



# **GRAYS BAY ROAD AND PORT PROJECT**

## **IMPACT MITIGATIONS SUMMARY**

### **EARLY PERMITTING/IMPACT ASSESSMENT PHASE**

*Version 1*

Valued Component	Activity	Impact	Mitigation	Residual Impact	Schedule		
					Implementation	Monitoring	Reporting
<b>PHYSICAL COMPONENTS</b>							
Ground Stability	Drilling Fuel storage Waste disposal	NM <sup>1</sup>	Establish fuel caches and set up drills on a durable surface.  Move equipment overland only when conditions are such that rutting or gouging will not occur.  Backfill and cap drill holes prior to the end of each field season.  Ensure cuttings sumps are stable prior to the end of each field season.  Maintain adequate snow cover when moving equipment overland over snow.  Using existing disturbed areas where possible.	None	During fuel caching and drilling.	In accordance with authorization terms and conditions, where applicable.	
Permafrost	Drilling Waste disposal	NM	Capture drill cuttings at the collar.  Avoiding activities that may result in permafrost degradation.	None	During drilling and waste disposal.	In accordance with authorization terms and conditions, where applicable.	
Hydrology/limnology	Drilling	NM	Use in accordance with authorization terms and conditions  Reuse drill water wherever practical.	None	During all water use, such as drilling	In accordance with authorization terms and conditions, where applicable.	
Water Quality	Drilling Fuel storage Waste disposal	NM	Establish fuel caches, set up drills and locate sumps >31 m above the high water mark of any watercourse, or otherwise in accordance with water licence terms and conditions.	None	During any material handling,	In accordance with authorization terms and conditions, where applicable.	

<sup>1</sup> Negative & Mitigable

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	Marine activities		<p>Develop and follow a site-specific procedure for refueling drill rigs operating in the marine environment, based on conditions and equipment.</p> <p>Use only inert drill additives when drilling in water.</p> <p>Implement erosion control where necessary, to prevent sediment from entering any waterbody.</p> <p>Deposit inert drill water in a suitable-sized upland sump.</p> <p>Discharge effluents in accordance with authorization terms and conditions.</p> <p>Store fuel and hazardous materials in adequate secondary containment.</p> <p>Provide worker education on safe material handling.</p> <p>Ensure equipment use is clean, free of leaks and subject to periodic inspection.</p> <p>Where available, use biodegradable hydraulic fluid in heavy equipment working in and around water and ice.</p> <p>Implement spill response measures.</p> <p>Monitor water quality during in-water work (drilling).</p> <p>Allow settling to occur prior to discharge of recirculated water (during drilling).</p>		effluent disposal and drilling		

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			Capture drill cuttings at the collar, and manage drill waste and cuttings arising from marine drilling in accordance with authorizations.				
Eskers and other unique or fragile ecosystems	Drilling Fuel storage Waste disposal	NM	Establish fuel caches and set up drills in areas that are not known unique or fragile ecosystems.	None	During fuel caching and drilling.		In accordance with authorization terms and conditions, where applicable.
Sediment and Soil Quality	Drilling Fuel storage Waste disposal Marine activities	NM	Establish fuel caches, set up drills and locate sumps >31 m above the high water mark of any watercourse, or otherwise in accordance with Authorization terms and conditions.  Use only inert drill additives when drilling on water.  Implement erosion control where necessary, to prevent sediment from entering any waterbody.  Store fuel and hazardous materials in adequate secondary containment.  Provide worker education on safe material handling.  Implement spill response measures.	None	During any material handling, effluent disposal and drilling		In accordance with authorization terms and conditions, where applicable.
Tidal Process and Bathymetry	Drilling	NM	Set up drills either on shore, on a barge or on ice.  Position drills in such a manner that impacts the seabed are minimized.  Where possible, remove the drill string and steel casing from offshore boreholes, allowing the overburden soils to collapse into the drilled hole and close it naturally.	None	During drilling		In accordance with authorization terms and conditions, where applicable.

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Air Quality	Aerial surveys Drilling Marine-based Activities Waste disposal	NM	Conduct routine preventative maintenance on generators and engines.  Use low emission vehicles where possible (i.e. use of a drone instead of aircraft for aerial surveys).	None	During any combustion and engine or motor use.	In accordance with authorization terms and conditions, where applicable.	
Noise Levels	Aerial surveys Drilling Marine-based Activities	NM	Conduct routine preventative maintenance on generators and engines.  Ensure mufflers are in use, as required by manufacturers.  Establish equipment-specific measures to mitigate marine noise impacts.	None	During any engine or motor use, and marine vessel operation.	In accordance with authorization terms and conditions, where applicable.	
<b>BIOLOGICAL COMPONENTS</b>							
Vegetation	Drilling Fuel storage	NM	Set up drills and establish fuel caches of a temporary nature, and on a durable surface.  Restrict heavy equipment operation and overland activities where possible to existing disturbed areas or designated confined areas.  Move equipment overland only when conditions are such that rutting or gouging will not occur, and with adequate snow or ice cover, as applicable.  Store fuel and hazardous materials in secondary containment.  To the extent possible, use natural depressions for sumps.  Employing best drilling practices including <ul style="list-style-type: none"> <li>• Capturing drill cuttings at the collar.</li> <li>• Minimizing salt use during diamond drilling where possible.</li> </ul>	None	During fuel caching and drilling.	In accordance with authorization terms and conditions, where applicable.	

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			<ul style="list-style-type: none"> <li>Minimizing drill water discharge to land.</li> <li>Depositing inert drill water in a suitable sized upland sump.</li> </ul>				
Wildlife, habitat and migration	Aerial Surveys Drilling Waste disposal Marine-based activities	NM	<p>Provide worker education and wildlife awareness training.</p> <p>Adhere to flying height restrictions.</p> <p>Minimize the footprint of drill pads by utilizing a small drill where possible, maintaining a consolidated work area, and drilling multiple holes from one set-up.</p> <p>Choose drill pad locations in a manner that considers known sensitive wildlife areas and maximizes the drilling to occur from each pad, thus reducing the number of drill set-ups.</p> <p>Avoiding any contact with wildlife including approaching, harassing, disturbing and feeding wildlife.</p> <p>Store waste and food securely, in a manner inaccessible to wildlife.</p> <p>Cease terrestrial activities in the vicinity of sensitive active habitat features (denning, calving) immediately to avoid disturbance, establish a buffer<sup>2</sup> around the site by flagging or other means, document and designate as a Restricted Access Area.</p> <p>Enter into a data sharing agreement with the GNWT and the GN to obtain caribou collar information and plan activities accordingly, based on reasonably foreseeable caribou occurrence in work areas.</p>	None	During all activities.	In accordance with authorization terms and conditions, where applicable.	

<sup>2</sup>Varies with species, activity and proximity. Buffer distance can be determined in accordance with GNWT guidelines (Northern Land Use Guidelines, Northwest Territories Seismic Operations), GN -DOE Advice, or in consultation with the Canadian Wildlife Service.

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			<p>Reduce sensory disturbance to caribou and implement nested buffer zones with increasing levels of caribou surveillance and potential mitigation response.</p> <p>Carry out research activities in accordance with authorization terms and conditions.</p> <p>Monitor for marine mammal presence within 30 m of marine-based drilling activities, using binoculars, portable lights and underwater cameras, to prevent injury from direct contact with drilling equipment and modify or halt activities as required.</p> <p>Carryout a visual reconnaissance surveys for seal lairs within the vicinity in-water drilling activities in advance of drill set-up to prevent their disruption (e.g., collapsed roofs) and disturbance to seal pups.</p> <p>Cease marine activities in the vicinity of sensitive active habitat features (seal lair) immediately to avoid disturbance, establish a buffer around the site by flagging or other means, document and designate as a Restricted Access Site.</p> <p>Plan drilling activities to occur in known areas of seasonal habitat use, to the extent possible based on available conditions.</p>				
Birds, habitat and migration	Aerial Surveys Drilling Waste disposal Marine-based activities	NM	<p>Adhere to flying height restrictions in authorization terms and conditions.</p> <p>Avoiding any contact with wildlife including approaching, harassing, disturbing and feeding wildlife.</p>	None	During all activities.	In accordance with authorization terms and conditions, where applicable.	

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			<p>Cease terrestrial activities in the vicinity of sensitive active habitat features (nesting) immediately to avoid disturbance, establish a buffer<sup>3</sup> around the site by flagging or other means, document and designate as a Restricted Access Site.</p> <p>Carry out research activities in accordance with authorization terms and conditions.</p>				
Aquatic species, habitat and migration	Drilling Fuel storage Waste disposal Marine-based activities	NM	<p>Equip water intake hoses with appropriately sized mesh screens.</p> <p>Avoid water withdrawal from streams and small lakes.</p> <p>Equipment operating on ice or near water is free of leaks, grease, oil and mud.</p> <p>Equipment maintenance, fuel storage and refueling occurs &gt;31 m beyond the high water mark of any watercourse.</p> <p>On-ice drilling over water utilizes inert drilling muds and a cuttings capture system to avoid cuttings release into the water column.</p> <p>Avoid water withdrawal from streams and small lakes.</p> <p>Establish fuel caches, set up drills (at upland drilling locations) and locate sumps &gt;31 m above the high water mark of any watercourse, or otherwise in accordance with Authorization terms and conditions.</p> <p>Discharge effluents in accordance with authorization terms and conditions.</p>	None	During any material handling, effluent disposal, drilling, or activities on or in marine or freshwater	In accordance with authorization terms and conditions, where applicable.	

<sup>3</sup>Varies with species, activity and proximity. Buffer distance can be determined in accordance with GNWT guidelines (GNWT 2022) GN -DOE Advice, or in consultation with the Canadian Wildlife Service.

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			<p>Carry out research activities in accordance with authorization terms and conditions.</p> <p>During in-water drilling, scan for fish using a submersible camera, and prior to setting casing, let any schooling fish observed leave the immediate work area.</p> <p>During in-water drilling, slowly lower the drill casing to the seabed to allow for mobile marine organisms to move away from the drill site and reduce the potential for accidental crushing.</p>				
<b>SOCIO-ECONOMIC COMPONENTS</b>							
Archeological and cultural historic sites	Drilling Fuel storage Waste disposal	NM	<p>Provide worker education and awareness training on archeological and cultural historic sites.</p> <p>Conduct archaeological assessment prior to program commencement.</p> <p>Where possible, avoid interaction with known archaeological sites.</p> <p>Where not possible to avoid interaction with known archaeological sites, proceed with direction from the territorial Archaeologist.</p>	None	During all activities.	In accordance with authorization terms and conditions, where applicable.	