

Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6200 000 017/005
NIRB File No: 126135/24XN059



May 16, 2025

via email at: info@nirb.ca

Cassel Kapolak
Manager, Public Registry
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Cassel Kapolak and NIRB:

**RE: 126135/24XN059 – Government of Nunavut – Grise Fiord Community Harbour
Project– Proposal Reviewed**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) by the Government of Nunavut regarding the above-mentioned proposal.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental emergencies preparedness and responses. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

1. Topic: Disposal of dredged sediment

References:

- Grise Fiord – Community Harbour, Construction Environmental Management Plan (Dynamic Ocean Consulting Ltd.; March 30, 2025)
 - Table 3-2: Planned Project Construction Activities
 - Section 3.8: Maintenance



- Grise Fiord – Community Harbour, Project Specific Information Requirements Report (Dynamic Ocean Consulting Ltd.; March 26, 2025)
 - Section 7.1.2.4: Fish Habitat (including Marine Vegetation)

Comment

Marine sediment dredging has been identified as a project activity in the Construction Environmental Management Plan. It is planned both during the construction, when approximately 35 000 to 40 000 m³ of sediment will be removed, and during operations when required maintenance includes “*Removal of creek-borne sediments captured in sedimentation stilling basin*” and “*Periodic removal of beach sediments accumulated in the sediment trap located on the south breakwater.*” During construction, dredged sediment will be placed inside a berm to be used as fill for the laydown area, though the volume that can be disposed of in this location was not specified. Mitigation measures in the Project Specific Information Report include “*Dredged sediment will be disposed of at an approved offsite facility.*” No details were found describing the approved offsite facility.

ECCC has identified that saline seepage from the dredged sediment may potentially negatively affect freshwater resources if the sediment is disposed of inland. Additional contaminants may also accumulate in the harbour sediment once the facility is in use, in which case dredged sediment could require special handling.

ECCC Recommendation

ECCC recommends the Proponent develop a plan for the testing and safe disposal of dredged sediment during construction and operations.

2. Topic: Erosion and sedimentation control and monitoring

References:

- Grise Fiord – Community Harbour, Construction Environmental Management Plan (Dynamic Ocean Consulting Ltd.; March 30, 2025)
 - Table 5-8: Sediment and Water Quality
 - Table 5-9: Sediment and Erosion Control
- Grise Fiord – Community Harbour, Project Specific Information Requirements Report (Dynamic Ocean Consulting Ltd.; March 26, 2025)
 - Section 7.1.2.5.3: Water and Sediment Quality Degradation
- Recommendations for the Management of Suspended Solids (SS) During Dredging Activities (Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques and Environment and Climate Change Canada, December 2016)
 - Section 4.3: SS monitoring during dredging work

Comment

Proposed activities such as quarrying and dredging can lead to erosion and sedimentation impacting fresh and marine water quality. The Proponent proposes using sediment and

erosion control (ESC) measures to mitigate degradation of the aquatic environment. The Environmental Monitor (EM) will monitor the effectiveness of ESC measures. There are inconsistencies between the documents on how and when monitoring will occur and measures will be implemented. The Project Specific Information Requirements Report states *“Turbidity monitoring will be implemented.”* The Construction Environmental Management Plan states *“Run-off will be visually monitored by the EM. If there is evidence of effects to the aquatic environment (freshwater, marine), appropriate perimeter controls will be applied to minimize or prevent sediment from entering the watercourse. Should sediment enter watercourses, turbidity monitoring will be undertaken as outlined in Section 5.5.5.”*

ECCC has identified that waiting until there is evidence of effects to the aquatic environment before installing ESC measure or initiating turbidity monitoring may potentially negatively affect water resources. Guidelines on turbidity monitoring are available, such as the Recommendations for the Management of Suspended Solids (SS) During Dredging Activities (MDDELCC & ECCC, 2016).

ECCC Recommendation

ECCC recommends the Proponent include proactive erosion and sediment control and monitoring measures in their management plans.

3. Topic: Nitrogen contaminants from quarried rock

Reference:

- Grise Fiord – Community Harbour, Project Specific Information Requirements Report (Dynamic Ocean Consulting Ltd.; March 26, 2025)
 - Section 6.3.2 Geological Site Conditions

Comment

Rock from four proposed quarries will be used in the construction of the harbour where it has the potential to release contaminants. Acid rock drainage and metal leaching are acknowledged as potential contamination sources in the Project Specific Information Requirements Report and testing is underway to ensure this will not be a problem on site. Another potential contaminant of aggregates freshly produced using a drill and explosives is blast residue, specifically the nitrogen species: ammonia, nitrate and nitrite. These elements are soluble and could be released in the ocean if they are not washed out of the rock prior to placement in the water.

ECCC has identified that residue from explosives has the potential to negatively affect the marine environment.

ECCC Recommendation

ECCC recommends the Proponent manage blast residue on quarried rock used for the harbour construction.

4. Topic: Air emissions from project equipment and diesel exhaust fluids

Reference:

- Grise Fiord – Community Harbour, Construction Environmental Management Plan (Dynamic Ocean Consulting Ltd.; March 30, 2025)

Comment

The Construction Environmental Management Plan includes standard statements of keeping equipment well maintained, to minimize idling, and using a combination of calcium chloride and water for dust suppression in accordance with Government of Nunavut guidelines. Given the duration and close proximity of the proposed work to residences, it is important for equipment to have clean engines to mitigate air emissions. Equipment brought in via sealift should be equipped with engines meeting Tier 4 emission standards, if possible. The work will primarily be performed during the open water season, thus engines meeting Tier 4 emission standards should not be subject to issues that may occur at colder (less than roughly -11C) temperatures. If conditions are cold near the beginning or end of the construction season, there are remedies available to prevent diesel exhaust fluids from freezing including incorporation of an engine warming up time at the beginning of a shift, and storage of DEF in heated facilities onsite.

ECCC Recommendation

ECCC recommends the Proponent plan strategies for the prevention of diesel exhaust fluid from freezing when conditions in the project area reach colder (less than roughly -11C) temperatures.

If you need more information, please contact Jessica Kassar at (867)-222-2036 or Jessica.Kassar@ec.gc.ca.

Sincerely,

Jessica Kassar
Environmental Assessment Officer

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)