6. DESCRIPTION OF THE ENVIRONMENT

Environmental conditions at DYE-M were documented by UMA (1991) and UMA and ESG (2001-2002). Those environmental components potentially impacted by, or influencing cleanup operations are summarized below. A more detailed description of the intertidal zone and freshwater habitat is provided in Appendix IV.

6.1 Climate

DYE-M is located between 393 and 700 metres above sea level on the east coast of Baffin Island. The mean annual total rain and snowfall are 106 mm and 602 cm, respectively. Mean annual total precipitation is approximately 708 mm, with September and October being the wettest months.

The mean annual temperature is –10.3°C. July and August are the warmest months with average temperatures near 5°C, while January through March are the coldest months with temperatures averaging –22°C. The mean daily temperatures remain above freezing from June to August.

The mean annual wind speed is 13.6 km/h. The prevailing winds are from the west-northwest throughout the year, except for March, when east winds are dominant. Mean annual wind vector speed is 5.6 km/h, being highest in December at 9.0 km/h and lowest in June at 2.7 km/h. The frequency of ice fog ranges from approximately 10% in winter to 30% in spring.

6.2 General Geology

The landscape at DYE-M is variable in makeup consisting of a narrow coastal region along the southwest perimeter of the area; broad glacial U-shaped valleys and broad, sub-rounded hills within the interior; and boulder covered volcanic and metamorphic uplands bound, in part, much of the landscape and are particularly well developed within the U-shaped valleys at the interior. The drift is

generally coarse textured consisting mostly of cobbles, gravels and sands with variable silt and clay content. Bounders are generally rare in the valley floor tills but become increasingly common at higher elevations. Frost processes and drainage along the slopes of the valley bottoms and sides has imparted a distinct striping to the material.

Bedrock within the area is confined largely to the area of the main site facilities. It consists mostly of granite metasediments and volcanic (basaltic) rock. The metasediments crop out sporadically throughout the uppermost parts of the region as frost-shattered blocks up to 1 m across and 0.5 m wide. The metasediments are rich in felsic minerals and black-speckled white in colour. Volcanic rocks are dark brown to ochre basalts characterized by numerous vesicles of up to 1 cm across. The volcanic sequence is best exposed along a northwest facing cliff wall due east of the Upper Site facilities. The sequence appears more or less flat lying.

6.3 General Hydrology

The glaciated uplands of the DYE-M site generally exhibit poorly developed drainage patterns whereas the valley channels are typically better defined. The rugged boulder covered terrain, which characterizes the Upper Site area, is drained by poorly defined channels or, below the bouldery surface, along small rills. Drainage radiates from the hillcrest.

The Upper Site facilities are constructed on gravel pads above natural grade and are largely removed from the influence of the natural drainage. Runoff from the Upper Site is controlled and directed by a series of ditches and culverts, which tend to follow natural drainage gradients. Two broad drainage patterns were noted: (1) along the north perimeter drainage trend towards the north and northeast and (2) along the southern perimeter drainage trends toward the west and southeast.

The drainage along the northern perimeter is poorly developed. Drainage from the facilities area and specifically the POL and sewage outfall areas is supplemented by trenches which channel the

drainage parallel to the natural grade. The drainage collects within a low-lying subcircular depression several hundred metres from the Upper Site facilities. The pond is slow draining; however, water continues to flow north along poorly defined channels within the valley floor.

The south perimeter (i.e., airstrip) is drained by poorly developed runways. Drainage is typically below the surface in rills.

Drainage from the west perimeter of the Upper Site is toward the west, paralleling the slope direction. Drainage channels are generally poorly developed. The road channels water from the adjacent areas to the Lower Site.

The south and east perimeters of the Upper Site facility area drain parallel to slope directions. Drainage channels are poorly developed with much of the water flowing below the surface boulder cover. Effluent from the module trains is discharged in this area. The effluent is quickly dispersed in the boulder-covered terrain.

The Lower Site facilities are situated in a broad valley bottom. The terrain is subdued, low-lying and undulating to very nearly level. Drainage patterns are poorly developed and surface runoff is comparatively slow. Although the surface materials are generally highly to moderately pervious, the comparatively slow runoff and subdued terrain cause ponding of water within the landscape.

The beach area is sited downgradient of a comparatively well-developed parallel drainage pattern. The beach area consists of a retrograde storage area, POL facility and landfills. Drainage generally trends toward the south along shallow poorly developed runways. One to two metre deep channels within the area have exposed barrels and scrap metal along the seaward edge of the landfills.

Similarly, drainage from the POL areas trends toward the south (ocean ward) along very short (10 to 20 m long), moderately deep channels.

6.4 Flora

DYE-M is located on a dry bedrock knoll with sparse and discontinuous soil and vegetation cover. Most of the DYE-M site is disturbed and barren. In lower slope positions beyond the site, there is a discontinuous community of low-lying shrubs and herbs consisting primarily of purple saxifrage, mountain avens, willow, kobresia, sedges and arctic poppy. Wet sites, including the sewage outfall, support a discontinuous cover of cotton grass, wood rush, wire rush, saxifrage, and Arctic bistort, along with a nearly continuous moss cover.

Vegetation cover in the Lower Site area is not as sparse as at the Upper Site. Sedges form the major cover, along with including mosses and lichens. Other species found at the Lower Site include purple saxifrage, wood rush, alpine foxtail and goose grass. Table 6-1 provides the names of all the vegetation identified at the DYE-M site.

Table 6-1: Flora at DYE-M

Common Name	Scientific Name
Cottongrass	*Eriophorum scheuchzeri*
Bluegrass	*Poa spp.*
Net-veined Willow	*Salix reticulata*
Club Moss	*Lycopodium spp.*
Sunburst Lichen	*Arctoparmelia centrifuga*
Worm Lichen	*Thamnolai subuliformis*
Map Lichen	*Rhizocarpon geographicum*
Jewel Lichen	*Xanthoria elegans*
Rock Tripe	*Umbilicaria spp.*
Mountain sorrel	*Oxyria digyna*
Sea-beach Sandwort	*Honckenya peploides*

Common Name	Scientific Name
Moss-campion	*Silene acaulis*
Arctic Poppy	*Papaver radicatum*
Mountain Avens	*Dryas integrifolia*
Golden Saxifrage	*Chysosplenium tetrandrum*
Purple Mountain saxifrage	*Saxifraga oppositifolia*
Crowberry	*Empetrum nigrum*
White Arctic Heather	*Cassiope tetragonal*
Thrift	*Armeria maritima*
Broad-leafed Willow Herb	*Epilobium latifolium*
Wolly Lousewort	*Pedicularis lanata*
Dandelion	*Taraxacum spp.*
Willow	*Salix spp.*
Kobresia	*Kobresia sp.*
Sedges	*Carex spp.*

6.5 Fauna

6.5.1 Terrestrial Mammals

The following table summarizes the terrestrial fauna found at the DYE-M site.

Table 6-2: Terrestrial Mammals at DYE-M

Common Name	Scientific Name	Comments
Polar bear	*Ursus maritimus*	Sitings of Polar bears are frequently reported. DYE-M is found within the major denning area for polar bears on southeastern Baffin Island. Observed during the 2002 field season.
Barren-ground caribou	*Rangifer tarandus pearyi*	Caribou in this region belong to the South-Baffin Herd. No caribou sitings were reported.

Common Name	Scientific Name	Comments
Arctic Fox	*Alopex lagopus*	Frequently sited at DYE-M, and observed during the 2002 field season.
Brown Lemmings	*Lemmus sibiricus*	Frequently observed.

6.5.2 Marine Mammals

The following table describes the marine mammals either identified at the site, or that have known migration routes or habitat in the area.

Table 6-3: Marine Mammals at DYE-M

Common Name	Scientific Name	Comments
Beluga Whale	*Delphinapterus leucas*	Distributed throughout the arctic and subarctic regions. There are 5 separate populations of beluga whales in the Canadian Arctic, with one population occurring in the Cumberland Sound region. Observed during the 2002 field season.
Bowhead Whale	*Balaena mysticetus*	Scientific evidences suggests that bowhead whales occur in the Davis Strait, Baffin Bay and Cumberland Sound regions. During fall and early winter, bowhead whales migrate southward along the east coast of Baffin Island to the Cumberland Sound region.
Narwhal	*Monodon monocerus*	Narwhal is found primarily in the eastern arctic. During the summer periods it migrates north to Lancaster Sound and Baffin Bay. During the fall there is a migration of narwhals south along the east coast of Baffin Island to their overwintering areas in the Davis Strait and western Greenland.
Walrus	*Odobenis rosmarus*	The distribution of walrus in the eastern arctic has been decreasing and is now limited from northern Labrador to Ellesmere Island. Walrus are thought to overwinter along the edge of the fast ice and in the pack ice off of southeastern Baffin Island. Walrus are hunted in the fiords around DYE-M by hunters from Qikiqtarjuaq. Observed during the 2002 field season.

Common Name	Scientific Name	Comments
Ringed Seal	*Phoca hispida*	The ringed seal is widespread and abundant throughout the arctic. It is a year-round inhabitant and is dependent on the availability of stable ice where it winters. Ringed seals are abundant in waters from northern Labrador to Ellesmere Island. Observed during the 2002 field season.
Harbour Seal	*Phoca vitulina*	Harbour seals occur in small numbers during the summer along the east coast of Baffin Island. They overwinter in areas where open water is maintained.
Bearded Seal	*Erignathus barbatus*	The bearded seal is a year round inhabitant of the eastern arctic. The movement of the bearded seal closely follows that of pack ice and pan ice. Observed during the 2002 field season.
Harp Seal	*Phoca groenlandica*	Harp seals migrate northward in the summer into the eastern arctic, western Greenland, and as far north as Lancaster Sound. The harp seals leave the high arctic in September and October moving south along the east coast of Baffin Island.
Hooded Seal	*Cystophora cristata*	The offshore waters of the Davis Strait provide important breeding and migration areas for the hooded seal. One of three main whelping areas occur in the waters of the Davis Strait. The movements of the hooded seal follow closely that of the harp seal.

6.5.3 Avifauna

The following table summarizes the birds identified at the DYE-M site.

Table 6-4: Avifauna at DYE-M

Common Name	Scientific Name	Comments
Snowy Owl	*Nyctea scandiaca*	None observed at the DYE-M site, but are known to occur in the region.
Peregrine Falcon	*Falco peregrinus*	
Gyrfalcon	*Falco rusticolus*	
Rough-legged Hawk	*Buteo lagopus*	
Common Raven	*Corvus corax*	Observed during the 2001 and 2002 field seasons.
Snow Bunting	*Plectrophenax nivalis*	
Iceland Gull	*Laurus glaucoides*	
Common Murre	*Uria aalge*	
White-rumped Sandpiper	*Calidris fusciollis*	
Rock Ptarmigan	*Lagopus mutus*	

6.5.4 Fish

The following table provides a summary of the fish species known to occur in the region.

Table 6-5: Fish at DYE-M

Common Name	Scientific Name	Comments
Arctic Char	*Salvelinus alpinus*	Known to occur throughout southeastern Baffin Island. Large populations of both land-locked and sea-run Arctic char constitute a significant food source for domestic and commercial use.
Atlantic Salmon	*Salmo salar*	Found in limited numbers in this region in late summer.

6.6 Heritage Resources

No previously recorded sites are located in the Station area. However, 6 newly identified sites were recorded in 1991. A relatively recent Inuit camp containing two tent rings, one cache, and one shelter was observed north of the POL tanks and beach landing area. Approximately 800 m north of this site, another complex of ten rings was observed. It is possible the two sites are related.

Another historic site associated with construction of the base was observed 1.5 km north of the beach landing. It consists of an access ramp, three building foundations, and metal debris.

South of the POL tanks is a historic gravesite relating to a French whaling expedition of the 1930's. Further removed to the south are three houses, probably Thule in origin. Two have been seriously disturbed by natural erosion and by bulldozing activity prior to 1991. The southernmost site appears to be recent in age, dating to or post-construction of the station. Features at this site consisted of 11 structure foundations, airplane debris, three tent rings, and six caches.

6.7 Socio-Economic Setting

It is expected that for the short term (i.e., 8 years), a significant number of person-years of employment will be generated as a result of this project. Additionally, further enhancement of the areas' economy is expected resulting from increased local purchases and use of local businesses.

6.8 Native Land Use

It is recognized that hunting and the relationship to the land are of profound cultural and spiritual importance to the Inuit. Hunting itself provides a means for linking modern day lifestyles and culture with the past. Hunting is valued by the Inuit, as it contributes to both independence and community well being.

No special conservation land status has been designated at this site; however, the southern boundary of Auyuittuq National Park Reserve is approximately 125 km north of Cape Dyer.

6.9 Government Land Use

The DYE-M site was a main station within the original DEW Line system. The DEW Line radar/communication facilities at this site were decommissioned and replaced by a Long Range Radar (LRR) in the early 1990s. The DYE-M site operates as an unmanned radar site, except for short periods in the summer when maintenance work is conducted.

6.10 Valued Ecosystem Components

Valued Ecosystem Components (VEC's) are detailed in the environmental screening report included with this submission and include:

Physical: Protection of permafrost soils; surface freshwater (especially drinking water); and marine waters.

Biological: Tundra habitat including feeding and nesting areas for birds; feeding areas for herbivores; feeding and calving areas for local wildlife; and, local vegetation. Also included are marine habitat areas such as migrations routes and overwintering areas.

Socio-economic: regional employment opportunities; regional business opportunities; regional training opportunities; and, hunting and fishing in local area.

Archaeological, Historical and Cultural: archaeological sites identified around the station.

7. IDENTIFICATION OF ENVIRONMENTAL EFFECTS

An environmental assessment of the clean up of DYE-M was completed in 1998. As part of this assessment, potential interactions between the project components and the environment were identified. The focus of the assessment was on the location, sensitivity, seasonal presence and abundance of these components. Through this assessment Valued Ecosystem Components (VECs) were identified, which can include physical, biological, socio-economic, historical or cultural components.

7.1 Environmental Effects

7.1.1 Value Ecosystem Components vs Project Components

The following table summarizes the interaction and potential impacts between VECs and the various activities associated with the clean up.

Table 7-1: Summary of VEC's, Project Activities and Potential Impacts

VEC	Activity	Description of Impact
Air Quality	Hazardous Materials Removal	The removal of the contaminated soil from the environment will reduce the risk of impacting air quality.
	Site Grading / Borrow Source Development	The extractions of granular materials and grading activities have the potential to create dust and impact air quality.
Soil Quality	Landfill Development/ Landfill Closure	The migration of contaminants from the new landfills has the potential to degrade soil quality if not constructed properly. The closure of the existing landfill will reduce the risk of impacting soil quality.
	Contaminated Soil Disposal/Hazardous Materials Removal	The removal of the contaminated soil and hazardous materials from contact with the environment will improve soil quality.

VEC	Activity	Description of Impact
	Removal and Transport of Hazardous Material, Fuel and Contaminated Soil	The potential exists for accidental release of hazardous materials, contaminated soil and/or fuels could impact soil quality.
	Contractor Support	The operation of the construction camp will include treatment and disposal of waste, and could negatively impact soil quality.
Water Quality	Landfill Development/ Landfill Closure	The migration of leachate from the new landfills and siltation of waterways during construction/closure has the potential to degrade water quality, both surface and active layer water, if not constructed according to the specifications. Remediation/closure of the existing landfills will reduce the risk of negative impact on water quality. The development and closure of the landfills has the potential to disrupt drainage at the site.
	Contaminated Soil Disposal / Hazardous Materials Removal	The removal of the contaminated soil and hazardous materials from the environment will reduce the risk of contamination of surface and active layer water.
	Removal and Transport of Hazardous Material, Fuel and Contaminated Soil	The potential exists for accidental release of hazardous materials, contaminated soil, and/or fuels. An accidental release could impact water quality.
	Site Grading/Borrow Source Development	Erosion and sedimentation of waterbodies during grading and gravel extraction activities has the potential to negatively impact water quality. Drainage to be improved as a result of grading disturbed areas. The extraction of granular material will alter the terrain of the borrow area and has the potential to disturb drainage.
	Contractor Support	The operation of the construction camp will include treatment and disposal of waste. The potential exists for waste to impact water quality.
Terrain	Landfill Development/Landfill Closure	Excavation required for the development and subsequent closure of the new landfills and closure of existing landfills has the potential to degrade permafrost.
	Site Debris Disposal	The removal of site debris has the potential to further disturb the existing terrain.

VEC	Activity	Description of Impact
	Site Regrading	Terrain and drainage will be improved as a result of grading disturbed areas. Previously disturbed areas will blend into the natural environment
	Borrow Source Development	The extraction of granular material will alter the terrain of the borrow area.
	Contractor Support	Movement of contractor's equipment and personnel around the site has the potential to disturb the tundra.
	Contaminated Soil Excavation	The excavation and removal of contaminated soil has the potential to degrade permafrost
Terrestrial Animals and Habitat	General Clean Up Activities	The use of heavy equipment during the clean up has the potential to disturb wildlife.
	Contaminated Soil Disposal/Hazardous Materials Removal	The removal of hazardous materials and contaminated soil from the environment reduces the risk of exposure to terrestrial animals.
	Landfill Development	Loss of habitat may occur as a result of the development of the new landfills in previously undisturbed areas.
	Facility Demolition	The existing facilities may be used by wildlife as habitat (i.e. nests in structures). The demolition of these facilities has the potential to impact availability of habitat.
	Borrow Source Development	The extraction of granular material will require the disturbance of the ground and has the potential to impact terrestrial habitat.
Aquatic habitat and animals	Landfill Closure	The proximity of the beach landfills to the marine environment has the potential to impact aquatic habitat, thereby affecting aquatic animals, due to sediment or hazardous materials entering the water. The remediation of the beach landfills will reduce the potential for impact.
	Site Regrading/ Borrow Source Development	The extraction of granular material and grading adjacent to waterbodies (both fresh and marine) has the potential to impact aquatic habitat, and thereby affecting aquatic animals, due to sediment entering the water.
	Contaminated Soil Disposal/Hazardous Materials Removal	The removal of contaminated soil and other hazardous materials from areas close to waterbodies, reduces the risk of exposure to aquatic animals.

VEC	Activity	Description of Impact
	Removal and Transport of Hazardous Material, Fuel and Contaminated Soil	The potential exists for accidental release of hazardous materials, contaminated soil and/or fuels. An accidental release could impact aquatic habitat.
	Contractor Support	The transportation to/from the site has the potential to disturb aquatic animals.
Health and Safety	General Clean Up Activities	The excavation of potential hazardous materials from the landfills, the collection and disposal of potential hazardous debris, the removal of hazardous materials from the facilities and the general handling of hazardous materials has the potential to impact health and safety of workers.
	Contaminated Soil Disposal/Hazardous Materials Removal	The removal of contaminated soil and other hazardous materials from the environment reduces the risk of exposure to people.
Archaeological	General Clean Up Activities	The presence and movement of people around the site has the potential to disturb the archaeological resources identified around the site.
Land Use	General Clean Up Activities	Clean up activities may disturb traditional land use, i.e. hunting and fishing activities that would occur during the summer months.
Aesthetics	General Clean Up Activities	Generally, the clean up will improve the aesthetics of the site by removing unsightly debris and restoring the site to a more natural state.
Economy	Contractor Support	The contractor will be required to have a minimum Inuit content in the workforce for the clean up. This will provide employment benefits and related economic benefits.

7.1.2 Impact of the Environment on Project

The implementation of a clean up project in an Arctic environment has unique logistical issues. The potential exists for delays in the clean up associated with bad weather. These delays may include work stoppage on-site or delays in the transportation to and from the site of personnel and supplies. Conditions related to the Arctic climate, such as ice and frozen ground may also delay clean up activities. Ice may delay marine transport to and from the site. Clean up activities which are best completed at maximum thaw may be delayed depending on seasonal climate changes.

The Department of National Defence (DND) and Nunavut Tunngavik Incorporated (NTI) have signed DND/NTI Agreement for the Clean Up and Restoration of the DEW Line Sites within the Nunavut Settlement Area outlining the economic provisions. The agreement includes a Minimum Inuit Content (MIC) for the clean up contract and requirements for training, specifically related to the clean up activities. Generally, the contracts for the clean up of DEW Line site include clauses requiring the contractor to maximize Inuit involvement. Inuit involvement in the clean up will include both employment and business (contracting) opportunities, and local purchases.

Typically, labour required for the clean up includes heavy equipment operators and general labourers, as well as environmental and engineering specialists. Other opportunities include cleaning and cooking staff and transportation. During the clean up there will likely be increased employment and business opportunities for members nearby communities. As the contract for the clean up of DYE-M has not been awarded, the requirements of the communities are not confirmed. It is likely that a temporary self-sufficient construction camp will be established at the site to accommodate the contractor and other personnel.

8. IDENTIFICATION OF CUMULATIVE ENVIRONMENTAL EFFECTS

Cumulative effects have been defined as changes to the biophysical, social, cultural or economic environments caused by a project component in combination with any ongoing, past or future activities. Cumulative effects can occur as interactions between project components (either from the same or more than one site) and/or between environmental components. Effects can occur in one of four ways:

- Physical or chemical transport mechanisms;
- "Nibbling loss" (i.e., gradual disturbance);
- Spatial or temporal crowding;
- Growth induction initiated by the project.

8.1 Analysis of Cumulative Environmental Effects

Four steps in the analysis of the cumulative environmental effects of this project include scoping, analysis of effects, mitigation measures, and significance.

Scoping: Scoping includes the identification of issues of potential concern, VECs that could be affected and boundary setting. The activities considered included the operation of the DYE-M North Warning System Long Range Radar.

The spatial boundaries included impacts over a larger (regional) area including the crossing of jurisdictional boundaries. As the landfills will remain on site, temporal boundaries extended beyond the time frame required to complete the clean up work.

Analysis of Effects: The analysis included an evaluation of baseline data and possible effects on VECs. The combined interactions between the clean up activities and future land use and those VECs, which are similar, were identified.

Mitigation Measures: Mitigation measures were identified for project-environment interactions. Mitigation measures are outlined in Table 8-1.

Significance: The interactions are defined as having a low (L), moderate (M) or high (H) probability of occurring. The next step is to determine the likelihood of significant adverse effects, taking into account appropriate mitigation measures.

8.2 Identification of Mitigation Measures and Residual Impacts

Mitigation measures were identified that would result in a reduction or elimination of likely environmental impacts associated with the clean up. Mtigation measures are outlined in the Environmental Protection Plan for DYE-M in Section 9. The EPP forms part of the contract documents and requires all on-site personnel to adhere to the mitigation measures outlined.

The following summarizes the mitigation measures identified for the potential adverse environmental impacts detailed in Section 7. Taking into account the mitigation measures, the significance or anticipated residual impacts were identified for all potential impacts.

Table 8-1: Impacts, Mitigation Measures and Significance of Potential Environmental Effects Caused by the Clean Up of DYE-M

Impact	Mitigation Measure	Significance
The extraction of granular materials and grading activities have the potential to create dust and impact air quality.	Implement dust control measures. Only water will be used for dust suppression.	Not significant.
The potential for migration of leachate from the existing and new landfills could degrade soil and water quality.	New facilities do not include hazardous materials. The Tier II facility will incorporate leachate containment, which includes synthetic liner and freezeback of permafrost. Existing landfills are being remediated to eliminate the risk of leachate production and migration. Grade landfill cover to promote surface run-off. Site facilities away from natural drainages.	Not significant due to design criteria for landfill development and closure.
The potential exists for accidental release of hazardous materials and contaminated soil. An accidental release would impact the local environment, including soil and water quality.	Implement proper handling, storage and transportation procedures for hazardous materials. All workers to be trained in proper handling procedures for all hazardous materials on site. Do not store hazardous materials or fuel in the beach area. Follow the spill contingency plans. Ensure all materials and equipment to implement contingency plans are available on-site. Handle all fuel in accordance with Contingency Plan.	Significant impacts are not likely provided mitigation measures are implemented.

Impact	Mitigation Measure	Significance
The operation of the construction camp will include treatment and disposal of waste. The potential exists for waste to impact the environment.	Do not dispose of hazardous materials in camp waste system. Disposal of all sewage to be in accordance with applicable regulations and guidelines.	Not significant.
Erosion and sedimentation of waterbodies during grading and gravel extraction activities has the potential to impact water quality.	Prevent siltation by use of berms and/or silt fences. Do not operate equipment within the wetted perimeter. Disturbed areas adjacent to water to be stabilized, if required.	Not significant provided mitigation measures are implemented.
Excavation required for the development or closure of the landfills and contaminated soil excavation has the potential to degrade permafrost.	Minimize time permafrost is exposed. Minimize surface area of exposed permafrost or active zone.	Not significant.
Disturbance of the terrain and drainage may occur due to extraction of granular material, the development and closure of the landfills, movement of contractor's equipment and personnel around the site and removal of site debris.	Regrade and reshape disturbed areas to match existing terrain and drainage paths. Use existing roads for movement around the site.	Not significant provided mitigation measures are implemented.
The use of heavy equipment in various aspects of the clean up including landfill development and closure, demolition, grading and transportation, will increase noise levels, which has the potential to disturb wildlife. Marine transportation to and from the site has the potential to disturb marine mammals.	Avoid known wildlife colonies or bird nesting areas, if possible. Employ minimum distance / height restrictions for transportation activities.	Not significant provided mitigation measures are properly implemented.
Loss of habitat as a result of the development of the new landfills and the extraction of granular material in previously undisturbed areas.	Grade and reshape the disturbed areas to match existing terrain to facilitate recovery of ecosystem components.	Not significant.

Impact	Mitigation Measure	Significance
The existing facilities may be used by wildlife as habitat (i.e. nests in structures). The demolition of these facilities has the potential to impact availability of habitat.	Inspect facilities prior to demolition for use by wildlife. Do not demolish while birds are nesting. Contact appropriate wildlife officer for additional guidance to ensure disturbance of wildlife is minimized.	Not significant.
Impact on aquatic habitat due to sediment and/or hazardous materials entering an aquatic environment from activities such as the extraction of granular materials, grading and handling of contaminated soil and hazardous materials	Implement mitigation measures such as berms, silt fences and/or silt booms to prevent deleterious substances from entering the aquatic environment.	Significant effects not likely provided mitigation measures are implemented.
The transportation to/from the site has the potential to disturb aquatic animals.	Follow designated routes and times for shipping activities.	Significant effects not likely provided mitigation measures are implemented.
The excavation of hazardous materials from the landfills, the collection and disposal of hazardous debris, the removal of hazardous materials from the facilities, and general handling of hazardous materials has the potential to impact health and safety of workers.	Transportation of any hazardous materials to be in accordance with Transportation of Dangerous Goods Regulations. Develop and implement a comprehensive health and safety plan. Workers are to wear and use appropriate personal protective equipment. Workers to be trained in use of personal protective equipment and proper handling procedure for hazardous materials.	Significant effects not likely provided mitigation measures are implemented.

Impact	Mitigation Measure	Significance
The presence and movement of people around the site has the potential to disturb archaeological resources in the area.	Clearly mark archaeological resources. Avoid resources. Contact authorities in the event a new resource is discovered or a known resource is disturbed.	Not significant.
Clean up activities may disturb traditional land use, hunting and fishing activities that would occur during the summer months	Contact local hunters and trapper organization to coordinate clean up activities and traditional land use.	Not significant.