

REPORT ON THE REVIEW AND ASSESSMENT OF

**THE GRANULAR RESOURCE
MANAGEMENT PLAN
IN THE INUVIALUIT SETTLEMENT
REGION**

March 2006

Prepared for:
Department of Indian and Northern Development

Prepared by:
Alpha Corporation
40 Stoneridge Drive
Victoria, BC

REPORT:
Review and Assessment of the Granular Resource Management Plan in the ISR

TABLE OF CONTENTS

1.0 INTRODUCTION3

 1.1 General3

 1.2 Memorandum of Understanding3

 1.3 Purpose3

2.0 SCOPE OF SERVICES4

 2.1 Objectives4

 2.1.1 Review of Work to Date4

 2.1.2 Assessment of Further Required Work4

 2.1.3 Work Plans4

3.0 PERSONNEL4

4.0 FINDINGS5

 4.1.1 Review of Work to Date5

 4.1.2 Assessment of Further Required Work6

 4.1.3 Work Plans 14

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

1.0 INTRODUCTION

1.1 General

The following is a report on the review and assessment of the implementation of the development of the Granular Resource Management Plan for the Inuvialuit Settlement Region (ISR). This initiative was prompted by the increase in activity in the Mackenzie Delta area due to the proposed natural gas pipeline project and by the recent personnel changes for Inuvialuit Land Administration and Department of Indian and Northern Development. The intention was to provide new contributors to the planning process some background information and a summarization of work completed to date toward the establishment of a joint granular resource management plan.

Recommendations for further work are presented with the intention to provide discussion points for the new participants of the working group in the promotion of the development of the formal plan. While all have been suggested as ways of contributing to the development of the plan, there is no presumption any or all would be implemented. The new working group, once established, will be mandated with the decision making process.

1.2 Memorandum of Understanding

Further to the signing of a Memorandum Of Understanding (MOU) between the Department of Indian and Northern Development (DIAND) and the Inuvialuit Regional Corporation (IRC) to work towards a joint Granular Resource Management Plan for the ISR it was agreed that:

- IRC and DIAND will develop integrated services to the extent possible in bringing together resources of program, staff and/or funding.

1.3 Purpose

To develop a co-ordinated and systematic approach to granular resource management in the Inuvialuit Settlement Region through:

- gathering and utilizing all existing information;
- sharing research and project data;
- avoiding duplication of effort; and
- a commitment to joint planning, action and resource allocation.

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

2.0 SCOPE OF SERVICES

2.1 Objectives

2.1.1 Review of Work to Date

- Provide overview to new Inuvialuit Land Administration (ILA) Land Administrator of previous work completed and goals and objectives of joint granular management in the ISR.
- Consultation with DIAND and ILA to review past work and identify new material to be incorporated into previous work.

2.1.2 Assessment of Further Required Work

- Further definition through joint ILA/DIAND consultation to form foundation for plan.
- Consultation with land management personnel from Gwich'in Tribal Council to investigate potential for a similar granular management plan south of the ISR.
- Overall co-ordination of planning process.
- Gap analysis to identify and prioritize tasks to be completed.

2.1.3 Work Plans

- Determine budget and work plans for additional requirements.
- Identify funding sources.

3.0 PERSONNEL

Mr. Phil Chidgzey was responsible for co-ordination with IRC, ILA and DIAND and the overall direction of the program, due to his knowledge on granular resources within the ISR. He presented the report to IRC, ILA and DIAND. Mr Chidgzey has over 20 years experience in the area of geophysics and northern operations.

Ms. Susan Chaytor was responsible for collection and review of pertinent information, reporting, providing technical support and assistance in the preparation of this report. Her background includes several years of work in Northern projects, including Aboriginal contract management.

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

4.0 FINDINGS

4.1.1 Review of Work to Date

A review was conducted of the progress of the development of a joint granular management planning process for the Inuvialuit Settlement Region. All material, including the planning framework and work plan, was reviewed to determine at what stage the process was at and what work was still outstanding. IRC, ILA and DIAND representatives were contacted to provide additional information regarding any new issues or developments with regard to granular demand.

It was found that ILA had a change of land administrators, which required a thorough briefing of the historical events, issues and objectives of the entire granular planning initiative. Meetings were held in Inuvik and Yellowknife with the new ILA land administrator, key ILA staff and DIAND representatives to provide all the background information on the planning process to date, identify information gaps and determine new work objectives for the development and implementation of a Granular Resource Management Plan for the ISR.

The proposed pipeline project, and all the associated components, has generated considerable impact assessment work for both land owners. With regard to the granular requirements of the project DIAND has hired Granular Resources Technicians to provide more specific expertise.

A summary of the work that has been accomplished to date includes:

- The signing of a MOU between IRC and DIAND to work toward the joint management of granular resources in the ISR.
- Continued consultation with all stakeholders including ILA, DIAND, IRC, Gwich'in, Environmental Impact Screening Committee and industry.
- The feasibility study and development of a web based mapping prototype with the objective of centralizing all granular resource data in a dynamic way that is easily updateable and available to multiple users.
- Community site evaluations for Aklavik, Paulatuk and Tuktoyaktuk were made to assess granular resource supply options and constraints to access and/or development.
- Pursuant to findings from the community assessments, further selective field assessments were made of potential granular supplies in the Aklavik area (Willow Creek) and in the Tuktoyaktuk area (Pit 177 – 22 km south of Tuktoyaktuk).

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

- A topographical survey was undertaken of the YaYa Lake deposit to compare the current elevations to 15 years previously to assist in the determination of the current granular supply.
- Updating and compiling of all available granular supply information for the ISR was completed including the compilation and scanning of reports, updating the report catalogue (AINA – Arctic Institute of North America), deposit compilation and digitizing, compiling existing inventories and geological settings, complete data review, gap analysis and historical usage and depletion statistics.
- A demand forecast model had been in use to provide the periodic granular demand forecasts for all the ISR communities, as required by the Inuvialuit Final Agreement.
- The increased pressure on granular supply due to the potential MacKenzie Valley pipeline project provided the impetus to develop and implement an Interim Granular Management Plan for the ISR. This plan is focused on the area of the development corridor, being the highest priority area with the potential for shortage of supply and significant increase in future demand. Incorporated into this interim plan was a moratorium within the development corridor on issuance of concession agreements and quarry licenses by ILA. All development within the designated area (on Crown or Inuvialuit lands) must be considered by both land owners.
- Best Management Practices were implemented for the 2003 YaYa Lake gravel haul that included a predevelopment inspection, professional supervision, volume control and a reclamation inspection.

4.1.2 Assessment of Further Required Work

With the changes and additions of key personnel, for both ILA and DIAND, the re-establishment of the working group is required to review the outstanding items and continue the process of creating the joint granular resource management plan. Both land owners need to establish the participants for the working group and then schedule regular meetings in order to further develop and finalize the integration of the outstanding components of the plan. This working group could evolve to have the responsibility for continued review and maintenance of the management plan once finalized.

The granular management plan needs to be written, a draft published and taken to the individual ISR communities for consultation. The plan needs to incorporate maps of all the communities in the ISR and the locations of the designated pits, other known deposits and access routes. Updated demand forecasts should to be included in the presentations. Individual community concerns must to be identified prior to the

REPORT:**Review and Assessment of the Granular Resource Management Plan in the ISR**

consultation process and addressed in the plan. A final revision that incorporates community feedback can then be adopted by IRC and DIAND as the granular resource management plan and then presented to the public and proponents of granular use.

The components of the plan that require further work are in the areas of goals, objectives and principles, extraction/operating guidelines, demand forecasting and regulatory regimes.

Both land owners must co-ordinate their efforts and continue to work on the completion of these outstanding tasks, most efficiently through the efforts of the working group. Once the plan is implemented decisions must be made on the ongoing maintenance and revisions as sources get depleted, as new sources are found and with changes in demand.

GIS tool

Ideally a web based GIS mapping application could be used for the ongoing development, implementation, maintenance and the hosting of the management plan. Requiring the least amount of time to compile and present information makes it the most cost effective tool for ongoing resource management. The integration of numerous layers of information that could be activated individually could provide an overlay of additional land use activity and conflicts in the potential resource extraction area. This visual linkage to environmental conditions, archeological sites, wildlife habitats, etc. could be invaluable in the decision making process. By integrating other land uses well informed decisions could be made which maximize the use of a very limited and non-renewable resource, while preserving other valuable land uses.

By interfacing with a variety of independently maintained databases there would be no need to continually update a single database. Each link would be updated by the source provider allowing the web site to be dynamic and always retrieving the most current information effortlessly and without high maintenance costs. The ability to locate, view and download digitized material with ease and with the use of tags to pinpoint information in an area of interest can be extremely fast compared to current hardcopy research methods. Individual land owners could integrate their supply, demand and depletion data directly via uploading to the application while still maintaining separate data bases.

Public access to the site would allow proponents access to the same information to use in their application process to help guide them to areas with less conflicts, or allow them to address those conflicts in the initial planning stages.

A prototype of a web based platform is currently being developed and should be supported by both land owners as the reduction in duplication of effort and time

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

saving could equate to considerable cost savings. Limited resources could be redirected from data acquisition to other areas such as planning or reclamation.

Demand forecasting

Previous work to date has compiled all available information pertaining to granular supply on the ISR. In order to effectively manage this supply a comprehensive and current demand forecast must be completed to include all granular requirements in the ISR (both on crown and private lands) for community needs, public projects and significant private projects.

Demand forecasts have not been completed for several years and should be generated again to better reflect current activity in the ISR. The updated forecasts must be based on the projected demand or projected projects in each community, but should also incorporate other more regional demands including the proposed pipeline project. To this end information is required from all possible users of granular material for each community. Difficulty in acquiring complete and accurate information can lead to errors or omissions in the forecasting reports. Options for expediting the information gathering process and therefore the generation of the forecasts would include:

- ILA staff having the responsibility of obtaining information and using the forecasting model and template provided by DIAND to generate the forecasts;
- DIAND continue to sub-contract the forecasting entirely;
- a combined effort with ILA acquiring the information and providing it to DIAND to sub-contract the forecasting only; and
- using the Government of Northwest Territories forecasts in lieu of separate forecasts.

In any scenario it is crucial that the GNWT granular demand information is also obtained.

The requirement to generate twenty year forecasts, with a 5 year review, of granular demand for each community in the ISR is a stipulation of the Inuvialuit Final Agreement (IFA). Further requirements exist under the IFA Section 7 to reserve sufficient volumes of granular material based on those twenty year forecasts:

“7.(27) With respect to sand and gravel on Inuvialuit lands, as a first priority the Inuvialuit shall reserve supplies of sand and gravel of appropriate quality and within reasonable transport distances on Inuvialuit lands in order to meet public community needs in the Western Arctic Region and in Inuvik, based on reasonable twenty (20) year forecasts of the volumes required from Inuvialuit lands.”

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

“ 7.(28) As a second priority, the Inuvialuit shall reserve adequate supplies of sand and gravel of appropriate quality on Inuvialuit lands for the direct private and corporate needs of the Inuvialuit and not for sale, based on reasonable twenty (20) year forecasts of the volumes prepared by the Inuvialuit Land Administration.”

For planning purposes a granular source has to be identified, designated and reserved for each community to supply the twenty year forecasted volume requirements. In the case of Inuvik and Aklavik the closest site to the community that would meet those requirements is to be designated, even though the site might not be used. For example, Aklavik currently gets its granular supply from a source at Willow Creek in the Gwich'in Settlement Area as it is the only source available in close proximity and has more than enough reserves to supply all the community needs.

In the case of the deposit at Ya Ya Lakes the IFA stipulates this area also be dedicated:

“ 7.(31) For greater certainty, the sand and gravel deposits within the Inuvialuit lands, known as Ya Ya Lakes eskers, shall be dedicated to sand and gravel development, subject to normal pit development, restoration measures and laws of general application.”

Once finished the demand forecast report should be incorporated into the community consultation presentations. Maps should also be incorporated into the management plan for all communities and the pipeline corridor. All community designated pits, disturbed sites and potential sites should be included on the maps, as well as the proposed pipeline and Tuktoyaktuk highway routes and all associated sources.

Government of Northwest Territories

In the past there has been considerable devolution of responsibilities from the Federal Government to the Government of Northwest Territories (GNWT). This includes the building and maintenance of roads and capital projects in the ISR communities. Other than special projects, this activity accounts for the majority of granular usage in the ISR. The GNWT routinely performs demand forecasts for all communities and site evaluations, gravel extractions, crushing, stockpiling and gravel hauls. This vital information is not consistently made available to the other land use managers in the ISR. The need for more open communication of information from the GNWT is critical to the granular resource management process. The GNWT data must be incorporated into the planning process, ideally via linkage of upload to a centralized web based GIS platform.

Further dialogue must be initiated with the GNWT to develop a better working relationship, reduce duplication and provide for collaboration on future planning exercises. Both ILA and DIAND should receive copies on a regular basis of the

REPORT:**Review and Assessment of the Granular Resource Management Plan in the ISR**

GNWT capital plans including the granular supply/demand information for all the ISR communities.

The biggest potential conflict for granular supply with the proposed pipeline project exists with the proposed Inuvik to Tuktoyaktuk highway. The GNWT transportation department should be contacted to request copies of the granular site investigation reports and demand calculations for the proposed highway. Those sources that have been identified for both the pipeline and the highway should be further investigated. One possibility is to stipulate that those sites be proven up by geotechnical investigation to contain sufficient gravel, in sufficient grades/qualities, to satisfy both proposals. If sufficient resource is not proven in those sources the decision has to be made on how to best allocate the resource and investigations made to locate alternative sources.

Although the IFA stipulates each community have a designated granular source with a twenty year supply, and this will be incorporated into the granular management plan, some communities have issues with accessing the local granular supply as roads are not available to the sites. The problem appears to revolve around land ownership of the access routes, right-of-ways, and building and/or maintenance costs of roadways. Further discussion with GNWT/MACA and the hamlets is needed to try and resolve this long standing issue.

Goals, Objectives and Principles

The goals, objectives and principles of the granular management plan must reflect the specific views of both land owners, adhere to the IFA or DIAND policies and regulations and encompass all lands within the ISR. DIAND policy, IFA stipulations and ILA Rules and Procedures should be referenced as the basis for the principles where required.

ILA and DIAND should attempt to co-ordinate their separate regulatory processes allowing for easier permitting for proponents and the sharing of information and ongoing open communication between the land owners. Periodic meetings should be scheduled, or as required, to discuss overlap and share information and for joint planning purposes. The possibility of both parties being able to provide comments on the other's permit applications should be explored in the case where a development overlaps both jurisdictions. Regulatory regimes could be developed to integrate services to the extent possible.

Allocation rules should be developed to incorporate such principles as:

- using existing sites first to the extent possible;
- minimize the number of opened pits;
- minimize haul distances;
- volumes based on minimum required for development;

REPORT:**Review and Assessment of the Granular Resource Management Plan in the ISR**

- appropriate grades are extracted for the best use of the resource; and
- environmental and archeological impacts are mitigated.

Extraction guidelines must also be developed, adopted and published to be referenced in the plan. These guidelines can be separate stand alone versions, one for work on crown lands and one for private lands, or a combined effort. In keeping with the desire to reduce duplication of effort and process streamlining an effort should be made to combine the DIAND Pit and Quarry Management Guidelines with specific ILA requirements and regional or site specific restrictions. The content of the Pit and Quarry guidelines can possibly be used with an acknowledgment to DIAND as the author. Further discussion with DIAND is required to finalize this process.

Additional planning focus

During the development of the management plan the following issues might require some further consideration:

- Existing stockpiles of granular material in the ISR need to be located and ownership/rights established. Those stockpiles on private lands (Ya Ya Lakes for example) could pre-exist the IFA and provision would be in the legal documentation. Those stockpiles on crown land might have leases or licenses, etc. that can be researched. Any references to the use of existing stockpiles as granular material sources in the permit applications should require the attachment of proof of ownership as part of the permitting process;
- Establishment of the requirement for sources that have multiple demands/conflicts to have sufficient geotechnical work to prove volumes, grades and qualities. Consider allowing only a percentage of the proven reserves be made available for development;
- Ownership of granular material not consumed by development. Can the material be excavated and sold a second time for another user? Can the development plan include provisions to make re-cycling of material easier, such as requiring stockpiling of material in such areas where feasible for re-use in future? If the royalties are paid does this imply ownership of the gravel? In other words who owns the gravel after de-commissioning if it is left on crown or private lands? For what period of time? What, if any, are the related liability issues?
- Require permittees submit copies of all geotechnical/geological data (such as borehole logs, test pit and lab results) gathered in the course of any site evaluation. This information to be shared by both landowners and incorporated into the supply database;

REPORT:

Review and Assessment of the Granular Resource Management Plan in the ISR

- Offshore (within the ISR boundaries) development impacts must be considered and an assessment of jurisdictional responsibility made;
- Consider completing a cost/benefit analysis of hauling/barging from the Ya Ya Lakes deposit versus opening many pits;
- ILA to consider using a separate granular permit to allow for tracking of depletion records with ease. Without this separation, granular information is obscured inside a more comprehensive permit where gravel is just a secondary component; and
- ILA Rules and Procedures need to be amended to incorporate management plan goals, including specific reference to the management plan and separate permit application requirement.

Inuvialuit Land Administration

ILA could consider using funds from the reclamation fund to commission a comprehensive engineered pit assessment and development plan for the Ya Ya Lakes deposit as a whole. Included in this assessment should be specific recommendations, or options, addressing the reclamation required on existing areas of the deposit that have had multiple users over a long period of time without proper reclamation occurring. An estimate of reclamation costs could also be requested.

This pit development plan should be adopted and incorporated into the granular management plan. Future proponents requesting granular material from this deposit would then be required to follow the procedures as outlined in the pit development plan, including any reclamation activity associated with their activity, or in the area of extraction. The pit development plan would allow for a systematic extraction and reclamation progression. This initiative is imperative to avoid constant high grading of material and wastage, as well as reducing the overall reclamation costs.

As a private landowner ILA should also consider revising fees and reclamation security, if possible, to ensure liability concerns are met with an adequate security deposit and monitoring as work progresses, especially with the involvement of sub-contractors carrying out significant portions of the extraction and hauling process.

Consideration should be given to determining if Section 7.(34) of the IFA that states:

“A licence or concession may stipulate payments to cover reasonable administrative costs and, where they are applicable and justified, reasonable land reclamation costs in relation to the sand and gravel deposit for which the licence or concession has been granted.”

REPORT:**Review and Assessment of the Granular Resource Management Plan in the ISR**

can be applied in the case of Ya Ya Lakes to charge reclamation costs in relation to the conditions in that specific deposit, rather than on a permit percentage basis, etc. In order to determine what those costs might be the pit assessment is required.

The location and investigation of new granular resource sources must be done before the resource can be utilized. This can be cost prohibitive for private landowners given the limitation of fee structures based on extraction volumes, which are often not sufficient to cover the expense of comprehensive resource management. To alleviate this joint ventures with proponents and government could be pursued. Consideration should also be given to encouraging partnerships among users on access and extraction of the same source, thereby reducing the cost of extraction and potential for environmental impact. For those pits that have had multiple users over the long term without adequate reclamation the responsibility and cost of restoration reverts to the land owner. As further extractions are permitted from these existing pits the opportunity exists to provide some reclamation while access and equipment is on site.

Granular Tech

There is a need for monitoring of any extraction activity to ensure that permit requirements are followed, volumes (including grades/quality) removed are accurately recorded, environmental impacts are minimized and reclamation is completed satisfactorily. Currently, ILA does not have personnel with this expertise. To fill this gap, ILA could explore the possibility of cost sharing the use of the DIAND granular resource technicians, acquiring funding through AARDA or the pipeline funding for Inuvialuit trainees, possibly in combination with job shadowing/mentoring by DIAND personnel, or the use of contractors/consultants on an as needed basis.

Gwich'in land use planning

Meetings were held with representatives of the Gwich'in land use planning department to explore the potential for a similar approach (as in the ISR) to the joint management of granular resources in the Gwich'in Settlement Area (GSA) between the Gwich'in Tribal Council (GTC) and DIAND. The benefits, objectives and goals of joint granular resource management were discussed and there appears to be support for an approach similar to the process being developed in the ISR. Discussion between the Gwich'in and DIAND is required to initiate an agreement, which is the first step in the joint management process. To this end a template for a MOU between the GTC and DIAND to pursue a joint granular resource planning process in the GSA was prepared and provided to the land use planning department. In order for a MOU to be finalized a formal agreement needs to be negotiated with DIAND.

REPORT:
Review and Assessment of the Granular Resource Management Plan in the ISR

4.1.3 Work Plans

In order to complete the Granular Resource Management Plan for the ISR the following tasks must be completed:

1. re-establish working group with regular meetings to develop and finalize outstanding items;
2. complete updated demand forecasting;
3. draft granular management plan;
4. draft extraction guidelines;
5. compile associated maps;
6. present draft plan for community consultations; and
7. revise and publish final granular management plan.

Due to the changes in key personnel, both for ILA and DIAND, a budget for the work plan can not be projected until further discussion with the parties to determine the new course of action and division of responsibilities to bring this project to completion.