

Terms of Reference of Trow Associates Inc. on Solid waste Management of the Hamlet of Clyde River

Terms of Reference

Background:

Hamlet of Clyde River is situated on Patricia Bay on the east coast of Baffin Island at 70°27' N latitude and 68°33'W longitude. The current population is 959. Permafrost found at shallow depths contributes to drainage problems sometimes in some areas. The average annual precipitation is 4.6 cm of rainfall and 168.9 cm of snowfall. The lowest temperature is -30.3°C and highest is 7.8°C. Winds are generally northwest and annually average 14.4 km/h.

In 2002, Dillon consulting ltd conducted a feasibility study and suggested expanding the existing Metal dump site and convert it into future waste management site for both metals and domestic wastes. This existing metal dump site is located just North to the existing sewage Lagoon site. This project was not implemented at that time due to the funding availability.

Proposed Project: The proposed project consists of the following components:

- A. Planning ,Design and Construction of a new Land fill site
- B. Planning, design and decommissioning of the existing Land fill site

1.1 Scope of Work

The Services of the Licensed Engineers by the Association of Professional Engineers and Geologists of the Northwest Territories (NAPEG) to practice in the Northwest Territories and Nunavut are required to:

1. Make arrangements to perform the necessary community visits and investigations, obtain and review reports, review the current water license, collect data and samples, consult and interview Hamlet representatives and authorities having jurisdiction, and carry out other duties as needed to prepare detailed planning, design, and construction documents for the facility.
2. Deliver a compliant and fully operational facility in 2011. Note that construction season typically runs from June through September of each year.
3. Review the feasibility Report of Dillon consulting ltd in 2002. If suitable, Present to the hamlet council for their support. Alternatively select a new site for the acceptance by the Hamlet, conduct topographic surveys, establish site boundary of the land fill site and develop a site plan showing contours and all the necessary details. Environmental assessment will be conducted on the new site along with topographical surveys and geotechnical investigation.
4. Conduct a geotechnical investigation in the proposed landfill site and determine the suitability of the ground condition.
5. Conduct topographic surveys of the existing Land fills site for planning and design for decommission. Also identify the suitable Quarry sites and establish the area and quantify the volume of granular materials available.
6. Conduct a research on hydrology of this area and establish the drainage impact to the proposed waste management site.
7. Conduct a study on the Municipal Environmental Assessment (EA) of the proposed project and establish the most suitable Northern technology of waste management procedure for this community.

8. Prepare three different design options with Class "D" cost estimates and recommend the best one with strong recommendation for budgetary purposes.
9. Develop a detailed Class "C" estimates and finally class "A" estimates prior to tender based on the accepted design concept.
10. Preliminary Drawings and Design Report 75% completion with class "B" estimates initially to review by the Department.
11. Power point presentation of the final design to Hamlet Council for comments. Final decision is with GN.
12. The Consultant will proceed doing further work following the final design approval by GN.
13. The consultant shall prepare, based on the approved design documents and approved budget, for the approval of the Department, design development documents, consisting of drawings, outline specifications and other documents appropriate to the size and scope of the project to fix and describe the size and character of the entire project as to architectural, structural, materials, and such other elements as may be appropriate. Construction documents will be reviewed only when 100% complete. The 100% submittal must attach the class "A" estimate. The Consultant must follow GN Standards and Criteria in all aspects of design works.
14. The consultant shall develop an Operation and Maintenance Plan to the satisfaction of Nunavut Water Board (NWB) consisting of the following components:
 - Sewage sludge and screening management plan
 - Bulky metals management plan
 - Solid wastes disposal facility Operation and Maintenance plan
 - Spill contingency plan
 - Monitoring program quality assurance/Quality control plan (QA/QC Plan)
 - Hazardous Waste Management Plan

All the above items will be the part of the main O&M manual of the Waste Management procedure of the community and must satisfy all the conditions of the Hamlet water license.
15. O&M manual shall be based on the various NWB approved guidelines as deemed appropriate.
16. Outline the functions the proponent will fulfill to ascertain all works are carried out pursuant to the Nunavut Water Board Licence and other applicable law, and in conformance with approved documents and good Engineering practices. List fees and disbursements associated with this function.
17. Inspect the site during construction: Start up, substantiation and final inspection.

1.2 Schedule

The consultant will develop a schedule for completing his tasks satisfying the client. It is the intent of Department of Community Government Services that written approval from the Department of Community Government Services is obtained before the proponent proceeds to the design development phase, construction documents phase and the bidding or negotiation phase.

1.3 Contract

The final tender documents (plans and specifications) will be developed according to the GN A/E Services Agreement (Appendix B) as well as all applicable GN-CGS Municipal regulations and

construction standards.

Proponents are reminded that, as well as the basic services defined in the contract, there are additional services – site planning, topographical surveys and Geo-technical investigation, “as-built” drawings, project record documentation, Operation and Maintenance manuals, recommendations and specifications – that are to be included in their overall services. The Consultant must answer questions raised by the regulatory agencies and assist GN-CGS in obtaining water licence from NWB and NIRB screening process as well.

The basic Architectural and Engineering Services shall be delivered as described in Section E of the Standard GN Architectural / Engineering Services Agreement and expanded upon as follows:

1.3.1 Schematic Design Phase

The Proponent must attend a start-up meeting with the representatives of Municipality of Clyde River and the Department of Community Government Services to exchange information and establish lines of communications. The scope of work, scheduling, communications and general expectations will be discussed during this meeting. This meeting may be done by telephone or conference call.

During schematic design, the Proponent will prepare three (3) distinct design solutions for review in a workshop with representatives of Hamlet of Clyde River and the Department of Community Government Services. A brief analysis must accompany each alternative, which will include relative merits of the options in terms of program fit and relative cost. Based on that review, one solution will be selected and developed as the schematic design solution.

The Proponent will take part in the user review.

At the end of this phase, a schematic design solution will be selected and approved by the user and the Proponent will provide a class “C” cost estimate and the topographical survey, site plan, and Geo-technical survey. Written approval from Department of Community Government Services is required before proceeding to the next phase.

1.3.2 Design Development Phase

During design development, the Proponent will prepare at least one presentation for review by representatives from the Municipality of Clyde River and Department of Community Government Services. The Proponent must also take part in the review(s) and will develop the design based, in part, on the respective review(s). Documentation for this stage shall consist of drawings; outline specifications and any other materials the Proponent feels are necessary to explain the design to the users.

The Proponents shall coordinate their work with the authorities having jurisdiction, (such as GN-CGS Capital planning and Technical Services) and shall obtain any preliminary approvals as required.

At the end of this stage the overall design must be finalized and approved by the users and the Proponent must prepare a class “B” cost estimate. Written approval from the Department of Community Government Services is required before proceeding to the next phase.

1.3.3 Construction Document Phase

During the construction document phase, the Proponent will prepare plans and specifications for review by the Department of Community Government Services. Five hard copies and 1 electronic copy in MS format of documentation are required at the 75% stage. Six hard copies and 1 electronic copy in MS format of documentation, bearing respective professional seal, are required at the 100% stage. Plans and specifications of all sub-consultants must be at the same stage. (PDF format is not acceptable).

The design must be a compliant solution capable of receiving approval from all authorities and agencies having jurisdiction.

At the end of this phase, before tendering a class “A” estimate is required and written approval from Department of Community and Government Services is required before proceeding to the next phase.

1.3.4 Bidding or Negotiation Phase

The Proponent should assume fifteen (15) sets of construction documents would be required for tendering. Five (5) sets of reduced plans (11” x 17”) and one electronic copy in MS format must also be provided.

The Proponent will assist the contractor obtaining any development permits required by the municipality. The cost of the permit will be a part of the general contract value.

The GN will make the decision to award the construction contract but the Proponent shall advise the GN as to the responsibility and responsiveness of the tenders.

1.3.5 Construction Phase – Administration of the Construction Contract

The Proponent must review and comment on the construction schedule as provided by the contractor.

The Proponent must attend a pre-construction meeting with the contractor and the Department of Community Government Services to discuss the project, outline expectations, establish communication and review construction contract management procedures. This meeting may be done by telephone or conference call or during the first site inspection.

The Proponent must keep a record of all correspondence related to the project construction and must provide the Department of Community and Government Services with a copy of same.

The Proponent must keep a log of all shop drawings received, promptly process shop drawings and provide a copy of each approved shop drawing to the Department of Community Government Services in time. As well, a monthly copy of the shop drawing log must be provided.

During the Construction Phase the consultants must inspect the site when the sealift with the construction materials arrives. The Consultant will assist the GN during the construction by inspecting the site as it develops and maintain quality of the works.

The Proponent must review all construction progress claims and recommend their payment.

The Proponent must monitor the progress of construction and advise the Department of Community Government Services as to conformance with the schedule and completion dates.

1.3.6 Post Construction Phase

A warranty inspection will be performed approximately two (2) months before the expiration of the warranty period by the consultant.

1.4 Additional Services

The following services are to be provided in addition to the basic services provided. Proponents must provide a separate lump sum cost for each.

1.4.1 Topographical Survey

The Proponent must provide a topographical survey and the registered survey of the existing sites. The survey should include survey cross sections through the site as the topography dictates, a survey of the surrounding roads, channels and existing structures such as culverts, buildings, power poles, etc. The proponent shall provide five (5) copies of the topographical survey and the registered survey to the Department of Community Government Services.

1.4.2 Geotechnical Analysis

The Proponent must also undertake a Geo-technical analysis and provide recommendations for the suitability of the site. Five (5) copies must be provided to the Department of Community Government Services

1.4.3 Environmental Site Assessment

The Proponent must conduct an Environmental Assessment of the entire components of the Project in accordance with standard Canadian protocols. The assessment must be reported to CGS.

1.4.4 Record Drawings

The Proponent must provide "As Built" drawings in reproducible and electronic form (AutoCAD 2004 version) from marked up white prints produced by the construction contractor and must submit the documents between substantial completion and final inspection. This is applicable for all the components of the project. The record drawings are the part of the Final O&M manual.

1.4.5 Project Record

The Proponent must provide project record documentation, including all drawings, specifications, addendums, engineering reports, site visit reports and any digital pictures taken during various stages of the construction work. The Project Record will be in MS word and electronic form (CD R format) to be needed over to the GN before final inspection of the project. Drawings and specifications not accepted in PDF format. This is applicable for all the components of the project.

1.4.6 Operation and Maintenance Manuals

The Proponent must prepare and submit four (4) hard copies for the entire facility of the Operations and Maintenance Manuals with details and information allowing Hamlet personnel to understand the function and operation of these facilities. The first draft of the manuals should be available two (2) weeks prior to the substantial completion inspection when commissioning is anticipated or sooner as dictated by the Nunavut water Board. A draft or final copy must be made available on site during the substantial completion inspection. The final copies shall be bound in an expansion binder "piano hinged" with a general description heading stamped on the cover and side.

The Proponent is to compile the Operation Maintenance Manuals and the tender documents should be adjusted accordingly. The contractor's responsibility should be to provide shop drawings, record drawings, manufacturer's installation and technical information sheets, operation and maintenance information, testing results and certifications as well as warranty information. The Proponent shall in all instances demonstrate acceptance and approval of all adjustments made to the tender documents.

1.5 Project Team

The proposal should list and provide one page brief resumes for the project team members that will be directly involved in the project. Their role on the project as well as their background, experience and training should be briefly noted. Prior to making any changes to a team member's involvement, the Proponent shall submit a written request to the Department of Community and Government Services and obtain written approval for said changes.

1.6 Fees and Expenses

The fee portion of the proposal should indicate:

- Stipulated sum fee for the following basic services;
 - i) **Schematic Design Phase** _____%
 - ii) **Design Development Phase** _____%
 - iii) **Construction Document Phase** _____%
 - iv) **Bidding or Negotiating Phase** _____%
 - v) **Construction Phase – Administration of the Contract** _____%
 - vi) **Post Construction Phase** _____%
- Total of lump sum costs for the additional services;
- Estimated cost of fees for site services;
- Estimated cost of reimbursable expenses;
- Estimated total contract amount;

The Stipulated sum fee for all basic services will include a lump sum fixed fee for all basic services as outlined in the basic services. The means of calculating the Stipulated Sum fee should be included for information.

Additional services should be shown as a lump sum cost for each service.

The proposal should include the hourly, per diem and travel rates for the members of the project team for information.

Reimbursable costs will be calculated at 1.05 times the amount expended. Copies of all invoices must be provided.

A lump sum cost estimate for all non-travel expenses is preferred.

An estimate of total reimbursable expenses, including non-travel expenses must be provided. The means of calculating this estimate should be included for information.

Invoicing:

Detail summary of invoicing:

Invoicing lump sum

- Support documents for work completed
- Time hours spend by each person
- Time of travel by each person

Support document for travelling

- Boarding passes or charter invoice manifest
- Cost of travel by carrier

Cost of accommodation

- Travel per diem, or invoicing (invoicing will not cover tips or any alcoholic expenses)

Reimbursable Cost: Mark up 5% :

Total cost expenses excluding GST:

Identify GST:

Grant Total:

1.7 Owner Supplied Services

The GN will:

- Provide coordination between the proponent, the Department of Community and Government Services and representatives of the Hamlet
- Provide tender advertising
- Distribute construction documents
- Maintain plan holders log
- Distribute Tender Addenda
- Analyse tenders and recommend Award
- Prepare construction contract for execution
- Obtain construction bonds and insurance
- Issue change orders and substantial and final completion certificates
- Obtain water license with the assistance of the Consultant