshtegon First Nation and Peguis First Nation also indicated concerns about wildlife such as moose and deer being affected by construction and traffic noise. Brokenhead Ojibway Nation, Bloodvein First Nation, Black River First Nation and Fisher River Cree also indicated concerns around experience on the land.</p> <p>Regarding acoustic impacts to wildlife, the CEMP states “If noise abatement barriers are ineffective, a reduction in intensity of construction should be considered”. There are no means described for what would constitute the ineffectiveness of noise abatement barriers. Therefore, a methodology for determining the effectiveness of noise abatement barriers needs to be defined in order to clarify when and if construction intensity will be reduced. The complaint resolution process indicates additional mitigation measures may be implemented where the complaint is in relation to a commitment of the Proponent. It is not clear what commitments have been made to traditional land users with respect to those potentially affected by noise from construction of the LSMOC.</p> <p>An assessment of potential effects of noise on Indigenous people and wildlife along the LSMOC is required for the development of mitigations, monitoring and adaptive management thresholds of residual effects. Noise monitoring plan and adaptive management measures should be implemented for both LMOC and LSMOC construction phases in order to address</p>	<ol style="list-style-type: none"> a. Provide an assessment of noise for the LSMOC for effects to health socio-economic conditions, current use of lands and resources for traditional purposes, and cultural experience of Indigenous peoples. b. With respect to effects to wildlife, provide a methodology for determining the effectiveness of noise abatement barriers used and sensitivity limits for adaptive management. Include the measures and effects entailed by a reduction in construction intensity. c. For the acoustic environment, describe a plan to monitor noise levels during the construction phase in addition to the Complaint Resolution Process. Describe adaptive management measures to address potential impacts based on monitoring results and how Indigenous groups will be involved in evaluating the effectiveness of mitigation for effects on wildlife, health and socio-economic conditions, current use of lands and resources for traditional purposes, and cultural experience. d. Describe the additional mitigation measures and follow-up program components that may be implemented through the complaint resolution process.

				possible impacts to traditional land users' health and socio-economic conditions, current use of lands and resources for traditional purposes, and cultural experience.	
IAAC-R2-25	IAAC-03 IAAC-129 IAAC-130 IAAC-122	IAAC Fisher River Cree Nation	Section 3.1 Designated Project Section 7.6.3 Cumulative Effects Assessment	<p>EIS Guidelines includes the decommissioning and/or repurposing of the existing Lake St. Martin Emergency Outlet Channel (EOC) as part of the main works of the designated project. The EIS Guidelines require the Proponent to identify and assess the Project's cumulative effects on any VC that would be affected by the Project.</p> <p>As part of the IAAC-130 response, the Proponent assessed the potential effects of decommissioning the EOC as cumulative to the Project. Part of IAAC-130 asks that cumulative effects are assessed, "With respect to Indigenous peoples, assessment of effects of any changes to the environment on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance," and, "With respect to current use of lands and resources for traditional use, a focus on the cumulative effects on the relevant activity as identified in the residual effects assessment (e.g. hunting, fishing, trapping, plant harvesting)."</p> <p>The Proponent states with respect to the EOC, that "No incremental or modified adverse cumulative effect to those assessed in the Project EIS are anticipated with respect to Indigenous peoples regarding changes to the environment on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. On balance in consideration of both Project-specific and cumulative effects, a net positive effect on the landscape is anticipated in the vicinity of the EOC, associated therefore with a likely relative positive effect on traditional land use, as the reclaimed EOC area returns to natural conditions."</p> <p>As indicated in the context and rationale for IAAC-R2-24, several Indigenous groups have expressed concerns surrounding construction noise, including as described in response to IAAC-122. Table IAAC 122-1 does not address or provide mitigation measures for these concerns. IAAC-29 requests mitigation measures for certain cumulative effects and to include discussion of the potential sources of cumulative effects that are within the care and control or influence of the proponent as required in Section 7.6.3 of the EIS Guidelines. Similar concerns were noted in the response to IAAC-129 and include:</p> <ul style="list-style-type: none"> - effects of noise from activities on moose and deer, - loss of land and resources and the ability to enjoy traditional territory, - access to land and use of preferred locations from physical activities and private land designations. <p>No discussion of how the Proponent will address these cumulative effects was provided in the response.</p> <p>Cumulative disturbance affecting the current use of lands and resources for traditional purposes should be considered. It is not clear what the duration or conceptual timelines of the EOC decommissioning, reclamation and monitoring are in order to understand the potential cumulative effects with respect to wildlife and Indigenous peoples.</p>	a. Considering the assessment of effects requested in IAAC-R2-24 complete a cumulative effects assessment that considers the decommissioning of the EOC including mitigation measures, monitoring and follow-up.
IAAC-R2-26	IAAC-81	IAAC Hollow Water First Nation	7.1.10 Indigenous peoples	<p>The EIS Guidelines require the Proponent to assess current use of lands for traditional purposes and the health and socio-economic conditions of Indigenous peoples.</p> <p>IAAC-81 indicated, "Lake Winnipeg is of particular importance to Indigenous fisheries and concerns have been expressed by several Indigenous groups regarding the potential</p>	a. Provide the commitments to address unanticipated effects from project sediment to fish nets and subsequent fish harvest as part of the complaint resolution process. Describe how Indigenous input was considered in developing the commitments.

			7.3.3 Indigenous peoples	<p>significance of effects due to the sedimentation described in the EIS. For instance, Fisher River Cree Nation noted that, following operation of the EOC, there was an increase in sediment build-up in McBeth Point and other areas within the community’s traditional fishing grounds, resulting in sediment build-up in fishing nets and reduced fish harvest.” The response states, “As a precautionary step, the AEMP is being expanded to address potential effects at McBeth Point, as identified by Peguis First Nation and Fisher River Cree Nation. Monitoring at McBeth Point and potentially other locations such as the southern end of Reindeer Island will indicate whether unanticipated movement of organic materials and sediments along the lake bottom is occurring out of Sturgeon Bay into Lake Winnipeg. The Complaint Resolution Process and Environmental Advisory Committee (discussed below) offer other processes to record and address issues with the clogging of nets.”</p> <p>Insufficient information is provided surrounding the Environmental Advisory committee to understand how impacts to Indigenous peoples will be mitigated, monitored and adaptively managed in the short and long-term (See IAAC-R2-30). The complaint resolution process indicates additional mitigation measures may be implemented where the complaint is in relation to a commitment of the Proponent. It is not clear what commitments have been made to traditional land users with respect to potential effects to fishing nets and reduced fish harvest as a result of the Project such that the complaint resolution process can manage and correct unmitigated effects.</p> <p>Information on how unanticipated effects to fishing nets and fish harvest will be addressed is necessary to understand the potential effects to current use of lands and resources for traditional purposes and the health and socio-economic conditions of Indigenous peoples.</p>	
IAAC-R2-27	IAAC-132	IAAC	Section 7.6.3 Cumulative Effects Assessment	<p>The EIS Guidelines require an assessment of the cumulative effects on each VC selected by comparing the future scenario with the Project and without the Project. Mitigation measures for addressing the potential effects related to the spread of zebra mussels downstream of the Project have not been provided. These could include measures to prevent the spread of zebra mussels.</p> <p>IAAC-132 Part D asks for an assessment of the cumulative effects of water regulation on the spread of aquatic invasive species (AIS). Indigenous groups have expressed concerns surrounding the introduction of AIS into Lake St. Martin, especially with respect to zebra mussels, on the current use of land and resources for traditional purposes and socio-economic conditions.</p> <p>Section 7.2.4.2 of the EIS states, “Spiny water flea and zebra mussel veligers cannot disperse upstream because they are poor swimmers or only passively drift downstream or in lake currents. Because spiny water flea and zebra mussels are currently known only to reside in Lake Winnipeg, operation of the LMOC and LSMOC will not provide new or additional conduits for these species to colonize Lake St. Martin or Lake Manitoba.”</p> <p>The response to IAAC 132 indicates that since the filing of the EIS, zebra mussels have been found in Lake Manitoba – upstream of the Project. Because Lake St. Martin is already connected to Lake Manitoba via the Fairford River, the response concludes, “As the Project is not expected to increase the risk of spread of AIS relative to current conditions the Project is not expected to contribute to the effects of AIS on the current use of lands and resources for traditional purposes, or on Indigenous health and socio-economic conditions.” The response does not evaluate the spread of zebra mussels to Lake St. Martin with and without the Project by considering the Channels would create additional conduits to both Lake St. Martin and to Sturgeon bay of Lake Winnipeg south of Willow Point.</p>	<ol style="list-style-type: none"> a. Provide an assessment of the effects to fish and fish habitat as well as current use of land and resources for traditional purposes and the socio-economic conditions of Indigenous people from a spread of zebra mussels into Lake St. Martin. Compare the future scenario with and without the Project. b. Describe any technically and economically feasible mitigation measures that could be employed at the FRWCS and the LMOC to prevent the spread of zebra mussels to Lake St. Martin.

				<p>Mitigation measures to prevent the spread of zebra mussels downstream of the Project have not been provided. The Agency understands that the Fairford River Water Control Structure (FRWCS) is operated by the Proponent and could contribute to the implementation of mitigation measures to prevent the spread of zebra mussels downstream of the Project.</p> <p>An assessment of the effects from zebra mussels considering scenarios with and without the Project is required to understand effects to fish and fish habitat as well as current use of land and resources for traditional purposes and the socio-economic conditions of Indigenous people.</p>	
IAAC-R2-28	IAAC- 109	IAAC Hollow Water First Nation Lake St. Martin First Nation	7.3.3 Indigenous Peoples 3.2.1 Site Preparation and Construction	<p>The EIS Guidelines require the Proponent to identify changes to the environment caused by the project that will affect health and socio economic conditions of individual Indigenous groups and to provide an analysis and detailed description of the proposed effects.</p> <p>The EIS states that temporary work camps will be used during Project construction and that their locations for the LSMOC have not yet been determined.</p> <p>Although the exact location for temporary construction camps and staging areas are not known at this time, Indigenous groups are concerned that the proximity to Indigenous communities will introduce potential new effects pathways to Indigenous health on vulnerable members of Indigenous communities. Construction camps and staging areas can also affect the current use of lands and resources for traditional purposes affecting access to preferred sites and experience. The response to IAAC-109 indicated that as part of the EMP review process Indigenous groups were engaged in discussions on the EMP plans. As a result of input received from Indigenous groups, meetings were held to discuss proposed mitigation, monitoring and offsetting measures. Mitigations to potential effects do not appear to have not been described and the response does not include an assessment of effects to Indigenous peoples. The response defers to an Environmental Advisory Committee, however it is not clear how Environmental Advisory Committee will assess, mitigate and monitor project effects See (IAAC-R2-30).</p> <p>Additional concerns raised include that construction camps have the potential to increase crime rates and traffic violations which require extra police enforcement to prevent and manage potential community impacts. Local emergency protection and health services will be stressed due to the influx of project construction workers.</p> <p>Further information on the potential effects to the health and socio-economic conditions of Indigenous communities is required, including regarding effects to Indigenous communities from temporary construction camps and staging areas and associated mitigation measures and follow-up program components.</p>	<p>a. Provide an assessment of the potential effects of the Project to the health and socio-economic conditions of Indigenous peoples due to temporary construction camps and staging areas along with any mitigation measures, management controls and methods to inform communities with respect to work camps and temporary use locations.</p> <p>b. Provide an assessment of effects from the influx of workers to the Project area on traditional harvesting, ceremony and heritage features.</p> <p>c. Indicate how areas used for temporary activities (camps, haul roads, aggregate areas, etc.) will be restored (specifically to what standards of best practice) and how restoration goals and Indigenous community interests will be incorporated in those plans.</p> <p>d. Indicate how areas used for temporary activities such as camps, haul roads, aggregate areas, etc... will be restored, and how the restoration goals, measures of completeness and measures of effectiveness will be achieved. Include a discussion of how input from Indigenous groups was incorporated in the assessment, mitigation measures, and restoration goal-setting.</p>
IAAC-R2-29	IAAC-108 IAAC-122 IAAC-109	IAAC Hollow Water First Nation Pinaymootang First Nation	7.1.10 Health and Socio-economic Conditions; 7.3.3 Indigenous Peoples	<p>The EIS Guidelines require baseline conditions for health conditions, including the state of physical, mental and social well-being and requires the Proponent to identify changes to the environment caused by the project that will affect health and socio economic conditions of individual Indigenous groups and to provide an analysis and detailed description of the proposed effects.</p> <p>The characterization of potential significant effects on Indigenous health conditions (human health) in the EIS focuses primarily on physical determinants (air, water, soil, noise) and does not consider the full scope of determinants of health and well-being in Indigenous communities,</p>	<p>a. Provide a description and analysis of how changes to the environment could affect the health and socio-economic conditions of Indigenous peoples. The assessment should include, but should not be limited to, the changes in:</p> <ul style="list-style-type: none"> i. current and future availability of country foods; ii. water quality (drinking, recreational and cultural uses); iii. mental and social well-being; iv. economic conditions; v. use of navigable waters; and

		Lake St. Martin First Nation		including social determinants (such as health care systems, cultural continuity, food security, employment, etc). Changes at the community level that affect socio-economic conditions for Indigenous peoples as a result of increased population, economic activity, cost of living, transportation delays are among the factors that may affect community members. This information is required to understand the potential effects of the Project on the health and socio-economic conditions of Indigenous peoples.	<ul style="list-style-type: none"> vi. food security b. Provide an outline of how the concerns and recommendations from Indigenous groups are addressed and identify how traditional knowledge is incorporated into the development of operation and monitoring plans. c. Provide a description of technologically and economically feasible mitigation measures and follow-up program components that could be implemented.
IAAC-R2-30	58 IR's total	IAAC York Factory Cree Nation Hollow Water First Nation Fisher River Cree Nation Pinaymootang First Nation Sagkeeng First Nation Sandy Bay First Nation Lake St. Martin First Nation Manitoba Metis Federation Little Saskatchewan First Nation Interlake Reserves Tribal Council Regional Municipality of Grahamdale	Chapter 6 Impacts to Potential or Established Aboriginal Treaty Rights Chapter 7 Effects Assessment Section 7.1.10 Indigenous peoples Chapter 9 Follow-up and Monitoring Programs Section 9.1 Follow-up Program Section 9.2 Monitoring	The responses to multiple information requests refer to the Environmental Advisory Committee (EAC). The EAC is cited as a response to concerns raised by Indigenous groups and stakeholders regarding mitigation measures and environmental monitoring. The stated purpose is as follows: “The EAC is intended to serve as a communication and advisory forum to provide an avenue for the flow of information between and among Indigenous groups, the RM of Grahamdale and Manitoba Transportation and Infrastructure with a focus of providing opportunities for rights-holders and stakeholders to have meaningful input into Project planning, plan implementation, and follow up processes associated with the Project. Manitoba Transportation and Infrastructure will be collaborating with Indigenous groups and stakeholders on the Terms of Reference for the Committee. Manitoba Transportation and Infrastructure anticipates that the EAC will coordinate Environmental Monitors and Project updates and communications during the construction period. Manitoba Transportation and Infrastructure is also coordinating with Manitoba Economic Development and Training, Indigenous Services Canada, and First Peoples Development Inc. (FPDI) to identify Project labour force requirements, procurement requirements and anticipated schedules which could assist in the development of training opportunities for Indigenous peoples to support potential employment as part of construction and environmental monitoring activities.” (LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS, ROUND 3 Question IAAC-03, Page 19 - May 31, 2022) It is unclear how the EAC would function to assess and mitigate potential effects and concerns identified by Indigenous groups and stakeholders. Currently, further details are required on how the EAC would identify and mitigate potential effects, assess the effectiveness of mitigation and monitoring, and provide feedback to the Proponent.	<ul style="list-style-type: none"> a. Provide details on how the EAC would be structured and operated, including its mandate, function and decision making powers, if applicable. b. Provide timelines for the establishment of the EAC and its operation, and, if applicable, the conditions under which the AEC would no longer be required. c. Describe how Indigenous groups and the RM of Grahamdale have been involved in the formation of the EAC and how they will be involved going forward.
IAAC-R2-31	IAAC-33 IAAC-34 IAAC-35	Hollow Water First Nation Pinaymootang First Nation	7.1.5 Fish and Fish Habitat 7.3.3 Indigenous Peoples	The EIS Guidelines requires the assessment of baseline conditions for fish and fish habitat including maps, at a suitable scale, indicating the surface area of potential or confirmed fish habitat for spawning, rearing, nursery, feeding, overwintering, migration routes, etc. This should be provided combined with the baseline information for commercial fishing in order to understand potential effects to the socio-economic conditions of Indigenous peoples.	<ul style="list-style-type: none"> a. Provide a detailed description of the surface area of fish habitat used by fish, including the surface area of fish habitat used for spawning, for all potentially affected waterbodies. b. Provide the population data and analysis that can be shown from commercial catch record information and habitat mapping and associated quantification. Using the updated habitat assessment,

	IAAC-36 IAAC-37 IAAC-82 IAAC-105	Little Saskatchewan First Nation Lake St. Martin First Nation Manitoba Metis Feceration		<p>The responses recognize the concerns expressed by Indigenous groups regarding decline in local fish populations, and that information collected regarding commercial harvest returns will be recorded and responded to, as required.</p> <p>The response to IAAC-82 provides a general descriptions of habitat and a map at a 1:50 000 that only outlines the LAA for Fish and Fish habitat. A detailed description of the surface area of fish habitat used by fish, including the surface area of fish habitat used for spawning, for all potentially affected waterbodies, has not been provided as requested in IAAC-82.</p> <p>The mapping of habitat areas showing quantity and quality of habitat for each of the focal species is needed to understand potential effects to fish and fish habitat, effects to the current use of lands and resources for traditional purposes, and the socio-economic conditions of Indigenous peoples. Mapping is also needed to understand the mitigation measures and the amount and types of habitat where effects cannot be avoided or mitigated and must be offset.</p> <p>Indigenous groups rely on fish for food, recreation and socio-economic wellbeing. It is understood that the Proponent plans to incorporate Indigenous monitors and use the Environmental Advisory Committee (EAC) in planning and overseeing monitoring and follow-up. However, It is unclear what the mitigation measures and offsetting will be for all potential effects to fish and fish habitat, which is needed to inform effects to Indigenous peoples and their participation in decision-making through the EAC.</p>	<p>describe the potential effects of the Project to the current use of lands and resources for traditional purposes and the socio-economic conditions of Indigenous peoples. The assessment of effects must consider the baseline current use of fish resources for traditional, recreational and socio-economic purposes.</p> <p>c. Provide a description of mitigation measures that will be implemented to avoid adverse effects to commercial fishing and describe how effects to commercial fishing will be monitored to evaluate effects to the socio-economic conditions of Indigenous peoples.</p> <p>d. Describe any plans for engagement with Indigenous groups to discuss effects to the current use of lands and resources for traditional purposes and to socio-economic conditions, specifically related to fishing, and how input from Indigenous groups will be incorporated into mitigation and follow-up programs.</p>
IAAC-R2-32	IAAC-80 IAAC-106	HC IAAC	<p>7.3.3 Indigenous Peoples</p> <p>7.1.4 Groundwater and Surface Water</p> <p>7.2.2.Changes to groundwater, surface water, and fluvial morphology</p> <p>7.3.1.Fish and fish habitat</p>	<p>The EIS Guidelines require an assessment of the potential risk of production, increase, interaction, and accumulation of contaminants, including methylmercury, in fish habitat and fish as well the consumption of country foods and associated effects to the health and socio-economic conditions of Indigenous peoples.</p> <p>The response to IAAC-106 indicates, “following operation of the EOC, concentrations of MeHg in commercial fish species in Lake St. Martin and Sturgeon Bay remained below the guideline for commercial sale in Canada (0.05 parts per million).” It is not clear how the results MeHg following the operation of EOC would be analogous to the changes to the drying and rewatering of wetlands downgradient of the LSMOC in the Buffalo Creek system. The information provided does not provide an indication of the actual measured concentrations of MeHg, the species of fish tested, nor an evaluation of potential risks for human consumers. Health Canada recommends using the provisional total daily intakes (pTDI) value of 0.47 µg of MeHg per kg body weight per day (kg-bw/day) for adults and 0.2 µg MeHg per kg-bw/day for women of childbearing age and young children up to 12 years of age (Health Canada, 2007+) to assess potential risks to local consumers based on consumption patterns informed by community consultation. A conservative approach would also assume that 100% of the total mercury is MeHg in the assessment, given that MeHg is more toxic to humans. This information can be used to inform riskbased thresholds and adaptive management as part of the AEMP. <i>†Health Canada. 2007. Human Health Risk Assessment of Mercury in Fish and Health Benefits of Fish Consumption.</i></p> <p>Health Canada acknowledges the merit of including methylmercury (MeHg) monitoring in the Project’s proposed monitoring and mitigation programs as a means to validate predicted project-related impacts to fish and human consumers. However, it is unclear if baseline data on the current MeHg concentrations in relevant fish species were sufficient for modeling predicted outcomes, and the development of plans to validate those predictions. The Proponent’s response to IAAC-80 indicates that, “The benchmark for the fish mercury monitoring program will be comparison to the baseline total mercury concentration in Walleye, Northern Pike, and</p>	<p>a. Provide a summary table of baseline concentrations of mercury measured in locally harvested fish tissues. Identify the measured form of mercury (i.e., MeHg or total mercury), the number of samples, and the fish species.</p> <p>b. Assess the effects of methyl mercury by using the pTDI values and local consumption patterns to assess potential human health risks of MeHg in country foods, and specifically, fish tissues, under baseline conditions. If MeHg is assumed to comprise less than 100% of total mercury, provide a rationale to support this assumption.</p> <p>c. Describe how the AEMP’s MeHg monitoring results and supplementary health risk assessments will inform/refine risk-based thresholds that trigger appropriate mitigation and management (e.g., consumption advisories).</p> <p>d. Describe any mitigation measures and management strategies that could occur under various scenarios and triggers.</p>

				<p>Lake Whitefish from Lake Manitoba, Lake St. Martin and Sturgeon Bay based on recently collected data.” Since the baseline data have not been provided (neither raw, nor summary statistics, e.g., mean, standard deviation); it is unclear which data the response refers to, and the current baseline conditions against which future results will be compared.</p> <p>A clear understanding of the baseline conditions is necessary to determine whether any health risks currently exist for consumers, and whether the proposed Aquatic Effects Monitoring Plan (AEMP) will be sufficient to detect and mitigate potential impacts.</p>	
IAAC-R2-33	IAAC-06 IAAC-112	IAAC RM of Grahamdale	<p>3.1. Designated project Associated works and activities;</p> <p>3.2. Project Activities</p> <p>7.1.12. Human environment</p>	<p>The EIS Guidelines require the assessment of the effects of a change to the environment on health and socio-economic conditions sectors and economies that support the local and regional communities.</p> <p>The response to IAAC-112 considered the availability of aggregate resources in the area and referred to the amount estimations that are provided in the latest engineering reports that support the use of armouring and Rip Rap. The assessment of socio-economic effects to the RM of Grahamdale focuses largely on short-term benefits of aggregate developments but how the removal of the aggregate will affect the RM’s ability to access and use that resource in the long term or how moving the aggregate may affect traffic and road repair and maintenance in the future was not assessed. The RM of Grahamdale has expressed concerns with the depletion of aggregate resources within their jurisdiction resulting in increased future costs to the RM.</p> <p>The potential effects of aggregate development for the Project should be considered in the assessment of socio-economic conditions.</p>	<p>a. Describe how the Project’s use of aggregate currently available to the RM of Grahamdale could affect the socio-economic conditions in the future.</p> <p>b. Describe mitigation measures and follow-up program components to address the effects from part a.</p>
IAAC-R2-34	IAAC-114 IAAC-115 IAAC-117	IAAC Hollow Water First Nation Interlake Reserves Tribal Council Lake St. Martin First Nation Pinaymootang First Nation Sagkeeng First Nation Sandy Bay First Nation	<p>7.3.3 Indigenous Peoples</p>	<p>The EIS guidelines require the Proponent to assess effects related to changes on Indigenous peoples’ physical and cultural heritage, and structures, sites or things of historical, archaeological, paleontological or architectural significance. The EIS guidelines require the Proponent to engage with Indigenous groups in the gathering and analysis of cultural heritage information.</p> <p>Multiple Indigenous groups, including Hollow Water First Nation, Lake St. Martin First Nation, Interlake Reserves Tribal Council, Sagkeeng First Nation, Sandy Bay First Nation and Pinaymootang First Nation have identified locations of cultural and spiritual significance. These locations include but are not limited to:</p> <ul style="list-style-type: none"> - islands on the north side of the south basin of Lake St Martin; - cliff sides on the east side of Sugar Island; - Big Rock; and - the shoreline of Lake St Martin near Rabbit Point. <p>Although the Heritage Resources Protection Plan (HRPP) suggests specific protocols and procedures to mitigate effects to cultural heritage, clarity on how input from Indigenous groups was considered in the assessment of effects to Indigenous peoples and incorporated into the development of the HRPP is required. Specific mitigation measures and follow-up programs to address effects to tangible and intangible cultural heritage that consider and integrate traditional knowledge is required.</p>	<p>a. Describe how traditional knowledge provided by Indigenous groups was used to assess effects to both tangible and intangible cultural heritage, including identified locations of cultural and spiritual significance.</p> <ul style="list-style-type: none"> i. Describe how effect pathways for cultural heritage were identified and assessed for significance. ii. Provide details for plans to meaningfully engage with Indigenous groups to gather, analyze and validate information regarding the Project's potential effects on tangible and intangible cultural heritage. iii. Explain how Indigenous groups will be involved in any ongoing archaeological and culturally significant work. <p>b. Provide mitigation measures for potential effects on heritage resources and how the Heritage Resources Protection Plan (HRPP) will be revised to include input from Indigenous groups. Describe how the HRPP considers avoidance as a mitigation measure.</p> <p>c. Provide an analysis of the cumulative effects on identified physical and cultural heritage resources that may be affected by the Project, with consideration of past, existing and overlapping effects from physical activities.</p>