Project Dashboard

West Remus Creek Quarry Expansion (149457)

Proposal Status: Conformity Determination Issued

- Overview
- Documents
- Questionaire

Project Overview

Type of application: **New**

Proponent name:	Jean-Philippe Cloutier-Dussault
Company:	Environment Canada

Schedule:

Start Date:	2021-06-15
End Date:	2025-10-15
Operation Type:	Annual

Project Description:
Additional aggregate, estimated at 175,000m3 a portion of which is contingency, is required to support project activities at the Eureka High Arctic Weather Station (HAWS). Therefore, an expansion of the quarry at West Remus Creek is needed as the additional aggregate required is not available within the current permitted boundaries. There are three areas proposed for expansion; the primary expansion area which is immediately east of the quarry and north Remus Creek; two others are east of the quarry and south of Remus Creek. The two proposed expansion areas to the south of Remus Creek are contingency areas in the case that acceptable aggregate grade is not available in the primary expansion area. To access these areas, vehicles will need to cross Remus Creek and West Remus Creek. A request for review has been submitted to the Department of Fisheries and Oceans which proposes the construction of two temporary culvert stream crossings. These crossings are proposed to ensure vehicles cross these two waterbodies with minimal impacts to the environment. It is recognized that the proposed expansion areas are large relative to the existing boundaries of the current quarry. This is because sufficient geotechnical data is not available at this time to determine the exact optimal supply areas. Geotechnical surveys are planned to commence spring/summer this year to determine their location and it is only these areas that will extracted. Furthermore, an archaeological assessment will be completed for the entire expansion area in spring 2021 in conjunction with the geotechnical investigations. If any archaeological areas of significance are identified, they will be protected through fencing and an applied setback. Previous archaeological studies of the general area were conducted in 2018. A permit to conduct the archaeological assessment will be requested from the Nunavut Department of Culture and Heritage prior to March 31st, 2021. Note that this has been discussed with Sylvie LeBlanc of the Government of Nunavut, Department of Culture and Heritage.

Personnel:

Persons:	50
Days:	765

Project Map

List of all project geometries:

ID	Geometry	Location Name
7013	polygon	f20211227085618-Eureka_Quarry Limits_20200120

7014	polygon	f20211227085618-Eureka_Quarry Limits_20200120
7015	polygon	f20211227085618-Eureka_Quarry Limits_20200120
7016	polygon	f20211227085618-Eureka_Quarry Limits_20200120

Planning Regions:
Kivalliq
Affected Areas and Land Types
Settlement Area
North Baffin Planning Region

Project Land Use and Authorizations

Project Land Use
Pits and quarries
Airport
All-Weather Road Access
Permanent Structures
Pits and quarries
Temporary Structures
Winter Access
Licensing Agencies
INAC: Class A Land Use Permit
INAC: Class A Land Use Permit
INAC: Quarry Permit
INAC: Quarry Permit
NWB: Type B Licence
NWB: Type B Licence
CH: Archaeology and Paleontology Research Permit, Class II
Other Licensing Requirements
No data found.

Material Use

Equipment

Type	Quantity	Size	Use
Pick Up Truck	tbd	various	Crew Transportation
Loader	tbd	various	Excavation of granular material
Excavator	tbd	various	Excavation of granular material
Grader	tbd	various	Grading of granular material
Dump Truck	tbd	various	Transportation of granular material
Bulldozer	tbd	various	Removal and transportation of granular material
Small Loader	tbd	various	Excavation of granular material

Till Handler	tbd	various	Removal of granular material
Bobcat	tbd	various	Transportation of granular material
Backhoe	tbd	various	Excavation / digging of granular material
All Terrain Vehicle (ATV)	tbd	various	Crew Transportation
Side by Sides	tbd	various	Crew Transportation
Tractor and Trailer	tbd	various	Movement of equipment
Snowblower	tbd	various	Snow Removal
Snowmachine	tbd	various	Crew Transportation

Fuel Use

Type	Container(s)	Capacity	UOM	Use
Gasoline	13	200	Liters	Fuel for equipment
Gasoline	95	5000	Liters	Excavation equipment

Hazardous Material and Chemical Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Water Consumption

Daily Amount (m^3)	Retrieval Method	Retrieval Location
0	Pumping from Station Creek	Station Creek

Waste and Impacts

Environmental Impacts

Air quality Interactions: Excavation activities have the potential to temporarily increase ambient air concentrations of dust (i.e., particulate) and greenhouse gas emissions. Effects: During excavation activities, there will be an increase in local airborne particulate (dust) and tailpipe (fuel combustion) emissions from the operation of heavy-duty equipment. The tailpipe emissions will include greenhouse gas emissions and therefore have the potential to contribute to climate change. Mitigation: •Optimize fuel consumption and minimize dust production resulting from vehicle/equipment travel: Employ standard operating procedures for equipment/machinery and ensure that regular maintenance is performed in accordance with good engineering practices or as recommended by suppliers such that the equipment is kept in good operating condition. Other activity-specific mitigation measures will include the use of appropriate exhaust emissions controls such as catalytic converters and diesel particulate filters to mitigate fuel combustion emissions from heavy equipment and vehicles. Additionally, the number of equipment/vehicle movements and travel distances will be optimized to reduce fuel consumption and minimize dust and greenhouse gas emissions. Lowering vehicle speeds on unpaved road surfaces, applying water as well as implementing good road maintenance practices will minimize the potential for road dust emissions. Excavation work will be completed by

methods that minimize dust generation from operations. •Reduce dust resulting from excavation activities: Execute work using methods to minimize raising dust from quarry expansion operations. Implement and maintain dust and particulate control measures as determined necessary by applicable regulations and standards during quarry expansion and in accordance with applicable authorities. The use of oil for dust control is prohibited. Prevent dust from spreading to beyond the immediate work area. A Departmental Representative or designate may stop work at any time when Contractor's control of dusts and particulates is inadequate for worker exposure, or when air quality monitoring indicates that release of fugitive dusts and particulates into the work area equals or exceeds specified levels. If Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, work must be stopped immediately. Contractor must then discuss and implement procedures to resolve the problem. Make all necessary changes to operations prior to resuming work that may cause release of dusts or particulates. Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures. Cover or wet down dry materials to prevent blowing dust and debris. Provide dust control for temporary roads. Noise Interactions: Quarry expansion activities have the potential to temporarily increase ambient noise. Effects: During quarry excavation and expansion, there will be an increase in noise emissions from heavy-duty construction equipment operation and construction activities. These effects are typical of a construction site, localized, and of a temporary nature. The physiological and ecological impacts of noise on wildlife needs to be considered, acutely loud noises can cause hearing loss in wildlife. Behavior patterns of wildlife may differ from their natural suite of behaviors. Mitigation: •The Project will employ standard operating procedures for equipment/machinery and ensure that regular maintenance is performed. As well, personnel will adhere to conditions outlined in all permits, authorizations and/or approvals. Sediment and soil quality Interactions: Quarry expansion activities have the potential to affect the soil including removal of soil/terrain, material handling (loading and dumping); and the refueling of vehicles/equipment. Effects: During quarry excavation and expansion, soil quality is most likely affected as a result of fuel spills and leaks from equipment refueling efforts or otherwise. Mitigation: •Protection of permafrost: Conduct a complete on-site evaluation of the area to determine exact measures to be taken to protect permafrost. •Prevention of fuel spills/leaks: Refueling of vehicles and equipment to occur in designated areas following all applicable regulations. •Sediment, erosion and drainage control: Effective sediment and erosion control measures will be installed prior to starting work to prevent entry of sediment into watercourses and waterbodies. These measures will be inspected daily and repaired if damaged by construction, precipitation or snowmelt. Sufficient supplies for erosion, sediment and drainage control will be available on site to keep in compliance with federal and territorial fisheries and environmental protection legislation. Aquatic Environment Interactions: Quarry expansion activities have the potential to affect the hydrology and water and sediment quality of the site. These activities include material handling (loading and dumping); the refueling of vehicles/equipment; and the crossing of West Remus and Remus Creek. Effects: Surface water contamination could potentially occur due to leaks/spills that may occur during the re-fuelling of vehicles and construction machinery on site. Mitigation: •Suitable erosion and sediment suppression measures will be implemented to prevent sediment from entering Remus Creek, West Remus Creek or other water bodies. Erosion control structures (temporary matting, geotextile silt control filter (curtains) fabric, etc.) are to be used. Vehicles/machinery are to be checked for leakage of lubricants or fuel and are maintained in good working order. Re-fueling should occur in designated areas only. Basic petroleum spill clean-up equipment will be kept on-site. •The crossing of Remus Creek and West Remus Creek will be in accordance with direction provided from the Department of Fisheries and Oceans Canada. Aquatic Community Interactions: As part of the quarry expansion activities, it is planned to install culverts to support two temporary access crossings: one over Remus Creek and one over West Remus Creek. Effects: Concerns about sediment loading in nearby water bodies are important to address. West Remus Creek and Remus Creek drain a large area to the east of the Eureka runway, starting in June; however, flow most likely ceases in September and any remaining water freezes. There is no evidence of anadromous fish, such as arctic char, that move into the streams in summer to breed, as expected due to the ephemeral, temporary nature of the water bodies. Based on these observations, there is no critical fish habitat present at the HAWS site (including Remus Creek and West Remus Creek, in the immediate vicinity of the Project). Remus and West Remus Creeks are similar to nearby Black Top Creek. Staff working at the Eureka HAWS have reported that they do not believe that Black Top Creek is fish bearing, however, this has not been confirmed, but likely true due to the ephemeral nature of the water body. Mitigation: •Despite the lack of reported fish species, mitigation measures for construction activity are to be implemented as a precaution to prevent physical disturbance to the stream beds or margins including adherence to DFO Fish and Fish Habitat Policy Statement (2019). For instance, the crossings of Remus Creek and West Remus Creek will not interfere with fish passage, constrict the channel width, or reduce flows. •Site personnel will be instructed on the importance of keeping to designated areas for equipment. A setback of 30m from the highwater mark will be applied. Vegetation Communities and Species Interactions: Physical damage to vegetation during construction and changes in the soil surface layer, leading to potential soil and permafrost erosion, changes in surface water hydrology and thermokarst. Fugitive dust may also suppress plant growth within a zone around construction zones. Effects: The damage to the vegetation will be equal to the footprint of the quarry expansion limits, transportation of equipment, and the dust footprint. Mitigation: •Due to the extreme conditions at Eureka, construction will be conducted during the brief summer months. Fugitive dust can be suppressed at its source. Additionally, vehicles will remain on pre-established roads/trails, where feasible. Workers are to be advised of sensitivity of environment and limits of equipment travel will be determined. Wildlife

Communities and Species Interactions: Quarry expansion activities will occur during the summer, the time that nesting and denning occur for many bird and mammal species. For birds and mammals, the interactions include behavioral changes such as avoidance and/or attraction to the site and changes in the dominant species in areas adjacent to the site. Effects: Effects are unlikely as quarry expansion activities will keep to vicinity of the already existing West Remus Creek quarry site, which has been previously disturbed. However, minimization of impacts is important as the area in general has the potential for sensitive species migration. Mitigation: •The Wildlife and Wildlife Habitat Management Plan (SLR, 2018) will be followed. •Temporary workers will be informed of station protocols for the control and disposal of food and refuse to ensure that local wildlife is not attracted to the site. •Temporary workers involved with quarry expansion activities will be trained to avoid contact with all wildlife and their nests (particularly with species at risk) and to report sightings to a central authority (i.e., supervisors) immediately. Movement of workers in off-hours should also be restricted to ensure nesting sites and denning areas are not disturbed. •To ensure minimal disturbance to birds and mammals, a qualified person should be present before and during important phases of construction to facilitate protection of wildlife. This person should conduct a survey prior to commencement of construction to identify important areas and sensitive species that might be affected. Site personnel will use trained wildlife monitors prior to, and during construction to ensure a coordinated, appropriate response to wildlife sightings and to ensure protection of local species during construction. •In the event that SARA listed birds or mammals are located in the area, construction crews will be prepared to modify, or delay, activity that might harm the protected species. For example, if nests with eggs are located for a protected species, activity in the area might be delayed until after hatching.

Waste Management

Waste Type	Quantity Generated	Treatement Method	Disposal Method
Overburden (organic soil, waste material, tailings)	N/A	N/A	No additional waste is expected beyond what is currently permitted for the Eureka HAWS Site