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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN

Effective January 1, 2004

WATER LICENCE APPLICATION FORM

Application for: (check one)

__ New _X Amendment ___Renewal ___Assignment

LICENCE NO:
(for NWB use only)

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

Felipe Salgado
Nunavut Airports Division, GN

Phone: _(867)645-8208_____
Fax: _(867)645-8246_____
e-mail: __fsalgado@gov.nu.ca_____

2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)

Phone: _____
Fax: _____
e-mail: _____

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

Latitude: N63°45'23" Longitude: W68°33'21" NTS Maps No.25N, 25N/10, 25N/15 Scale_1:250,000 & 1:50,000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

The 40 (+) year old drainage is not longer functional. The 200 mm culverts running beneath the roadways and the sub taxiway leading to apron II have been silted in or collapsed. All runoff currently drains through an abandoned utilidor elevated approximately two meters above the intended channel. The inadequacy of the utilidor as a drainage pathway leads to yearly runoff flooding of airport movement surfaces. The extent of this flooding increases every year. The scope of this portion of the project is to return the ditch to its original cross section and dimension and to replace the blocked/collapsed culverts. This project does not involve use of water, discharge into waters or re-alignment of the original ditch.

5. TYPE OF PRIMARY UNDERTAKING (A supplementary questionnaire must be submitted with the application for undertakings listed in **"bold"**)

__ **Industrial**
__ **Mining and Milling**
__ **Municipal** (includes camps/lodges)
__ Power
__ Agricultural
__ **Conservation**
__ Recreational
__ **Miscellaneous** (includes exploration/drilling)
(describe):**_Airport Ditch Repair**

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings

6. WATER USE

__ To obtain water
__ To modify the bed or bank of a watercourse
__ To alter the flow of , or store, water
__ To cross a watercourse
__ To divert a watercourse
__ Flood control
_X Other (describe): **Repairs to existing ditch**

7. QUANTITY OF WATER INVOLVED (cubic metres per day including both quantity to be used and quality to be returned to source)

No water will be taken from source. No waste will be added

8. WASTE (for each type of waste describe: composition, quantity (cubic metres per day), methods of treatment and disposal, etc.)

__ Sewage
__ Solid Waste
__ Hazardous
__ Bulky Items/Scrap Metal
__ Waste oil
__ Greywater
__ Sludges
___ Other (describe):___**No waste will be added**_____

9. PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

Land Use Permit

No change to land use

DIAND __ Yes __ No If no, date expected _____

Regional Inuit Association __ Yes __ No If no, date expected _____

Commissioner __ Yes __ No If no, date expected _____

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

Reduction or elimination of flooding on airport apron surfaces.

NIRB Screening __ Yes __ No If no, date expected _____**N/A**_____

N/A

11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement? **NO**

11. (Continued)

If yes, has the applicant entered into an agreement with the Designated Inuit organization to pay compensation for any loss or damage that may be caused by the alteration. If no compensation agreement has been made, how will compensation be determined?

12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

To be determined through public tender process

13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

Contamination assessment, submitted by EBA Engineering (Attached)

14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) __ Yes __ No If no, date expected __N/A_____

Inuktitut/English Summary of Project __ Yes _X No If no, date expected **Jun 23rd 2006**_

Application fee $30.00 (Payee Receiver General for Canada) __ Yes _X No If no, date expected **Jun 23rd 2006**

Water Use fee (see Section 9 of the *NWT Waters Regulations;* Payee Receiver General for Canada)
___ Yes ___ No If no, date expected _____

15. PROPOSED TIME SCHEDULE

_X_ Annual (or) __ Multi Year

Start Date: **August 2006** Completion Date: **September 2006**_____

_Felipe Salgado_____	**Surface Maintenance Eng.**	**_____**	**__June 05, 2006_____**
Name (Print)	**Title (Print)**	**Signature**	**Date**

For Nunavut Water Board use only

APPLICATION FEE **Amount: $_____** **Pay ID No.: _____**

WATER USE DEPOSIT **Amount: $_____** **Pay ID No.: _____**

NOTES:

1. NTS plans are being mailed by June the 6th, 2006.

2. Referring to the letter dated February 17th, 2006 (Attached in Appendix 1) the four points are being addressed as follows:

1. Samples of sediments were taken and analyzed. Please, see report in appendix 2.
2. There are two land farms within the airport boundaries which will be used in case of contaminated materials. Location of land farms are shown in Appendix 3.
3. As a part of the specifications, an ECO plan shall be implemented (See Appendix 4). Also, in the Summary of the project remaining runoff diversion is planned.
4. Transport Canada is taking care of the Utilidor removal.

SUMMARY OF THE PROJECT

Nunavut Airports, Department of Economic Development and Transportation (ED&T), Government of Nunavut (GN) is planning on Re-opening of Taxiway A and Rehabilitation of Apron 1 at Iqaluit Airport, Nunavut. The project is funded by Federal Government of Canada under Transport Canada's, Airport Capital Assistance Program (ACAP).

It is now intended that the construction contract be awarded by spring, construction commence by July, 2006 and project be completed in the same calendar year prior to winter freeze up.

2. Project Description:

The project consists of two separate components: Schedule A – Re-Opening of Taxi A and Rehabilitation of Apron I, and Schedule B – FOL Apron Rehabilitation. Schedule B is being completed under the terms of this contract for the Department of National Defence.

The major components of the construction Work to be completed under Schedule A consists of, but is not limited to:

- Blasting of rock, production of granular material and stockpile.
- Reconstruction of Taxi A including removals and re-grading, new fillets, asphalt paving and line painting.
- Rehabilitation of Apron I including excavation/removal of fuel hydrants, major crack/settlement repairs, asphalt overlay and line painting.
- Construction of new Fillets on Apron I and Taxi B.
- Removal and installation of new security fence.
- Rehabilitation of drainage ditch including installation of new culverts and rehabilitation of access road and taxiway.
- Installation of new airfield electrical systems including edge lights, signage, floodlights and temporary FEC facility.
- The major components of the Work to be completed under Schedule B consists of, but is not limited to:
- Reconstruction of Apron I including removals and re-grading, electrical installation, asphalt paving and line painting.

The major component of the Work to be completed under Schedule B consists of, but is not limited to:

- Reconstruction of Apron I including removals and re-grading, electrical installation, asphalt paving and line painting.

The Government of Nunavut is applying for the water license for the works related to the rehabilitation of the drainage ditch including the installation of new culverts and rehabilitation of access roads and taxiway.

The rehabilitation of the ditch includes:

Removal and disposal of sediments that have been depositing during forty years of service, and which have caused flooding on the movement area and the vicinity of the ditch. Sediments will be removed in such a manner that the original ditch design will not be affected.

The contractor will be required to clean the ditch starting from upstream, going down to the southwest

side of the ditch.

The cleaning works will be carried out in late summer or fall, at the time when runoff flow is typically at minimum.

The contractor will be required to divert remaining runoff away from the location of the work until such time as the work is complete. This may be accomplished through coffering the ditch above the upstream extremity of the worksite and employing one or both of the following alternatives (See Appendix 5):

1. pumping the water contained by the coffer to a location downstream of the location of the work, or;
2. pumping the water contained by the coffer into an alternate drainage course running southward along Taxi A, turning east parallel to the runway into the airport infield, from where it flows under Taxi B and is collected in the main drainage system for the airport lands and west 40.

It is expected that alternative 1 will be used unless flows are higher than normal, in which case alternative 2 or a combination of both alternatives will be used.

APPENDIX 1

Letter from NWB "Response to submitted EBA Report – Drainage Ditch Rehabilitation, Iqaluit Airport, Nunavut" Dated February 17th, 2006

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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

File: NWB1IAD
February 17th, 2006 *Email:fsalgado@gov.nu.ca*

Felipe Salgado
Surface Maintenance Engineer
Government of Nunavut

Subject: Response to submitted EBA Report "*Drainage Ditch Rehabilitation, Iqaluit Airport, Nunavut*"

Dear Mr. Salgado:

The Nunavut Water Board (NWB) would like to acknowledge receipt of the above titled EBA document to compliment your already submitted licence application materials. The Board has had the opportunity to review this document and have listed questions and concerns below to be clarified by GN.

i. As per our teleconference and the following email on January 11th, 2006 the NWB addressed the need to understand the nature of the sediments to be removed from the drainage channel. The EBA report provides argument but still does not give assurance to the Board that the nature of the sediments is understood. The Proponent is advised to examine the sediments to be removed for contaminants to insure that CCME standards are not exceeded and present these findings to the Board. The EBA report suggests that this program can be conducted. As per teleconferences on January 11th, 2006 and February 14th, 2006 it has been stated by the NWB that the waste must be understood before degree of (or lack of) containment can be prescribed. The NWB encourages the Proponent to consult the February 14th, 2006 email received from the Board when developing the contaminant-testing program.

ii. The EBA report states that *the airport has a landfarm which may be used to naturally treat contaminated material*. The NWB requests the Proponent to identify what licensed landfarm they intend to deposit materials within. If the landfarm is not owned and operated by the GN the Proponent is to outline the agreements in place to deposit contaminated waste in this facility. The Board also requests an approximate volume of total sediment to be removed from the drainage course.

iii. The EBA report details that a comprehensive ***Construction Drainage Plan*** is to still be completed. As stated throughout discussions the Board requires an understanding of the project operations, practices, and procedures and their relation to the impact of freshwater. I would like to point the Proponent to **Section 48 Item 2** of the ***Nunavut Waters and Surface Rights Tribunal Act*** that requires Proponents to provide the Board with studies concerning the deposit of waste through quantitative and qualitative evidence. Thus it is essential to outline what provisions are in place to minimize impact to freshwater during project completion. The Board also requests details in how this ***Construction Drainage Plan*** will be enforced and monitored by the Resident Engineer as suggested by EBA. The requirements of **Section 48 Item 2** are also extended to the requirements of Bullet i. above.

iv. EBA lists the removal of the abandoned utilidor from the bench under the proposed method of rehabilitation. Could the Proponent please verify what aspects of this particular project are bound

within this application (what bullets under the **Design and Construction Specifics of Ditch Rehabilitation** contained in this application)? This will avoid any ambiguity possibly created when sent out for public intervention. It is to my understanding that the utilidor removal and abatement is to be contained in the Transport Canada application. In future correspondence the Proponent is encouraged to clearly specify this if it is referenced within licence application documents.

Should you have any questions regarding the above, please feel free to contact me at (867) 360-6338.

Sincerely,

Original signed by:

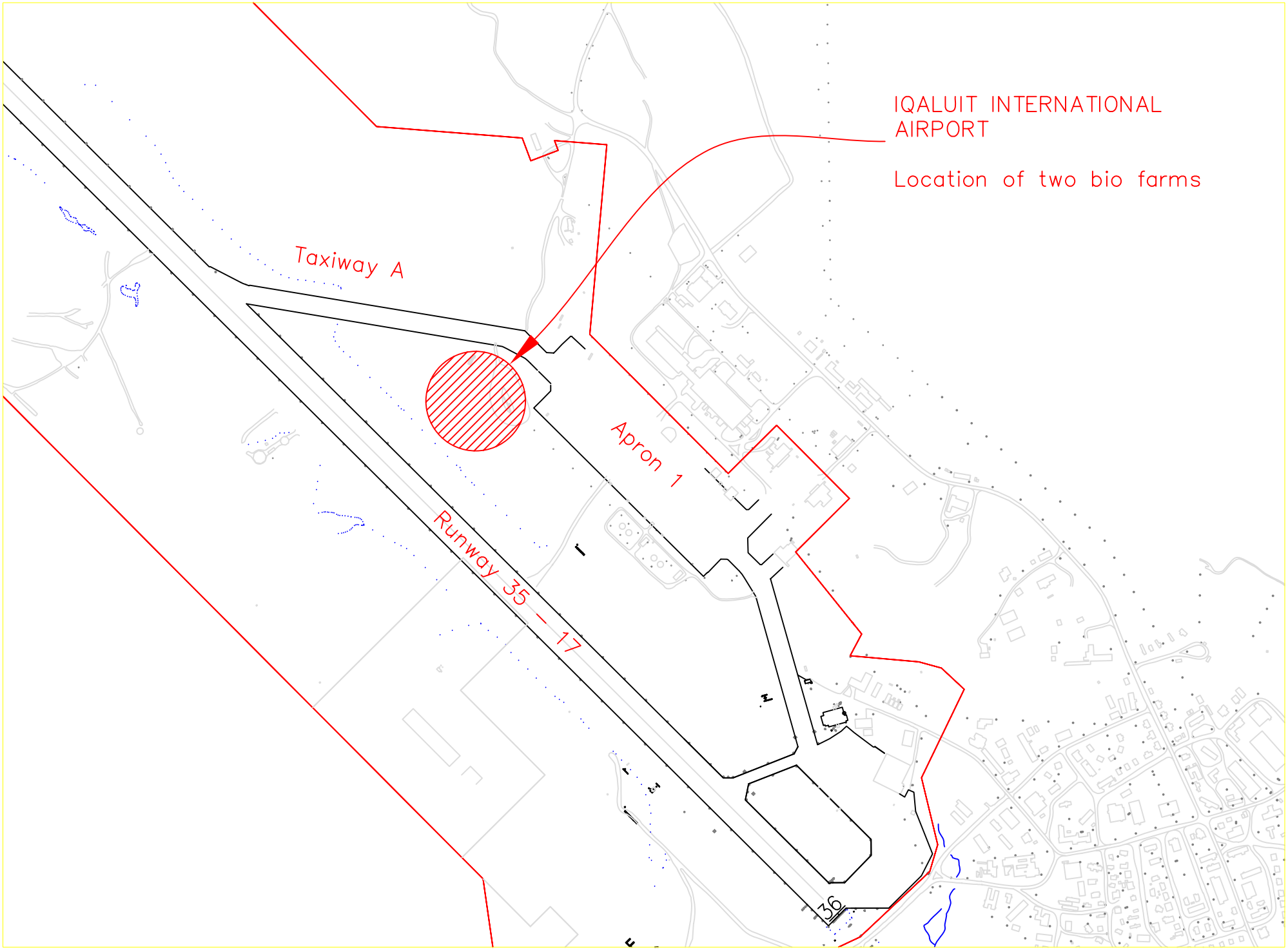
Joe Murdock
Technical Advisor

APPENDIX 2

EBA Report, dated May 16th, 2006

APPENDIX 3

Land farms Locations


IQALUIT INTERNATIONAL
AIRPORT
Location of two bio farms
Taxiway A
Apron 1
Runway 35 – 17
36

APPENDIX 4

ECO Plan

IQALUIT AIRPORT

Environmental Construction Operations Plan (ECO Plan)

Iqaluit Airport ECO Plan for Construction

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I N T R O D U C T I O N

In order for the environment to be protected during construction, it is critical that all parties to Airport contracts, agreements, permits and authorizations, be aware of the environmental impact of their construction activities and provide measures and due diligence to protect the environment.

An Environmental Construction Operations Plan (ECO Plan) consists of guidelines and written procedures that address the environmental protection issues relevant to the specific project activities being performed. The Contractor must submit the ECO Plan to the Nunavut Department of Economic Development and Transportation (NDEDT) prior to commencement of the work and in sufficient time to allow evaluation of the suitability of the proposed strategy. NDEDT will then review the ECO Plan and address any concerns with the Contractor.

To achieve consistency in preparation of ECO Plans on Airport projects, the framework and guidelines contained in this document must always be considered when developing an ECO Plan. The framework and guidelines contain concepts and minimum submission requirements. The Contractor is encouraged to exceed the minimum submission requirements where it will enhance environmental protection. Within the framework, the Contractor will have the ability to adjust the ECO Plan based on site conditions.

It is critical that all parties are in agreement on the procedures and environmental control devices to be used for the protection of the environment. Once work has commenced, changes can be made as conditions dictate. The reasons or circumstances necessitating changes made to the ECO Plan must be documented in writing.

P R I M A R Y R E S P O N S I B I L I T I E S

In order for the environment to be protected during construction, it is critical that all parties to Airport contracts, agreements, permits and authorizations, be aware of their respective responsibilities concerning environmental protection.

The required ECO Plan prepared by the Contractor shall be directed to NDEDT. The following are the primary responsibilities of the Contractor, concerning environmental protection on Airport contracts.

- Develop an ECO Plan and submit it to NDEDT for evaluation prior to commencement of the work.
- Implement environmental protection measures in accordance with the ECO Plan.
- Monitor the work zone to ensure that the ECO Plan is effective for all conditions, including inclement weather conditions and during periods of construction and shut down.
- Maintain all environmental control and protection devices.
- Take appropriate and timely action to correct any deficiencies.
- Take action (i.e., shut down work) where it is recognized that an impact to the environmental will occur.

- Ensure that staff and subcontractors are trained and empowered to identify, address and report potential environmental problems.
- Report all environmental incidents to NDEDT immediately and provide a copy of the incident report to the proper authorities.
- Attend any meetings initiated by NDEDT to address any concerns regarding the performance of the ECO Plan.
- Ensure that all subcontractors comply with the ECO Plan.
- Provide a knowledgeable individual at the work site to maintain the environmental control devices and address any environmental protection issues that arise. The Contractor must identify this individual to NDEDT at the construction start-up meeting.

E C O P L A N R E V I E W P R O C E S S

For all construction and restoration projects, an ECO Plan will be prepared by the Contractor and submitted to NDEDT prior to commencement of the work and in sufficient time to allow NDEDT (Project Manager) to evaluate the suitability of the proposed plan.

Process Review

Upon receipt of the ECO plan from the Contractor, NDEDT will review the plan and:

- If it is to the mutual satisfaction of the Contractor and NDEDT, the NDEDT will advise the Project Manager.
- If there are deficiencies or questions noted, NDEDT will follow-up with the Contractor.
- The Contractor will make appropriate changes to the ECO Plan and resubmit it to NDEDT. Once there is mutual agreement to the ECO Plan, the project may proceed.
- If, during the course of the project, it is determined that the ECO Plan is not adequate, it will be modified and accepted to the mutual satisfaction of all parties.

E C O P L A N F R A M E W O R K

The purpose of the ECO Plan Framework is to provide guidance to Contractors in developing an acceptable ECO Plan for the duration of the project. The duration of the project is defined as the start of the project through to the issuance of a certificate of total performance. It is the Contractor's responsibility to prepare and determine the measures included in an ECO Plan. This Framework describes the components and information that should be included in an ECO Plan and the steps that a Contractor will typically follow to develop and implement a Plan.

The ECO Plan details the Contractor's plan for satisfying the environmental requirements associated with the specific project. The plan must:

- Provide a statement of the Contractor's commitment for protection of the environment, compliance with environmental legislation and satisfying NDEDT’s contractual and policy requirements.

- Identify and address, construction procedures, the environmental requirements and potential impacts associated with various construction activities.
- Provide emergency response procedures to minimize potential impacts of emergency situations on the environment.
- Describe how monitoring and reporting will be conducted to satisfy contractual and regulatory requirements.
- Describe how the ECO Plan will be implemented by establishing a plan for training, communication, documentation, auditing, management review and ECO Plan adjustments.

The ECO Plan submitted by the General Contractor must cover the activities of any subcontractors.

PREPARING AN ECO PLAN

To prepare an ECO Plan, a Contractor would conduct the following steps:

1. Develop a commitment statement to environmental protection that is appropriate to the project.
2. Identify the environmental aspects and potential impacts of the project. To identify environmental aspects and potential impacts of the project, the Contractor would review:
    - Environmental impacts of site activities; and
    - Environmental regulations pertaining to the project.
3. Describe procedures to address the environmental aspects and potential impacts relating to:
    - Site activities of specific project stages;
    - Construction site management;
    - Construction materials management; and
    - Waste management.
4. Describe emergency response procedures for all potential environmental site emergencies.
5. Describe procedures for monitoring and reporting information to satisfy environmental legislation and contractual requirements.
6. Describe how the ECO Plan will be implemented, reviewed and adjusted as appropriate.
    - Define roles and responsibilities.
    - Provide a plan for staff training and communication of the ECO Plan.
    - Indicate what documentation is to be kept (see Documentation section).
    - Review ECO Plan performance regularly and after incidents.
    - Adjust ECO Plan as appropriate for environmental protection condition changes and continual improvement.

POLICY STATEMENT

An environmental policy statement confirms the Contractor's corporate commitment to the protection of the environment. The Contractor's policy statement must:

- Be appropriate to the nature, scale and environmental impacts of the project;
- Develop a commitment statement to the NDEDT that is appropriate to the project;
- State the Contractor will comply with all relevant federal and territorial environmental laws; and
- Follow best management practices.

SITE MAP (Attached)

GEOGRAPHIC SCOPE

Activities and their corresponding issues and activities must be addressed for all locations related to the construction of the project. This includes (but is not limited to):

- Project site;
- Project site office location; and
- Any compounds related to materials processing and storage (batch plants, materials and waste storage compounds, maintenance compounds, parking locations, fill storage etc)

ACTIVITY/ENVIRONMENT RELATED ISSUES TO BE ADDRESSED IN THE ECO PLAN

Information on typical acitivities and possible mitigation can be found in **Appendix A**. The ECO Plan must address or provide procedures for the following items:

1. Earthworks

The ECO Plan must contain a description and drawings detailing the measures that the Contractor will implement to mitigate the impacts of earthwork on the environment. Consider the following:

Earthworks

- Erosion/sedimentation control

Excavation

- Removal, storage and replacement of soil horizon materials
- Procedures if contaminated material is encountered and how the material will be segregated and remediated

Note: Contact the NDEDT and the project consultant if suspected contaminated materials are encountered. Ensure the suspected contaminated material is segregated

Erosion & Sedimentation Control

- Provide details (description, maps, etc) showing sensitive erosion areas, methods for prevention, and maintenance/monitoring of erosion/sedimentation control structures
- Dust control
- Response to erosion events (wind and water)
- Minimization of surface disturbance

Site Drainage

- How the project fits within NDEDT's Master Drainage Plan
- Maintenance of drainage capability during construction
- Temporary draining and pumping diversion locations
- Prevention of oil/grease and other hydrocarbons from entering storm drainage system

2. Water Quality

- Prevention of deleterious substances from entering sanitary, storm drainage, surface and groundwater systems

3. Materials Management

During the duration of a project, various materials are utilized for construction, rehabilitation and maintenance of equipment. The ECO Plan must identify those materials and their potential impacts.

Hazardous Materials

In order to meet contract requirements, WHMIS and Transportation of Dangerous Goods (TDG) and environmental compliance responsibilities, the ECO Plan must identify:

- Methodology to determine the presence, testing, handling and disposal of hazardous materials encountered during any demolition or re-location activities (i.e., asbestos, PCB's, lead, contamination)

Note: If a hazardous or contaminated material is encountered it must be reported to NDEDT project manager and to the project consultant as soon as possible.

- Procedures to address the proper transportation, storage, containment and handling of hazardous materials
- Locations of stored hazardous materials, spills response plan, and spills response kits
- Hazardous material inventory indicating common name, shipping name, phase, containment, Class (if applicable), availability of MSDS and quantities
- Site access for ERS in an emergency situation

4. Waste Minimization

- Re-use and re-cycling of demolition materials
- Identification of waste materials generated and potential impacts on environment
- Segregation of wastes (hazardous, non-hazardous, recyclables, etc)
- Procedures for handling, containment, storage, transportation, disposal and documentation of waste and recyclables
- Describe how any impacts will be mitigated (i.e. berms, liners, ponds, containers)

5. Bird and Wildlife

- Aviation safety is the prime concern of airport operators. All efforts should be made to minimize the attraction of birds to the site.

6. Air Quality/Ozone Depleting Substances (ODS)

- Maintenance of air quality
- Minimization of vehicle idling times

7. Equipment and Equipment Maintenance

- Containment measures (i.e. spill kits, centralized maintenance etc)
- Equipment storage and maintenance locations

8. Waste Management

- Domestic garbage collection, transportation and disposal locations

9. Site Clean Up and Reclamation

EMERGENCY RESPONSE PROCEDURES

The ECO Plan must identify potential incidents that, through natural causes, accidents, human error or improper work practices, impact the environment. The ECO Plan must describe the emergency procedures that will be implemented to address the potential incidents. Potential incidents may include:

- Spills and releases (land, water and air).
    - Fuels
    - Oils and lubricants
    - Chemicals
    - Biological agents
    - Other substances that may be harmful to the environment
- Erosion events (water and wind).

Address the following in the ECO Plan:

- Minimization of potential for spills of hazardous substances;
- Resource assessment and allocation for response to spills; and
- On-site location of environmental emergency response plan.

Note: All spills must be reported to the NDEDT and the project consultant. A Spills Report must be completed and faxed to NDEDT

10. MONITORING AND REPORTING

The ECO Plan must describe the monitoring and reporting that is conducted through the duration of the project to satisfy contractual and regulatory requirements. Monitoring and reporting requirements may include:

- Water Quality;
- Soild Erosion; and
- Spills Reporting.

E C O P L A N I M P L E M E N T A T I O N

Implementation is critical to the success of the ECO Plan. It is important to have corporate support and for the staff to have ownership of the ECO Plan. The Contractor is responsible for the implementation of the ECO Plan for the duration of the project and ensuring that all personnel on site abide by the plan. This section of the Eco Plan should include:

TRAINING AND AWARENESS

- Training and awareness sessions;
- Tailgate meetings;
- A description of meeting frequency;
- A log of trained and updated staff;
- A bulletin board and memorandum circulation; and
- Encourage employee to submit ideas and suggestions.

DOCUMENTATION

Describe the information that will be kept to document the significant events relating to the implementation and adjustment of the ECO Plan. A binder or file with all relevant information should be retained at the construction site. The following are some of the events that should be documented:

- Accidents, spills and releases must be reported using NDEDT spills reporting policy
- Reviews, improvements and adjustments to the ECO Plan
- Training

- Materials inventory
- Waste Inventory
- Equipment inspections and maintenance
- Monitoring and maintenance of erosion and sediment controls

COMMUNICATION

Describe the communication that will be conducted through the duration of the project relating to the ECO Plan. Although each project may differ, communication with managers, staff, other Contractors and Subcontractors, NDEDT and regulatory agencies may include:

- Daily, weekly or monthly meetings.
- Daily, weekly or monthly reports.

MANAGEMENT REVIEW/ECO PLAN ADJUSTMENTS/CONTINUAL IMPROVEMENT

The Contractor is required to ensure the success and continual improvement of the ECO Plan. The ECO Plan is designed to change based on site conditions. The goal is for continual improvement by adjusting the plan as experience is gained. This plan must describe the frequency of management review and the procedures for adjusting the plan to address continued improvement.

Iqaluit Airport ECO Plan for Construction

A P P E N D I X " A "

Sample Mitigation Measures for Typical Airport Activities

Project Activity	Mitigation
Typical Construction and Decommissioning Activities	
Demolition/ Dismantling	• Asbestos removal - Because of the potential danger to human health, any project requiring asbestos removal should be undertaken following Government of Nunavut procedures for working with Asbestos • Old wiring/electrical components to be removed should be inspected for PCB's. If present, they should be handled according to the proper guidelines. • Asphalt must be disposed of at approved sites, and under no circumstances should it be disposed of along roadsides etc.
Fencing	• Wash down material or run-off from cast in place concrete work will be trapped onsite and not allowed to enter drainage system. • Build as per Transport Canada security fence specifications. • Fence lines often attract wildlife. This may not apply at airports where fences are used to ensure wildlife does not have access to airstrip areas.
Temporary Roads	• Construction of temporary roads should be avoided unless absolutely necessary.
Dewatering/Draining	• Timing windows of allowable in-stream work should be confirmed with DFO. • The activity should be scheduled to prevent interference with fish migration and spawning periods. • Temporary drainage should be designed to minimize the run-off from precipitation and increase percolation and the recharge of groundwater.
Channeling/ Dredging	• Downstream flooding may occur if the new channel is straighter and permits higher flow velocity than the former, or it the new channel avoids the meanders and ox-bow lakes of the old bed. Studying the capacity of the downstream area to handle the new flood conditions can minimize the impacts of flooding. • Minimizing the use of riprap in developed areas can lessen the undesirable effects of channeling. Other bank stabilization techniques may be more environmentally sensitive. Consult a bio-engineer or DFO staff to discuss other options.
Dredgate Disposal	• Dredgate should be disposed of at approved disposal sites as determined by Environment Canada. • Berms should be used to prevent leaching or movement of dredgate back into the water. • Soil disposal sites should be graded and seeded as soon as practical after completion of work.
Rock Blasting/ Drilling	• No blasting within 400 m of a water body, or within 100 m of critical wildlife habitat. Blasting is prohibited underwater. • Notify appropriate regulatory bodies before blasting. • Provide retention ridges to prevent material from rolling down blasted slopes. • Avoid blasting during temperature inversions. • Avoid blasting when wind conditions blow toward populated areas.

Iqaluit Airport ECO Plan for Construction

Project Activity	Mitigation
	• Blasting should not occur during sensitive periods for wildlife (e.g. migratory bird staging). When wildlife are within 500 m of proposed blasting operations, blasting should not be undertaken until the animals are moved or herded from the area by provincial or federal wildlife staff. Blasting must not be undertaken within 500 m of inhabited cliff nests or where mammal calving or den activities are occurring. • Blasting should be minimal and executed as quickly as possible to reduce the temporary disruption and displacement of bird and mammal populations in the area. • Run-off from blasting or drilling should be collected and treated to reduce acidity or toxicity, before being released to surface waters. • Minimize blast energy by using low velocity charges, multiple charges and special detonation techniques. • Minimize damage to surroundings by the use of blasting mats and blast detectors.
Earthworks (Cut/Fill)	• Cut/fill procedures should not be undertaken in environmentally sensitive areas or within 100 m of water bodies. • Slopes in cut / fill operations should not exceed 33 degrees. • Steep slopes and ditch bottoms should be blanketed for containment and protection against erosion. • See section on Clearing, Grading, or Landscape / Erosion Control for more mitigation measures.
Excavation	• Retain as much natural vegetation cover as possible. • Avoid excavation on or near critically erodible or unstable soils, steep • slopes and stream banks. • Do not disturb unstable clay areas. • Steep slopes and ditch bottoms should be blanketed for protection against erosion. • Maintain a buffer zone between sensitive areas and construction. • Install sediment trap basins or ponds to prevent escape of silted water to nearby watercourses. • Stockpile topsoil from excavated areas for subsequent re-application to other areas. • Do not dump fill in streams. • Cover temporary fills or stockpiles with polyethylene sheeting or tarps
Excavated Earth Disposal/Fill	• Earth disposal / fill sites should be located at least 100 m away from watercourses.
Grading	• Graders should not operate off the road surface. • Ditches should be graded to a preferred side slope of 4 (horizontal) to 1 (vertical). • Slopes resulting from grading should be re-vegetated for erosion control • Smoothly graded cut and fill slopes should be avoided. Surfaces should be roughened perpendicular to the flow direction in order to retard run-off and increase filtration.
Landscaping/ Erosion Control	• The upper 1 foot of a sloped surface must be compacted to 90% of its maximum density at optimum moisture. • A cut slope must be capped with clay or vegetation. • Grade surfaces must be roughened perpendicular to drainage flow.
Gravel Crushing	• Restrict gravel crushing and washing to favourable climatic conditions (e.g. when the wind is blowing away from residential areas). • Water used to wash concrete should not be allowed to enter directly into water bodies.

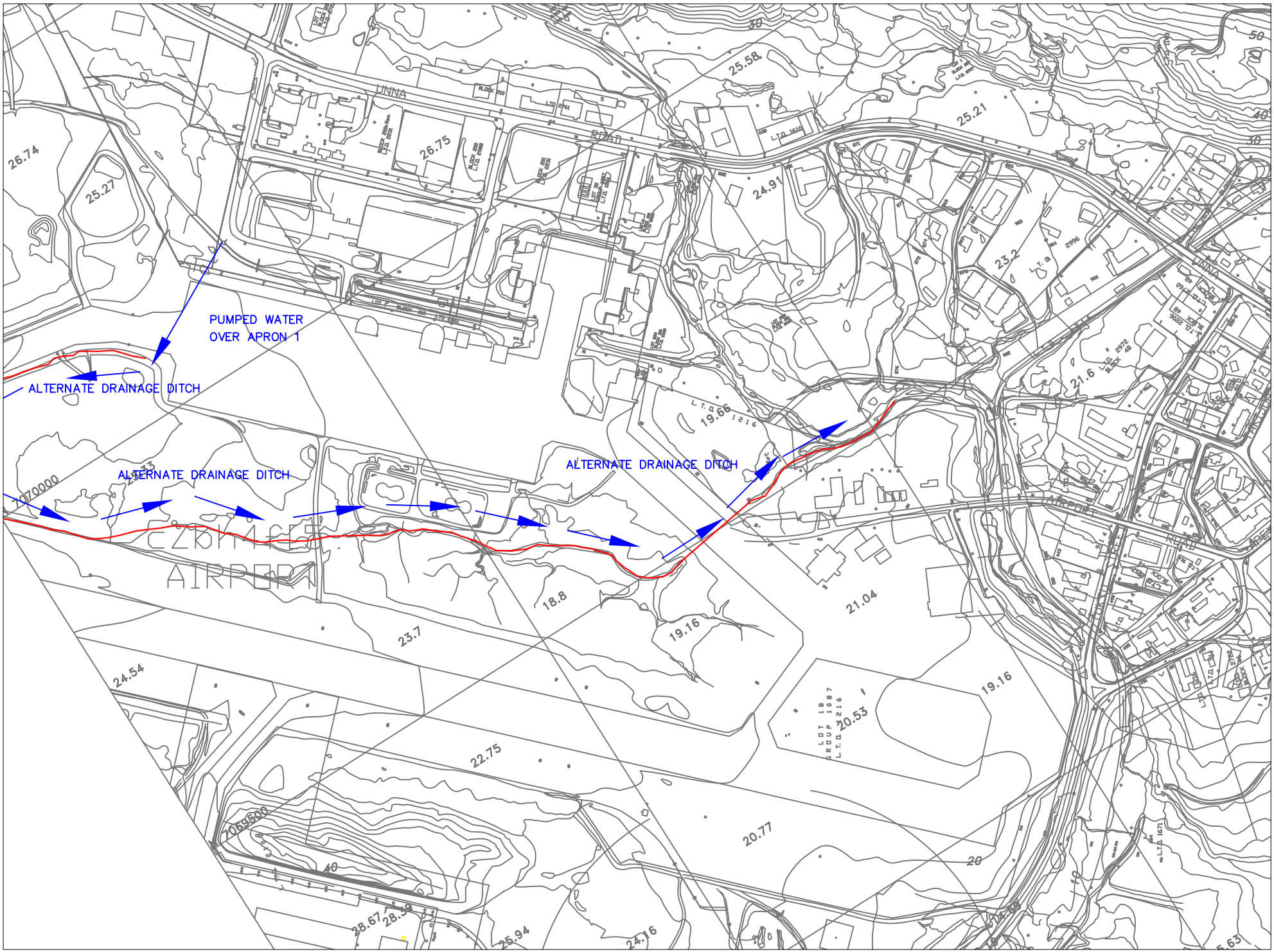
Iqaluit Airport ECO Plan for Construction

Project Activity	Mitigation
Concrete/asphalt batch production	
Disposal of Rock/Aggregate	• Do not push or dump any type of fill in streams. Disposal sites should be located at least 100 m from streams. • Rock or aggregate should be stored at an appropriate site and re-used when possible. • If there are asphalt compounds involved, then mitigations described in Demolition /Dismantling must be referred to.
Dumping Core Material	• Material should be disposed according to applicable legislation
Access Road Development	• Avoid constructing temporary roads • Locate roads to minimize erosion and preserve the natural environment • No road grade should exceed 12%, or 5% near water bodies • Provide a buffer strip of 100 m near water bodies • Construction should take place in the specified period only, to reduce wildlife impact
Paving/Surfacing	• Asphalt and concrete work should be done during the summer (dry) months in order to reduce contaminated run-off from the freshly laid surfaces. • A “natural drainage” concept should be adopted involving the siting of impermeable surfaces as far as possible from ground water recharge zones. • Locate catchment facilities around the periphery of airport runways and aprons to channel runoff to one location (storage lagoon) for possible separation and recovery. • Only approved sealants should be applied to asphalt areas.
Culvert Installation/ Removal	• When installing a culvert at a stream crossing, guidelines provided by DFO must be followed. Consult with local DFO staff regarding distribution, and presence of fish in the stream or watercourse. An acceptable period of construction would be a time span in which there are no fish or fish eggs present in the water bodies. • Temporary stream crossings should be chosen so that bank disturbance, • Soil displacement and leveling of forested areas are minimized to control erosion. Temporary access to the stream should be made by fill ramps, and not excavated through banks. When use of heavy equipment is required in the stream, the same stream crossing or entrance area should be used every time. • Temporary water diversions or cofferdams may be required at stream crossings to form settling basins for the control of siltation. • Reconstruct stream banks to their original condition as soon as the activity is complete. All disturbed areas should be left in a stabilized condition. • Ensure that all construction equipment used is mechanically sound to avoid leakage of oil, gasoline, hydraulic fluids and grease.
Placing Concrete	• Asphalt and concrete work should only be done during the summer (dry) months in order to reduce contaminated runoff from freshly laid surfaces from entering watercourses. • Interceptor dikes, settling ponds, storage lagoons or other facilities, should trap wash-down material or run-off from exposed cast-in-place concrete and concrete trucks on-site. The sediment must be allowed to settle out and reach neutral pH before the clarified water is released to the drain system or allowed to percolate into the ground (48 hours). Failure to do this could lead to serious water quality and fisheries impacts. • Suitable materials that have a smaller environmental impact than concrete should be considered.

Project Activity	Mitigation
Removal of Temporary Structures	• Ensure that any materials to be disposed are done so according to applicable legislation. • Ensure that site of former structure is returned to as natural a state as possible (e.g. re-vegetation of area).
Structure Abandonment	• Any structure to be abandoned should be inspected for contamination. In particular, inspections should look for asbestos, PCBs' (often found in old wiring), abandoned underground / aboveground storage tanks and soil contamination from petroleum products.
OPERATIONAL (Airport and Tenant) Activities	
Use of controlled products or other hazardous materials	• Ensure all proper precautions are taken. • Ensure materials are disposed according to applicable legislation. (e.g. TDG Regulations, WHMIS, Alberta Fire Code)
Hazardous Material Disposal	• Disposal of all hazardous waste materials should be made in conformance with applicable legislation. (e.g. TDG Regulations, WHMIS, Nunavut Fire Code) • See: additional details of disposal of the following wastes: Asbestos, Asphalt.
Solid Waste Generation and Storage	• Airport Authorities should implement waste reduction and diversion plans for all operations. • Waste storage should be conducted in approved containers and is designated buildings or structures approved for such purposes. • Waste materials should not be stored for excessive periods of time, but should be transported off-site for further processing or disposal as soon as possible.
Solid Waste Land filling/Disposal	• Waste material should be disposed of only in a designated landfill site, not on the project site. • No burn areas are allowed within 200 m of water bodies. • Burning will be carried out under controlled conditions in consultation with local officials re: permits, risk to nearby inhabitants and desirable weather conditions.
Culvert/Ditch Maintenance	• Repair and replacement of culverts should include consideration of environmental concerns such as erosion and stream siltation, stabilization of disturbed or exposed slopes or embankments and blockage of fish passage. Guidelines provided by DFO should be followed. • All excavated debris and soil materials cleared from a culvert should be removed from the stream channel and disposed of at an appropriate site, to prevent it from washing downstream. • During the removal of rocks that have accumulated at the entry / approach to culverts, some rocks / boulders can be retained to provide resting places for migrating fish. Rocks should be placed 1 to 10 m apart alternating from one side of the channel to the other to avoid long runs of fast flowing water along either side. • See: Dewatering / Draining and Culvert Installation for additional mitigations.

APPENDIX 5

Proposed Alternate Drainage ditch


PUMPED WATER
OVER APRON 1
ALTERNATE DRAINAGE DITCH
ALTERNATE DRAINAGE DITCH
ALTERNATE DRAINAGE DITCH
UNNA
ROAD
AIRPORT
1070000
1069500
26.74
25.27
26.75
25.58
25.21
24.91
23.2
21.6
19.66
18.8
19.16
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22.75
20.53
20.77
28.67
28.3
25.94
24.16
5.63