Public Works and Government Services Canada
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ANNEX A

Construction Management Services

TERMS OF REFERENCE

CANADIAN HIGH ARCTIC RESEARCH STATION (CHARS)

Cambridge Bay, Nunavut

FOR

Aboriginal Affairs and Northern Development Canada (AANDC)

June 5, 2012

www.pwgsc-tpsgc.gc.ca

Terms of Reference

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1.0 PROJECT DESCRIPTION

1.1 TERMS OF REFERENCE

1.1.1 PURPOSE

.1 These Terms of Reference (TOR) have been developed to ensure that the Construction Manager (CM) has a clear understanding of the project scope, procedures and services required to deliver the completed project, within the agreed to budget and schedule.

1.1.2 GENERAL PROCEDURES AND STANDARDS DOCUMENT

.1 This TOR document must be used in conjunction with Annex B: General Procedures and Standards Document (GP&S 2012) as the two documents are complementary.

.2 This TOR describes project-specific requirements, services and deliverables while the GP&S 2012 document outlines minimum standards and procedures common to all Public Works & Government Services Canada (PWGSC) design and construction projects including CM services.

.3 In the case of a conflict between the two documents, the requirements of the TOR override the GP&S 2012 Document.

1.2 GENERAL INFORMATION

1.2.1 PROJECT INFORMATION

Project Information	
Project Title:	Canadian High Arctic Research Station (CHARS)
Site Location:	Cambridge Bay, Nunavut
Project Address:	Specific location to be determined
PWGSC Project Number:	R.042393.002
Client/User Group	Aboriginal Affairs and Northern Development Canada (AANDC)

1.2.2 DEPARTMENTAL REPRESENTATIVE

Role	
PWGSC Departmental Representative	Brian Milne, Project Manager John Davidson, Senior Project Manager
PWGSC Contracting Officer/contracting authority	Daniel McRuer, Supply Specialist

1.2.3 CLIENT/USER DEPARTMENT

.1 The Client/User Department referred to throughout this TOR is Aboriginal Affairs and Northern Development Canada (AANDC).

.2 This Department's mandate is to meet the Government of Canada's obligations and commitments to First Nations, Inuit and Métis and for fulfilling the federal government's constitutional responsibilities in the North.

.3 AANDC as the Client/User Department is responsible for developing and approving all CHARS operational priorities, as defined by the functional program.

1.2.4 CONSULTANTS

.1 A separate RFP process to retain a prime consultant team headed by an architect has been undertaken.

.2 The prime consultant is to design a new scientific research station that responds fully to the operational needs of the user groups and stakeholders as defined by AANDC. They are also required to provide a full time resident representative of the Consultant Team to provide resident site services during construction. Refer to Annex C for the prime consultant's terms of reference for a detailed description of the prime consultant's scope of work, responsibilities and duties.

1.2.5 PROJECT MANAGEMENT

.1 PWGSC administers the project on behalf of Canada and exercises continuing control over the project during all phases of development.

.2 This project is to be organized, managed and implemented in a collaborative manner.

.3 The PWGSC project management team, the Consultant, the Construction Manager and the User Department teams are to work cooperatively at every stage of the design and construction process.

.4 Under the leadership of the PWGSC Departmental representative, all team members are responsible for establishing and maintaining a professional and cordial relationship.

1.2.6 LAND CLAIMS

.1 This area of the contract is within the Nunavut Settlement Area as defined in the Nunavut Land Claims Contract. Section 2.10 outlines the requirement to develop an Inuit Benefits Plan.

.2 Article 24.1.6 of the Nunavut Land Claims Agreement states: "Whenever practicable, and consistent with sound procurement management, and subject to Canada's international obligations, all of the following criteria, or as many as may be appropriate with respect to any particular contract, shall be included in the bid criteria established by the Government of Canada for the awarding of its government contracts in the Nunavut Settlement Area:

.1 The existence of head offices, administrative offices or other facilities in the Nunavut Settlement Area;

.2 The employment of Inuit labour, engagement of Inuit professional services; or

.3 Use of suppliers that are Inuit or Inuit firms in carrying out the contracts; or

.4 The undertaking of commitments, under the contract, with respect to on-the-job training or skills development for Inuit."

1.3 BACKGROUND INFORMATION

1.3.1 CONTEXT: THE NEED FOR A NEW ARCTIC RESEARCH STATION

.1 In the 2007 Speech from the Throne, the Government of Canada committed to "building a world-class Arctic research station that will be on the cutting edge of Arctic issues, including environmental science and resource development."

.2 This station will be "built by Canadians, in Canada's Arctic, and it will be there to serve the world."

.3 This supports the Government's Northern Strategy, which consists of four pillars:

- .1 Sovereignty
- .2 Economic & Social Development
- .3 Environmental Protection
- .4 Governance

.4 All four pillars are underpinned by science and technology to support sound decision making.

.5 The new Canadian High Arctic Research Station (CHARS) will provide the ability to:

- .1 Address pressing issues in Canada's Arctic by conducting world-class research and delivering excellent and relevant science and technology.
- .2 Complement the network of Arctic expertise and facilities across Canada's Arctic and the whole of the country.
- .3 Promote partnerships and collaboration among the private, Aboriginal, academic, and public sectors both domestically and internationally.
- .4 Work with Aboriginal peoples of Canada's Arctic and recognize the importance of traditional knowledge in advancing Arctic research.
- .5 Integrate across disciplines and across activities – from problem identification, through research and development, to solutions.
- .6 Ensure effective use of data, information, and technology through open and timely access and knowledge application.
- .7 Demonstrate leadership in sustainable technology applications for the Arctic

.6 A Preliminary Functional Program containing additional background information on the CHARS project is provided in Annex D.

1.3.2 GENERAL PROJECT OBJECTIVES

.1 One of the main objectives of the project is to define, design, construct, fit-up, commission and operate a new research station in Canada's Arctic.

.2 The research station is intended to be a sophisticated, technically advanced laboratory facility at the leading edge of Arctic science and technology. The laboratory will be of similar complexity to a Level II bio-containment laboratory facility.

.3 The Station will serve as a hub for scientific activity in Canada's vast and diverse Arctic and will network with other science and technology (S&T) facilities both on the land and aboard research vessels.

.4 It will provide an environmentally sustainable research platform which promotes the creativity of the professional, technical and administrative staff and visitors working at the facility.

.5 As part of the community integration, the public area of the facility will include an outreach component for research demonstrations and displays to provide a teaching and education link into the community.

.6 The buildings and surrounding site development in Cambridge Bay must project a character and image appropriate for the Government of Canada.

.7 The facilities will be constructed in a cost effective manner, considering not only initial capital costs but more importantly the operation & maintenance costs over a life cycle of 30 years.

.8 The facilities will be constructed in accordance with cutting edge design and construction techniques reflecting Canada's Commitment to excellence in sustainability construction principles, and emerging building science technology.

.9 The design and drawings for all phases of the project will be prepared using Building Information Modeling (BIM) technology in order to enable the Crown to leverage facility data created throughout the design and construction process. The Crown intends to use and update this data throughout the facility lifecycle to provide safe, healthy, effective and efficient work environment for users of the facility and to create greater operational and maintenance efficiencies throughout the facility lifecycle.

1.3.3 GEOGRAPHIC AND CULTURAL CONTEXT

.1 Cambridge Bay is a remote northern community located in Nunavut's Arctic Coast Region on the southern shore of Queen Victoria Island in Canada's far north.

.2 It has a population of approximately 1500 and serves as the regional commercial center for the region.

.3 With tourism becoming an important part of the local economy, air passenger access to Cambridge Bay is served by a handful of regularly scheduled flights from Edmonton and Yellowknife.

.4 The Cambridge Bay area is a part of the landform region called the Arctic lowlands consisting of flat barren land, rock deserts and permafrost.

.5 At approximately 69 degrees north latitude, the community lies on the shores of the Queen Maud Gulf to the south of the historic Northwest Passage.

.6 The elevation of the surrounding area is approximately 25 m, with many shallow tundra lakes and rivers.

.7 For most of the year, this tundra region is covered in snow with the cool summers allowing for the growth of only lichens, moss and straw-like grass where glacial till has been left behind by the moving ice cover.

1.3.4 THE SPECIFIC SITE

.1 PWGSC and AANDC are in the process of selecting a site(s) within the Hamlet of Cambridge Bay. Information on the Hamlet of Cambridge Bay can be found in the feasibility study located on the following web site:
http://www.science.gc.ca/default.asp?lang=En&n=BFF82590-1

1.3.5 PROJECT CONSTRAINTS AND CHALLENGES

.1 As a very high profile project of national significance, the CM must maintain at all times, a qualified construction management team to effectively engage project stakeholders and address project challenges in a collaborative manner.

.2 The CM must work effectively with all stakeholders, including the design team separately engaged by the Crown, to design and complete the construction contract packages.

.3 The CM must plan, schedule, consult and interact with the local community in Cambridge Bay in a respectful manner that responds to the culture and community of Cambridge Bay to the fullest extent possible.

.4 Cambridge Bay is a remote northern community; therefore, the CM must pay a very high level of attention to planning, scheduling, managing and monitoring of the logistical requirements of the project.

.5 Air passenger service to Cambridge Bay is provided by a handful of regularly scheduled flight service from Edmonton and Yellowknife; therefore, air travel and air freight as well as shipping and sealift access for delivery of specialty trades and construction materials are severely limited and can prove to be challenging if not carefully planned by the CM.

.6 AANDC requires that the CHARS facility be in full operation prior to the 150th anniversary of Canada's confederation (July 1, 2017).

.7 There is a requirement to balance the need of up-to-date technologies with the isolated arctic location to create simple, innovative and easily maintainable technologies and systems that are sustainable and environmentally friendly. The CM is expected to provide advice and recommendations to the design consultant.

.8 The building and systems must be operator friendly and easy to maintain, such that any required general maintenance and repairs can be supported by locally available technical resources. The commissioning process must include training of locally available resources. The CM is expected to provide advice and recommendations to the design consultant and training during the commissioning phase.

.9 The projected long-term operating costs and complexity of the facility must be minimized recognizing that ongoing operations and maintenance funding is a critical challenge for research infrastructure in the North and that the availability of skilled technical labour is limited and costly. The CM is expected to provide advice and recommendations to the design consultant.

.10 AANDC requires sustainable design and construction strategies for the project (including LEED and Labs21 initiatives) within the contexts of arctic practical realities to demonstrate energy and resource efficiency and minimize the environmental footprint. The CM is expected to provide advice and recommendations to the design consultant.

.11 The CM must plan, schedule, operate, anticipate and work around severe arctic climatic conditions and implement strategies to mitigate associated risks.

1.4 PROJECT DELIVERY APPROACH

1.4.1 CM PROJECT DELIVERY OBJECTIVES

.1 The Crown is proposing to use a Construction Management approach to complete the design and construction of the CHARS project in Cambridge Bay, which is to be completed as per the Milestone List in section 1.10.2.

.2 Under this project delivery approach, responsibility of the CM will include advisory and support services described in Section 2.0 and Constructor (GC) work described in Section 3.0.

.3 The CM must provide comprehensive construction management services throughout all project phases and demonstrate excellence and leadership at all times.

.4 Ensure that all members of the CM team clearly understand the project requirements, for seamless delivery of the required services.

.5 Assessing the risks (cost, constructability, time, etc.) associated with the design and construction of new facilities in a remote arctic location.

.6 Provide a quality management plan that includes rigorous quality reviews on a construction management project delivery approach.

.7 The CM must develop contingency plans to mitigate potential delays arising from logistic and weather related challenges.

.8 The CM will recommend work packages outlined in 1.6 below leading to tender packages appropriate to this contract.

.9 The CM is to provide an Inuit Benefits Plan as outlined in Section 2.10.

1.5 SUMMARY OF SERVICES

1.5.1 CONTEXT

.1 The services of a Construction Management Firm, in the capacity of a Construction Manager (CM) are required for the provision of Advisory and Support Services and the completion of Constructor (GC) Work for this Project.

.2 The CM will report directly to the PWGSC Departmental representative.

1.5.2 ADVISORY AND SUPPORT SERVICES

.1 The CM, as the expert in matters of construction implementation methodologies, cost estimating in the Arctic and scheduling, provides advice and support services to PWGSC through all stages of the Project.

.2 The services required are described in Section 2.0 is compensated as a fixed price as described on Appendix A Price Proposal Form BA 03.1(a).

1.5.3 CONSTRUCTOR SERVICES

.1 The CM, as the Constructor (GC), manages and delivers the completed construction Work for the Project. The services required are described in Section 3.0 and are compensated as a percentage fee as described on Appendix A Price Proposal Form BA 03.1(c).

1.6 SUMMARY OF WORK PACKAGES

1.6.1 GENERAL

.1 The scope of work for the project is described in the Preliminary Functional Program located in (Annex D). This scope of work has been roughly broken out into the work packages described below. The construction manager has the responsibility to recommend alterations to these work packages; however, this is the starting point for scope and scope change management and will require reconciliation of revisions to this list.

.2 It is anticipated that a minimum of 20 separate tender packages will be required for this project. This number is only a preliminary estimate and must be confirmed by the CM in concert with the Consultant Team and the Departmental Representative at appropriate times during the design phase. It is anticipated that at least 7 of the 20 separate tender packages may be complex and / or complicated and therefore require an additional quality assurance review by PWGSC at the 33% submission stage (over and above the 66%, 99% and Pre-Tender submission reviews).

.3 Examples of some typical tender packages and the approximate percentage cost of the overall construction budget are as follows:

- .1 Site Work (Approximately 5%)
  - .1 Excavation and foundations
  - .2 Grading and paving
  - .3 Landscaping and site drainage
  - .4 Site Services (utilities such as sewer, water, electrical power, heating oil, etc.)
- .2 Structure (Approximately 25%)
  - .1 Substructure
  - .2 Superstructure
  - .3 Exterior Enclosure
- .3 Mechanical (Approximately 35%)
  - .1 HVAC
  - .2 Plumbing
- .4 Electrical (Approximately 10%)
  - .1 Power and Lighting
  - .2 Fire Alarm
  - .3 Multimedia, IT and Security Systems
- .5 Architectural (approximately 15%)
  - .1 Partitions and Doors
  - .2 Interior Finishes and Signage
  - .3 Millwork, Fittings and Equipment
  - .4 Laboratory furniture and Equipment
- .6 Other packages to be identified later (approximately 10%)

1.7 OBJECTIVES

1.7.1 GENERAL GOALS

.1 Deliver the project work to the satisfaction of the client/user department and PWGSC, while applying rigorous schedule, budget, quality, and scope controls throughout the design, construction, and post-construction phases of the Project.

.2 Comply with all sustainable development requirements (waste management, environmental responsibility, and all other Acts, regulations and guidelines governing construction activities.

1.7.2 PERFORMANCE

Construct the Work in the following manner:

.1 Enable long-term efficient and cost effective life cycle performance.

.2 The project life will effectively and appropriately serve for an expected minimum life of thirty (30) years to next re-fit and a fifty (50) year investment horizon.

.3 The CM will provide advice during the design process that will assist the prime consultant and PWGSC in ensuring that the infrastructure improvements will embody contemporary sustainable principles and be implemented in an environmentally responsible manner.

.4 Provide a healthy and safe environment that meets or exceeds all codes for fire, health, and life safety and that fully supports optimum work productivity.

1.8 EXISTING DOCUMENTATION

1.8.1 DOCUMENTS AVAILABLE FOR THE CM

.1 Terms of Reference for Architectural and Engineering Services for the Canadian High Arctic Research Centre (Annex C).

.2 Feasibility Study for the Canadian High Arctic research station (http://www.science.gc.ca/default.asp?lang=En&n=BFF82590-1)

.3 Preliminary Functional Program (Annex D).

1.8.2 DISCLAIMER

.1 Reference information will be available in the language in which it is written.

.2 The documentation may be unreliable and is offered, “as-is” for the information of the CM.

1.9 COST

1.9.1 ESTIMATED COST

.1 The estimated construction cost is $77,000,000. This amount must not be exceeded without an approved contract change order. This amount is PRICE PROPOSAL FORM Appendix A clause BA03.1(b).

1.10 SCHEDULE

1.10.1 GENERAL

.1 Time is of the essence. The project is required to be substantially complete, commissioned and ready for occupation by July 1, 2017. Completion dates shown

are relative to an assumed start date of February 28, 2013 for the CM scope of work.

.2 Deliver the project to be ready for occupancy in accordance with the project milestone list identified below.

.3 Prepare a Project Schedule, in accordance with the milestone list.

1.10.2 ANTICIPATED MILESTONE LIST

ITEM	DELIVERABLES	MILESTONE DATE
1.0	Award of Contract (Design Consultant)	June, 2012
2.0	Schematic Design Phase	December, 2012
3.0	Award of Contract (Construction Manager)	March 2013
4.0	Design Development Phase	June 2013
5.0	Construction Documents (ongoing)	July 2013 – Dec 2015
6.0	Tender Package 1 (minimum) - evaluation / award	January 2014
7.0	First Year Construction Mobilization by Sea Lift	July 2014
8.0	Construction Start	September, 2014
9.0	Substantial Completion of Construction	February 2017
10.0	Completion of Commissioning, Final Inspection and Acceptance	June 2017
11.0	Post construction Warranty Evaluation	March 2018

1.11 ROLES AND RESPONSIBILITIES

1.11.1 CONSTRUCTION MANAGER

The CM shall:

.1 Assign qualified staff or engage the services of Specialist Consultants (i.e. trade specialists) to provide the required services outlined in Section 2.0, CM Advisory and Support Services.

.2 Complete the Work outlined in Section 3.0, CM Constructor Required Work including the CM's contracted Sub-Trades.

.3 Provide all necessary personnel to perform the Services and duties for the Project, either by assignment of CM qualified staff or by engagement of services contracted directly to the CM.

.4 Engage and manage the Services and Work of qualified and experienced individuals or firms to provide the Services for which the CM does not have qualified personnel on staff.

.5 Ensure continuity of key personnel and maintain a dedicated working team for the life of this project.

.6 Submit in writing, to the Departmental representative for review and acceptance any proposed changes to the roles of any and all persons to be employed by the CM or any and all firms to be contracted by the CM to provide the Services and Work for the Project and shall include the names, addresses, qualifications and experience of the proposed individual(s) or firm(s).

1.11.2 THE CM TEAM

The CM team shall:

.1 Have a site superintendent(s) in Cambridge Bay for the entire construction period. The CM can have their site superintendents operate on a rotational basis in Cambridge Bay as long as the CM ensures the continuity of the project and in a seamless manner. Site superintendents must have similar experience profiles.

.2 Have an in-depth understanding of and deliver on the project requirements, including scope, budget and scheduling objectives.

.3 Work constructively to ensure a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members.

1.11.3 PWGSC DEPARTMENTAL REPRESENTATIVE

The PWGSC Departmental representative after award:

.1 Serves the role as PWGSC Project manager or delegated Deputy Project manager assigned to administer the Project .

.2 Is responsible for the day-to-day management of the project and for overseeing its progress and delivery, on behalf of PWGSC.

.3 Is the Departmental representative for all project contract services and, as such, will be the CM's single point of contact for all project direction.

.4 Is the liaison amongst and between the Construction Manager, the Consultant, PWGSC and the client/user department.

.5 Is responsible for conveying all resultant client requirements to the CM and Consultant.

1.11.4 PWGSC PROFESSIONAL & TECHNICAL RESOURCES TEAM

The PWGSC Professional & Technical Resources Team:

.1 Provides, to the Departmental representative, expert advice and quality assurance for key Architectural and Engineering professional disciplines and other specialists

.2 Participates regularly in design phases and will review construction contract documents.

.3 May attend (during construction), contractor meetings and conduct field reviews on behalf of the Departmental representative.

.4 Provides a Design Review Manager for the project, who will coordinate the services of the Professional & Technical Resources Team

.5 The PWGSC professional and Technical Resource tam will be represented by the following disciplines:

.1 Architectural
.2 Engineering
.3 Structural
.4 Mechanical
.5 Electrical
.6 Civil

1.11.5 THE PWGSC COMMISSIONING SPECIALIST

The PWGSC Commissioning Specialist:

.1 Represents PWGSC's interests in the commissioning process.

.2 Provides technical advice and quality assurance on the commissioning process throughout the project life cycle.

.3 Reviews all documentation and reported results relative to commissioning throughout the project delivery.

.4 Participates in warranty reviews.

1.11.6 CLIENT DEPARTMENT

Aboriginal Affairs and Northern Development Canada (AANDC) is the client; AANDC is represented by the Project Leader who:

.1 Is accountable for the expenditure of public funds and delivery of the project in accordance with terms accepted by the Treasury Board

.2 Reports to senior AANDC executive management and the Oversight Committee.

.3 Verify that:

.1 The AANDC program requirements are thoroughly understood.

.2 The functional and operational requirements are met.

.3 AANDC approvals, as required, are signed off.

.4 Will play several critical roles for the successful implementation of the project, as follows:

.1 Coordinate the quality, timing and completeness of information and decisions relating to issues related to the functional performance of the facility.

.2 Will be the primary contact and spokesperson to and for the community and the general public.

.3 Participates regularly in design phases and will review, as required, construction contract documents.

.4 May attend (during construction), contractor meetings and conduct field reviews.

1.11.7 CONSULTANT TEAM

The prime consultant is responsible for:

.1 Completing the design for the Work and for coordinating and directing the work of sub-consultants and specialists.

.2 Preparing and assembling the tender documents for each tender package identified to the CM.

.3 Providing input into the Departmental representative's Risk Management Plan

.4 Providing full contract administration services during construction and resident site services.

Refer to Annex C for a full description of consultant services.

1.11.8 OTHER GOVERNMENT DEPARTMENTS (OGDS)

There may be numerous representatives of OGDs involved in the Project such as Human Resources and Skills Development Canada (HRSDC) Fire Engineering Services as the Authority having jurisdiction over the National Fire Code applied to Federal Projects.

Periodically individual OGD Representatives may require separate meetings with the Consultant or CM to review specific issues.

OGD representatives will:

.1 Be responsible for functional issues on the project, related to their respective organizations.

.2 Have input to all functional and operational design requirements and subsequent changes through the Project Leader to the Departmental Representative.

.3 Provide assurance that:

.1 The OGD program requirements are thoroughly understood by all.

.2 The functional and operational requirements are met.

.3 OGD approvals, as required, are signed off.

1.12 REVIEW AND ACCEPTANCE

1.12.1 FEDERAL GOVERNMENT

.1 The PWGSC Departmental representative, will review work in progress on a continuing basis with team members and will provide written instructions on acceptance.

1.12.2 PROVINCIAL/TERRITORIAL, MUNICIPAL AND OTHER AUTHORITIES HAVING JURISDICTION

.1 Although the Federal government is not formally subject to jurisdictions at other levels of government, voluntary compliance with the requirement of these other Authorities is a requirement unless otherwise directed by the departmental Representative.

.1 Codes, regulations, by-laws and decisions of authorities identified herein as having jurisdiction shall be observed.

.2 In areas of conflict between authorities, the Federal authority prevails.

.3 In areas of conflict between codes, standards and regulations, the most rigid requirements shall be adhered to.

.4 The CM shall identify other jurisdictions appropriate to the project.

.2 Provincial/Territorial Acts, Regulations, Standards, and Inspections.

.1 The Federal government does not defer to provincial/territorial and municipal authorities, except for specific regulations, standards, and inspections noted below.

.2 Unless directed otherwise by the Departmental Representative, the CM will:

.5 Adhere to all applicable provincial/territorial Construction Health and Safety Acts and regulations, in addition to the related Canada Occupational Safety and Health Regulations.

.6 Adhere to the requirements of the Provincial/Territorial Ministry of Labour for:

.1 Employment Standards

.2 Construction Safety

.3 Designated Substance Management

.4 Workers Compensation

.7 Adhere to the requirements of the jurisdiction:

.1 Building discharges into the air, water and ground

.2 Disposal of designated substances including asbestos

.3 Municipal equivalent By-Laws, Regulations, Standards, and Inspections

.1 The Federal government does not defer to provincial and municipal authorities, except for specific regulations, standards, and inspections noted below.

.2 Unless directed otherwise by the Departmental Representative, the CM will:

.1 Make preliminary municipal submissions at stages required by the Hamlet of Cambridge Bay.

.2 Provide all required supporting documentation for permit applications

.3 Apply for and obtain all permits and approvals necessary for the work, including, but not limited to Building, Electrical, and Plumbing Permits.

.4 Resolve all Building Permit related issues, with support from the Consultant as may be required.

.5 If required by the Hamlet of Cambridge Bay, apply for an Occupancy Permit and co-ordinate the resolution of all outstanding issues related to obtaining the permit.

.6 Provide Municipal authorities with access to the site as required and arrange for inspections of the construction work by the governing utility officials.

2.0 CM ADVISORY & SUPPORT REQUIRED SERVICES

2.1 GENERAL REQUIREMENTS

2.1.1 ADVISORY & SUPPORT SERVICES SCOPE

.1 The CM, as expert in matters of construction, councils PWGSC and the Consultant by providing strategic (advisory) and analytic (support) services throughout the design and construction phases of the project.

.2 The CM shall:

- .1 Review site conditions and comment as to potential technical and implementation issues that may affect the project.
- .2 Analyze and become familiar with all the Project background documents and reports.
- .3 Review the preliminary functional program for the project and any subsequent revisions.

.3 The CM shall provide the following support services:

- .1 Prepare a detailed construction schedule.
- .2 Develop a list of recommended construction trade and tender packages.
- .3 Prepare a detailed construction budget.
- .4 Prepare detailed estimates for each tender package.
- .5 Participate in all integrated design sessions and provide advice on:
  - .1 Constructability of the design and details contained in the contract documents.
  - .2 Scheduling of the Work.
  - .3 Costing, pricing and bid ability.
  - .4 Issues related to contract management responsibilities.
  - .5 Assist in providing liaison and coordination with Government Authorities for various reviews and approvals.

.4 Participate in a value engineering workshop facilitated by the design consultant at the completion of Design Development and provide advice and recommendations for the systems being proposed as to their ease of installation, cost, availability, suitability for the arctic, robustness, constructability, etc. and make suggestions for potential alternatives.

.5 The CM shall provide advisory services on:

- .1 Construction related matters for the Departmental representative, the User Department, the Consultant Team and members of the CM's Project Delivery Team.
- .2 Effective control measures and management of:

.1 Project costs and expenditures.
.2 Project schedule and progress.
.3 Scope & quality of the work.
.4 Change management and change order control.
.5 Risk management Plan, with detailed risks identified and claims avoidance recommendations.

.3 Life Cycle Cost analysis
.4 Sustainability
.5 Value Engineering

.6 Mitigation of potential conflict and overlap, with respect to:
.1 The design services performed by the Consultant Team.
.2 The work to be performed by the various Sub-Trades.

.7 Design quality control methodologies with respect to:
.1 Availability and cost comparisons of construction materials.
.2 Methods of construction and constructability.
.3 Scope and quality of construction materials and systems.
.4 Alternative approaches to completion of the design of the work.

.8 Contract administration procedures.
.9 Procurement strategies and construction implementation phasing.
.10 Determining appropriate construction tender packages.
.11 The potential impact to the Project of applicable labour conditions and availability of materials.
.12 Provide input into the Commission Plan and Schedules for commissioning of all operating building components, systems and integrated systems at the appropriate phases of construction, so as to ensure coordinated, effective and efficient building operation.
.13 Obtaining and administering project guarantees and warrantees.
.14 Risk management.
.15 Other advisory services of similar nature to support the Departmental representative.

The full scope of Advisory Services required shall include the entire contents of sections 1, 2 and 3 of these Terms of Reference, in concert with the terms and conditions of the Contract.

2.2 PROJECT ADMINISTRATION

2.2.1 GENERAL OVERHEAD

.1 All costs related to Section 1 above are to be included with Required Advisory & Support Services.

2.2.2 PROJECT PROCEDURES MANUAL

.1 The CM shall develop within 30 days of contract award, a Project Procedures Manual in consultation with the Departmental representative for the execution of key Project activities. The Manual must meet the minimum standards identified in the GP&S 2012 document (Annex B). The project manager may accept a higher

standard of documentation related to tracking work packages, schedules and costs to accommodate a corporate CM business system.

.2 The Manual will provide a clear description of procedures, roles, responsibilities, levels of authority and the information systems for the execution of the Project, including details of the processes and sample formats.

.3 The manual will include the process and methods to:

.1 Maintain Project records (including a daily digital photographic record and web cam).

.2 Implement a quality assurance program.

.3 Prepare, update, monitor and maintain the Master Schedule.

.4 Update, monitor and maintain the Cost Plan, Expenditures, Change Orders and Cash Flow.

.5 Manage communications between Project Delivery Team participants based upon the documented roles, responsibilities and authority of Team members, and maintain a listing of meetings, frequency, type, etc.

.6 Manage correspondence, reports and performance records.

.7 Distribute correspondence electronically and by facsimile.

.8 Process Shop Drawings.

.9 Document the process for reviews and approvals of Tender Package Contracts and change orders.

.10 Maintain a decision log during the construction of the entire project, recording participants, date and place of all decisions affecting schedule, budget, scope, or quality.

2.2.3 PROJECT MONITORING AND REPORTING

The CM shall:

.1 Provide a system for documenting, project monitoring and reporting through each stage of project delivery, for review and acceptance by the Departmental representative.

.2 Use separate coding for each of the identified work packages.

.3 Prepare and submit, at the start of the project, a sample of the report structure for all reports for review by the Departmental representative. Reports must meet the minimum standards identified in the GP&S 2012 document (Annex B).

.1 Resubmit, as may be required for approval and acceptance.

.2 The date of issue of the CM Monthly Report will be established to fall on the same date each month and within one week before the established date of issue of the PM Monthly Report.

.3 The structure of the CM Monthly Report shall be used for all subsequent project stages.

.4 Prepare and submit monthly progress reports as per the GP&S 2012 document (Annex B) during the Design Development and Construction Document Stages, in a format agreed to with the Departmental representative. The report should also include comments as to any design concerns the CM may have. In addition, the report must provide a table (Refer to Table 1 in Appendix 1) outlining the following information:

.1 The number of fulltime and part-time employees retained for the project, including the number of fulltime and part-time Aboriginal employees.
.2 The number of weeks these workers were employed (given EI eligibility requirements vary based on economic region.
.3 The total dollar value for each length and type (FT/PT) of employment
.4 The sum total of the number of weeks of employment; number of Aboriginal employees; and Dollar value of all employment provided by the project

2.3 COST MANAGEMENT

2.3.1 METHOD

.1 PWGSC manages all funding for the Project, including budgeting, expenditures and Progress Payment approvals.
.2 The CM shall provide advice and recommendations on:
  .1 Costs related to construction feasibility, availability of materials and labour, time requirements for installation and construction.
  .2 Budget costs of systems, assemblies, equipment, materials and specialty labour.
  .3 Current pricing levels and trends in associated activities relating to the project.
  .4 The selection, availability and pricing of goods and services.
.3 Provide suggestions and/or alternatives for cost reductions or acceleration of the Construction Schedule.
  .1 Evaluate costs for alternative materials, construction techniques and installation methods.
.4 Prepare and submit to the Departmental representative for review and acceptance, a Master Cost Plan template (within 14 days of award of contract) which will be populated as the project progresses. Maintain the Plan throughout the life of the Project.
  .1 Include all CM projected costs, Construction Cost Estimates and Construction Cost Limits.
  .2 Develop budgets for the work of each construction trade.
  .3 Prepare Trade budgets as soon as major project requirements have been identified.
  .4 Update at the milestone review stages for PWGSC acceptance.
  .5 Present all costs in Federal Fiscal Year (FY) format (April 01 to March 31 of the following year).
.5 Prepare cost estimates, (including summary plus full back-up showing items of work, quantities, unit prices and amounts) at:
  .1 The Design Development Stage (Class B).
  .2 At the 33%, 66% and 99% design completion stage for each bid package.
  .3 The time of tendering each bid package (Class A).
.6 Revise and refine the initially approved Master Cost Plan as the project progresses, incorporate approved changes as they occur and develop cash flow reports and

forecasts as required by the Departmental representative for each fiscal year's planned expenditures.

.7 Advise as soon as possible if deviations from the Master Cost Plan occur and obtain written authorization from the Departmental representative before proceeding with the work.

.8 Monitor Project costs and expenditures against the approved Construction Cost Limit and identify variances between actual and budgeted or estimated costs.

.9 Notify the Departmental representative in the event that the CM considers that the Construction Cost Estimate will exceed the Construction Cost Limit.

.10 Provide recommendations for remedial action to maintain and keep the estimates within the Construction Cost Limit.

.11 Track costs so that PWGSC can appropriately manage the budget.

2.3.2 CONSTRUCTION COST LIMIT

.1 The Construction Cost Limit for this project is $77,000,000 which does not include:

- .1 GST.
- .2 PWGSC administration costs.
- .3 PWGSC Design costs.
- .4 The CM's Advisory and Support Services fixed fee as per BA03.1(a).
- .5 The CM's percentage fee as per BA03.1(c).

.2 The Construction Cost Limit does include:

- .1 All of the Construction costs as per BA03.1(b).
- .2 Allowances for contingencies, and anticipated escalation factors, assuming that construction will start in September 2014.

2.3.3 CASH FLOW

.1 The CM, within 30 days of contract award, will provide a monthly cash flow projection for both their costs and construction costs until the completion of the project. This cash flow projection is to be updated on a monthly basis.

2.4 TIME MANAGEMENT

2.4.1 METHOD

The CM shall:

.1 Provide advice and recommendations on:

- .1 A procurement strategy for any equipment or materials, which should be pre-ordered to meet the Master Schedule taking into consideration the isolation of Cambridge Bay and the transportation challenges.
- .2 A means to avoid disturbance to visitors and residents during construction.
- .3 Disruptions may be inevitable but planning for them in advance, by properly scheduling events, communicating with all stakeholders and then following the agreed upon protocol is essential to mitigate risks.

.2 In consultation with the design consultant, prepare and submit a draft master schedule within 30 days of contract award, to the Departmental representative for review and acceptance, and maintain the master schedule throughout the life of the Project.

.3 Prepare the schedule using Microsoft Project software to develop detailed network diagrams, with work breakdown structures and Key milestones listings.

.4 Develop critical paths for all key activities, with key milestone dates and lead times for each activity.

.5 Identify anticipated start and completion dates for all design and construction activities, linked by interdependence on activities that must be completed prior to the start of each activity.

.6 Prepare separate schedules for each tender package and reference them back to the master schedule.

.7 Ensure that the schedule has the capability of tracking changes.

.8 Monitor changes to the schedule at least once a month and submit written reports to the Departmental representative on any deviations from the master schedule.

.9 Monthly reports must identify not only reasons for delay but also offer suggestions, where possible, on how to bring the project back on track.

.10 If changes to the schedule become necessary, indicate the impact and the reasons for such changes and submit proposed amendments to the Departmental representative for review and acceptance.

2.4.2 PROGRAM COMPLETION

.1 As time is of the essence, all projects are required to be substantially complete and ready for operation by 2017-07-01.

.1 Final Completion of all components including seasonal deficiencies is 2017-09-30.

2.5 RISK MANAGEMENT

The CM shall:

.1 Review, comment and advise on the PWGSC Risk Management Plan;

.2 Advise on Project Risks specific to the project and recommend mitigation options to the Departmental representative.

.3 Advise on issues of risk that integrate project planning with procurement planning and construction.

.4 Submit a monthly report on Project Risks to the Departmental representative.

.5 Identify and implement methodologies aimed at mitigating and minimizing the impact of construction activities on occupants during construction.

.6 Implement a claims avoidance program within each tender package.

2.6 SCOPE CONTROL AND MANAGEMENT

.1 Immediately advise the Departmental representative of any potential increase or decrease in scope that could affect project cost, schedule or quality.

2.7 QUALITY CONTROL

2.7.1 QUALITY ASSURANCE

.1 The CM will apply rigorous quality assurance reviews during the design and construction phases, including participation in reviews of the systems, components, and construction tools and techniques of the proposed design.

.2 The primary responsibility for construction quality control remains with the CM.

.3 The CM will be responsible for ensuring that the CM's Subcontractors adhere to:

.1 Best industry practices and standards following the requirements of the Construction Documents.

.2 Professional conduct in all phases of the project, employing best practices for budget, schedule, quality, and scope management.

.4 The CM's Team will work cooperatively to:

.1 Adopt good project delivery processes such as Risk Management and advising on methods to obtain best value.

.2 Ensure that all Health, Safety, Security and Sustainable Development issues are properly adhered to.

2.7.2 QUALITY CONTROL PLAN

The CM shall:

.1 Prepare and submit to the Departmental representative (within thirty (30) days of award of contract) a Quality Control Plan including, but not limited to:

.1 Identification and definition of key activities and deliverables.

.2 Description of internal controls.

.3 Methodologies and procedures to be utilized to deliver a high quality facility.

.4 Deliverable verification plan.

.2 Attend regular integrated design sessions with the Project Teams during the development of the design and preparation of construction documents so as to advise on quality issues related to:

.1 Selection of materials, building systems and equipment.

.2 Constructability in Cambridge Bay, a remote, isolated, arctic location.

.3 Review possible coordination issues between construction disciplines and all design disciplines (including architectural, structural, geotechnical, mechanical, electrical and civil).

.4 Provide a written summary of the design reviews to the Departmental representative.

.3 Review construction drawings and specifications for each tender package at various stages acceptable to the Departmental representative.

.4 Normally, reviews are conducted at 33%, 66% and 99% stages; however, some tender packages may require fewer reviews, due to the nature of the work involved.

2.8 COMMUNICATIONS AND MEETINGS

2.8.1 COMMUNICATIONS

.1 Unless otherwise directed by the Departmental representative, the CM will conduct all project communication through the Departmental representative only.

.2 If any communication with the User Departments results in the need for any change to the Project scope of work, quality, cost or schedule, the CM shall inform the Departmental representative, and seek direction, before taking any action.

.3 Correspondence:

.1 All correspondence from the CM shall be distributed as directed by the Departmental representative.

2.8.2 ELECTRONIC COMMUNICATIONS

.1 Refer to GP&S 2012 located in Annex B.

.2 All team reviews will be managed through BuzzSaw.

.3 Team members will be provided with training materials and the project pass code.

.4 BuzzSaw is communications software that allows for posting of documents and for review comments to be recorded and accessed for all parties to review.

.5 The license is provided by PWGSC. The Departmental representative will arrange for the CM to obtain access to the PWGSC secure shared document management (BuzzSaw) site.

.6 CM is to establish a live web based camera for the duration of the construction phase of the project.

2.8.3 SUBMISSIONS TO PWGSC

.1 Where submissions to PWGSC include summaries, reports, network diagrams, drawings, plans, specifications or finish schedules, submit one (1) original to the Departmental representative in electronic format, unless otherwise directed in writing.

.2 Electronic format:

.1 The electronic deliverables shall be provided using Microsoft applications.

.2 Alternatively, the CM may submit all work in Adobe Acrobat *.pdf format except for Network Diagrams which must be submitted in their original electronic format.

2.8.4 PROJECT RESPONSE TIME

.1 It is a requirement of this project that the key personnel of the CM are personally available to attend meetings or respond to inquiries promptly.

.2 During the project, the CM's Key Personnel shall be:

.1 Available to attend meetings and respond to inquiries within two working days notice. Four (4) days if traveling to Cambridge Bay.

.2 Able to respond to emergencies within one (1) hour, including those occurring during off-hours and on weekends/holidays.

.3 On occasion, there may be urgent, problem-solving meetings. The CM must be available to attend such meetings in Ottawa within one (1) business day.

2.8.5 MEETINGS DURING THE DESIGN PHASES

.1 Eight (8) full team meetings will be held in Ottawa at the offices of AANDC, and five (5) meetings will be held in Cambridge Bay. The full team will include representatives from PWGSC, the CM, the Consultant and the client.

.2 The Departmental representative will also arrange bi-weekly teleconferences throughout the design phases of the project, with representatives from:

.1 PWGSC.

.2 Consultant team.

.3 Construction Management Team.

.4 Client representatives.

.3 The Consultant will be responsible for:

.1 Preparing minutes of meetings during the design phases.

.2 Forwarding minutes to the Departmental representative and CM.

.4 These meetings are for the accurate exchange of information.

.5 All requests and decisions taken must follow the formal lines of communications.

.6 The CM shall:

.1 Attend all service related and design meetings, prior to construction start.

.2 Respond to minutes as required prior to the next meeting.

2.8.6 MEETINGS DURING THE CONSTRUCTION PHASES

The CM shall:

.1 Arrange and coordinate all construction meetings on site.

.2 Regular site meetings to be held monthly through the duration of the project.

.3 Bi-weekly teleconferences may also be required throughout the construction phases of the project.

.4 Prepare and distribute minutes within two (2) working days of the meeting.

.5 Endeavour to hold all meetings as Green Meetings (i.e. Electronic copies of documents where possible or double sided hard copies).

.6 Establish a list of standing agenda items, including (as a minimum):

.1 Review and acceptance of previous minutes

.2 Schedule and progress

.3 Cost issues and changes

.4 Risk and quality issues

.5 Quality

.6 Scope of work

.7 Site safety and security

.8 Sustainable development and

.9 Commissioning

2.9 PROJECT DELIVERABLES

2.9.1 ACCEPTANCE OF PROJECT DELIVERABLES

.1 While PWGSC acknowledges the CM's obligations to meet project requirements, the project delivery process entitles PWGSC to review all work.

.2 PWGSC reserves the right to reject undesirable or unsatisfactory work.

.3 The CM must obtain Departmental representative acceptance of all required deliverables for the Project.

.4 Acceptance indicates that based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and those overall project objectives appear to be satisfied.

.5 Acceptance does not relieve the CM of responsibility for the work and compliance with the contract.

.6 Acceptance does not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review.

2.10 INUIT BENEFITS PLAN

2.10.1 FINAL INUIT BENEFITS PLAN

The CM Shall:

.1 Within 60 days of Contract Award, submit for approval a finalized Inuit Benefits Plan which is based upon the draft Plan submitted as part of the proposal.

2.10.2 INUIT BENEFITS CONTENT

.1 The Inuit Benefits Plan shall include a clear statement of the minimum amount of Inuit Benefits that the CM proposes to provide, expressed in dollars and as a percentage of the total contract value. The Inuit Benefits Plan must also include a clear statement of the minimum hours of direct employment of Inuit Resources as well as a clear statement of the minimum dollar value of business sourced to Inuit firms that the CM intends to use in carrying out the work. The minimum benefits must not be less than that detailed in the CM's original proposal.

.2 The Inuit Benefits Plan shall include a Human Resources Plan Resources Plan that details how the CM or its subcontractor(s) intends to maximize the use of Inuit employment. The Human Resources Plan shall address how employment of Inuit people will be managed and shall provide:

.1 Details on the work to be carried out for each position proposed to be filled by an Inuit person.

.2 Strategies for recruitment of Inuit Persons

.3 Strategies for retention of Inuit Persons

.4 Succession Planning

.5 Staff management

.3 The Inuit Benefits Plan shall include a Skills Development Plan that details how the CM or its subcontractor(s) intends to maximize the training and skills development of Inuit Persons. The Skills Development Plan shall address how training fo Inuit people will be managed. It shall also address the complexities introduced by the annual cycle of work in Cambridge Bay, the cultural cycles of Inuit life, the capacity of the CM's staff to supervise, monitor, support and coordinate trainees as well as the availability of training facilities in the North. The Skills Development Plan shall address the use of:

.1 Apprenticeship programs

.2 Pre-Professional programs

.3 College programs

.4 On-the-job training

.5 In-house training programs

.4 The Inuit Business Plan shall include an Inuit Business Plan that details how the CM intends to maximize the use of Inuit firms. The Plan shall address how the CM or its subcontractor(s) intends to work with outside organizations that have

experience or mandates in various aspects of contracting with Inuit people or firms. The Inuit Business Plan shall:

.1 Identify the work intended to be carried out by Inuit firms.

.2 Detail how business with Inuit firms will be managed, from developing sources of supply to administration.

.3 Detail any development of new sources of supply, or new capabilities.

.5 The Inuit Benefits Plan shall include other measures that the CM or its subcontractor(s) considers relevant, such as, but not limited to:

.1 Specialized training or programs required for employment in Cambridge Bay.

.2 Other activities related to but not specifically detailed in the Statement of Work.

.3 Participation in careers events, such as high school visits, career presentations and scholarships.

.4 Community outreach projects to create a positive image for CHARS.

2.10.3 ALLOWABLE EXPENSES

The following defines what is allowable as an expense for Inuit Benefits:

.1 Allowable costs associated with labour carried out by an Inuit person are direct salaries, benefits (included but not limited to health, pension, and vacation) and other associated costs, which are paid to Inuit persons or firms.

.2 Allowable costs associated with work placed with Inuit Firms are those costs (including but not limited to direct costs, overhead, and profit) that are not paid to people or firms that are not Inuit.

2.10.4 AMENDMENT OF INUIT BENEFITS PLAN

.1 At any time during the contract, the CM may propose amendments to the Contracting Authority to the Inuit Benefits Plan. Any such proposal must include a justification for the change and a detailed explanation that the change results in Inuit Benefits that are not reduced in quantity or quality. The Contracting Authority shall respond within 10 business days with comments or agreement. Canada is under no obligation to accept any such proposed amendments regardless of its content or justification.

2.10.5 REPORTING REQUIREMENTS

The CM shall:

.1 Provide yearly updates to the Inuit Benefits Plan, which add details on the representations that the CM proposes to accomplish in the upcoming year. Each update shall provide details on how each representation will be carried out, the proposed objectives and schedule, required resources, any dependencies, and what benefits (employment, skills development, or other) will be provided.

.2 Provide annually a detailed report on the Inuit Benefits accomplished in the preceding year. It shall provide for each Transaction listed in the Inuit Benefits Plan what was actually accomplished, the dollar value of the Inuit Benefits achieved and an assessment of the quality of the benefit.

.3 Provide monthly:

.1 A detailed Inuit Benefits Plan Sub-Contractor/Business Summary (refer to Table 2 in Appendix 1 for a sample form)

.2 A detailed Inuit Benefits Plan Labour Summary (refer to Table 3 in Appendix 1 for a sample form)

3.0 CM CONSTRUCTOR REQUIRED SERVICES

3.1 GENERAL REQUIREMENTS

3.1.1 CM REQUIREMENTS

The CM shall:

.1 Perform all the duties of a Construction Constructor, manage the Work of the CM's Own Forces and Sub-Trades and ensure that the Work is carried out in accordance with the requirements:
  .1 Of the CM Contract.
  .2 Of Division 01 in the RFP (refer to Annex B GP&S 2012).
  .3 Contained in the Construction Documents; and Included herein, in these Terms of Reference.

.2 The work shall be tendered to Sub-Trades and enter into subcontract contracts that comply with industry recommended best practice.

.3 Pre-purchase key materials and components as needed to meet the cost and schedule parameters.

.4 Provide and maintain competent full-time staff at the project site to:
  .1 Coordinate and provide general direction of the project and progress of the Sub-Trades on the project.
  .2 Provide quality control, quality assurance, monitoring and reporting throughout the construction stage of the project.

.5 Establish on-site organization and lines of authority and communications in order to carry out the work of the project.

.6 Provide regular reporting to PWGSC on the Project Schedule to monitor construction progress.
  .1 Identify potential variances between scheduled and probable completion dates.
  .2 Update schedule of work not started or incomplete.
  .3 Document all changes to the schedule and report to PWGSC.

3.1.2 DIVISION 01 ITEMS

.1 As per Annex B of the RFP documents (GP&S 2012), the Construction Manager is to provide for the management of all services normally included in Division 01 of a stipulated lump sum contract.

.2 This work is to be defined as all those items that are necessary for the smooth and safe operation and co-ordination of the site.

.3 In addition to the work described in the Division 01 requirements, the following aspects are to be included in the percentage fee:
  .1 All personnel in the direct employ of the construction manager.
  .2 Travel costs, moving costs and living allowances for Construction Manager's staff.

.3 Comprehensive General Liability Insurance and Builder's Risk Insurance umbrella policy Insurance.
.4 Construction Manager's Contract Security (not including Sub-Trades' bonding).
.5 Charges for faxes, copying, telephone calls, courier, and e-mail services.
.6 Legal costs arising out of the performance of the contract provided they are not caused by negligent acts or omission.
.7 Cost of computer time and usage and all required software to perform the contract.
.8 Management and co-ordination of shop drawings, samples, product data.
.9 Cost of Fees, Permits, and Certificates.
.10 Management and co-ordination of manuals, as-built drawings, maintenance schedule, training programs, and related commissioning activities.
.11 Management and co-ordination of warranties.
.12 Layout of work.
.13 Parking costs/charges.
.14 Security for Construction Manager's work area(s), materials, and office.
.15 Safety costs related to health and safety.
.16 Site security fencing around the site perimeter
.17 Site Office
    .1 The Site Office for this project will be located on the project site in a location identified by the Departmental representative.
    .2 The Construction Manager will be responsible for all costs associated with this including O&M
    .3 Temporary Site Office trailer complex will be inclusive of furniture and furnishings to provide work space for all on-site Construction Management staff, one enclosed meeting room with telephone for minimum of 12 persons, and one enclosed drop-in office with telephone and internet access for PWGSC or consultant use.

.4 The Construction Manager will be separately reimbursed for the following Division 01 costs:
.1 Independent Quality Control Testing.
.2 Equipment costs for monitoring air quality and environmental conditions.
.3 Other special consultants.
.4 Contamination discovered on site which is not disclosed within this tender.
.5 Printing costs of tender packages.

CM must obtain written pre-approval from the Departmental representative before expending any costs on these items.

3.2 HEALTH AND SAFETY

3.2.1 THE CM IS RESPONSIBLE FOR HEALTH AND SAFETY

The CM shall:

.1 Ensure full compliance with the applicable Occupational Health and Safety Regulations in effect in Nunavut and or the authority having jurisdiction.
  .1 The CM will be the “Principal Contractor” as defined in the Safety Act of the Northwest Territories and Nunavut.

.2 Ensure the full health and safety protection afforded under the Canada Labour Code to all visitors to the site, including workers, staff, contractors and the general public.

.3 Implement a safety program on site.

.4 Provide appropriate safeguards to ensure safe protection and security of materials and holdings on the site.

.5 Provide appropriate safeguards to ensure safe protection of workers from listed hazardous materials incorporated into existing building construction, and which may remain in-place for the entire duration of this project.

.6 Comply with WHMIS and all other applicable regulations with respect to hazardous materials to ensure that:
  .1 All designated hazardous materials are properly treated, handled and stored.
  .2 Workers’ exposure to fumes, is within acceptable health and safety limits.
  .3 Temporary ventilation or protection, as required for products utilized, is properly provided.
  .4 Construction dust is controlled such that workers and occupants are not adversely impacted by dust from construction activities within the building or on the site.
  .5 Ensure that shop-drawing submissions include Manufacturers Standard Data (MSD) Sheets.

3.3 COORDINATION OF COMPONENTS, SUPPLIERS AND TRADES

3.3.1 COORDINATE

.1 The CM is responsible for ensuring that all components, suppliers and trades are coordinated for a full and complete product.

3.4 COMMISSIONING

3.4.1 COMMISSIONING PLAN

.1 During the Planning and Design phases, the Consultant will, in consultation with the CM, document the commissioning program in report format.

.2 The Consultant will establish the design and operating standards.

.3 During the Construction phase, the actual operation and performance of the as-commissioned work shall be verified by the CM, as contractor and the Sub-Trades, against the original design intent and the results summarized in narrative format.

.4 All designed systems will be included in the commissioning process.

.5 The CM shall:

.1 Provide advice and recommendations to the Departmental representative and the PWGSC Commissioning Specialist on issues related to:

.1 The quality of the Commissioning Plan prepared by the Consultant.

.2 Methods for monitoring the commissioning process to verify compliance with the PWGSC Standards and Procedures.

.3 Methods of confirmation that all systems have been properly verified, balanced, etc., in compliance with the commissioning plan, prior to occupancy.

.4 Acceptability of the completed maintenance manuals.

.2 Procedures for verifying that all required training and operating systems demonstrations have been properly conducted and completed prior to occupancy.

3.5 SUSTAINABILITY AND THE ENVIRONMENT

3.5.1 NUNAVUT IMPACT REVIEW BOARD

.1 Comply with all environmental mitigations identified by the client for this program of work and with any direction from the Nunavut Impact Review Board (NIRB). www.nirb.ca.

3.5.2 WASTE MANAGEMENT

.1 The CM shall prepare and submit to the Departmental representative for review and acceptance, a Waste Reduction Work Plan consistent with a LEED Silver equivalent target:

.1 Prepare the Plan in accordance with the requirements outlined in Division 01 (Annex B (GP&S 2012) of the RFP Documents).

.2 Clearly outline the strategy and methodology for optimizing solid waste diversion from landfill and disposing of toxic or hazardous materials in the most appropriate manner.

.3 Include all related schedules outlining expected inventory targets and results required when waste audits are conducted.

.4 Include a non- hazardous solid waste reduction program for eliminating waste through reduction, reuse and recycling including.

.5 Requirements for sorting construction waste on site by types.

.6 A description of the most practical manner for recycling each individual material.

.7 Develop specific procedures for conducting waste management audits on site, including audit objectives, frequency and format.

.2 Prepare written monthly reports containing records of waste disposal efforts, including:

.1 A review of the implementation of the strategy;

.2 A review of subcontractors disposal practices for paints, solvents and pressure treated wood scraps and other similar products or materials;

.3 A waste management audit indicating the degree to which recycling objectives are being achieved and recommendations for improvements if objectives are not being met.

3.5.3 SUSTAINABLE DEVELOPMENT

The design consultant will be developing an Environmental Strategy based on a number of sustainability initiatives such as LEED and Labs21. The CM must:

.1 Provide input to the design consultant in the preparation of a draft Sustainable Development Strategy, based on the Leadership in Energy and Environmental Design (LEED) Canada and THE Labs21 rating system.

.2 Provide recommendations on cost effective 'green construction' materials, methods and practices that can be incorporated into the project without a significant negative impact on the budget, schedule or quality of the project.

.3 The minimum sustainable target for the project has been established as LEED Silver.

.4 While there is no requirement to submit a formal application to obtain a LEED certification for this project, the CM must work collaboratively with the Consultant Team to provide submissions to the Departmental Representative substantiating the LEED points and the LABS21 targets are met.

.5 The contents of the submission to the Departmental Representative must be provided in the same format and standard required by the Canadian Green Building Council for LEED certification.

For information on LEED, refer to the following website:
http://www.cagbc.org/AM/Template.cfm?Section=LEED

For information on Labs21, refer to the following website: http://www.labs21century.gov

3.6 TENDERING THE WORK

3.6.1 CM'S "OWN FORCES" WORK

.1 The CM's own forces will only be permitted for individual work package coordination activities less than $50,000 value with the specific approval of the Departmental representative where there is fair value to Canada.

3.6.2 TENDERING AND AWARD STAGE

.1 The CM will review the method of tendering with the Departmental Representative to select the most appropriate method to achieve value for money. Normally this will include an invitation to three to five bidders (3 to 5) experienced in the work or public advertisement to the industry using provincially acceptable advertisement.

.2 During the Tender Call, Bid Evaluation and Award Stage, the CM shall:

.1 Determine the number and scope of each tender package, including pre-ordering of long delivery items.

.2 Update the Master Cost Plan, including the preparation of a pre-tender construction cost estimates for each trade package.

.3 Update the Master Schedule including the impact of each scheduled trade package on the final completion date.

.4 Review the wording and content of all addenda, prior to issue.

.5 Analyze the bids for each tender package to determine if the bid is comprehensive and recommended if the work should be awarded or if changes are required to keep costs within the budget, meet the specifications, or the schedule.

.6 Make recommendations for award or for alternate strategies, in the event that the low bid exceeds the budgeted amount.

.7 Advise the Departmental representative on proposed revisions or amendments, if re-tendering is required.

.8 The CM must obtain authorization from the Departmental representative prior to awarding each work package tender.

.3 Where appropriate and practical, promote access to project work for local trades in order to encourage local job and skills development.

3.7 CONSTRUCTION MONITORING

3.7.1 MONITOR

.1 Monitor the work of the subcontractors and coordinate the work with activities of the contractors and suppliers.

.2 Maintain competent full-time supervisory staff, and as required for the work, quality management and field engineering staff on site during the implementation of the work to monitor and provide general direction to all those associated with the work. Identify unacceptable work early to avoid delays that might arise as a result of the required correction of deficient work. Ensure that comprehensive quality management processes are followed daily. Ensure that adequate back up personnel are available.

.3 Establish on-site organization and lines of authority in order to carry out the overall work.

.4 Attend and chair all construction meetings and maintain minutes.

.5 Provide a daily log of the work including providing a digital photographic record of key construction progress.

.6 Monitor progress on site and ensure coordination of trades.

.7 Review the adequacy of all sub contractors personnel and equipment to ensure availability of materials, workers and supplies to meet the schedule.

3.8 CHANGES (NOTICES AND ORDERS)

3.8.1 CHANGES

.1 The CM shall submit a cost estimate breakdown for each contemplated change to the Departmental representative and to the Consultant for review and approval.

The breakdown shall itemize all labour, materials, plant and equipment costs estimated by the CM.

.2 It is the responsibility of the CM to ensure that all prices included in the cost breakdown (including costs and markups for subcontractors) are fair and reasonable.

.3 The costs of all material, plant and equipment must be based on the actual amount paid to suppliers by the CM or subcontractors and said costs are to include all applicable discounts.

.4 The CM's percentage fee as identified in Appendix A Price Proposal Form BA03.1(c) shall apply for all services and work associated with changes and shall not be subject to any mark-ups or additional fees.

.5 Upon the acceptance of the quote, a change order is prepared and issued by the CM to the subcontractor with a copy to the consultant and departmental representative.

.6 A detailed log of the cost of forecasted final subcontract amounts, change notices and change orders is to be maintained by the CM for all subcontracts, at all times throughout the project.

3.9 CONSTRUCTION GENERAL INSTRUCTIONS

3.9.1 DURING THE CONSTRUCTION STAGE:

The CM Shall:

.1 Fulfill the obligations as Constructor, responsible for all Sub-Trade Contractors, Suppliers and any maintenance or operational requirement contractors that require access to the site.

.2 Maintain on a current basis and make available to the Departmental representative, all construction related documents, including:

- .1 A daily log listing, as a minimum: weather conditions, visitors, workforce, by trade and number of employees, safety issues, and any other major issues.
- .2 Records of all project contracts and drawings.
- .3 Copies of all project related correspondence.
- .4 Samples, purchases, materials and equipment.
- .5 All data from sub-trades.
- .6 Maintenance instructions and operating manuals.
- .7 A current set of project record documents for the purpose of recording all approved changes that occur during construction and for completing as-built documents.

3.9.2 CONSTRUCTION WORK

When construction Work is duly authorized and assigned to the CM's contract, the CM shall:

.1 Provide and be responsible for the development, coordination and management of all work and services included in Division 01 in the CM Contract.

.2 Provide all necessary equipment to the Project and all other resources required to perform these duties and services.

.3 Procure, coordinate, administer and manage all construction work and contracts.

.4 Prepare and execute contracts with the successful Sub-Trades.

.5 Coordinate and manage the respective contracts in an integrated manner to avoid any conflicts between the Work of the CM's Own Forces and the Work of the CM's Sub-Trades.

.6 Coordinate, manage and complete all the Work of each Sub-Trade tender package in strict adherence to the accepted drawings and specifications of each tender package, including all addenda and authorized change orders.

.7 Deliver the sub-projects to be ready for occupancy by the agreed upon completion dates.

.8 Develop and implement a procedure for review, certification, processing and payment of Sub-Trades in accordance with the terms and conditions of the CM Contract.

.9 Schedule and conduct monthly progress meetings in Cambridge Bay at which Sub-Trades, PWGSC and the CM can jointly discuss such matters as procedures, progress, problems and scheduling.

.10 Provide timely response to correct issues, as they occur.

.11 Complete the Work of the CM's Own Forces in strict adherence to Division 01 and / or in accordance with the specifically approved scope of Work.

3.9.3 COST MANAGEMENT

.1 The CM shall ensure that the budgets for each tender package are met.

.2 Provide updated cost information for monthly reports, as outlined in Section 2.3.

3.9.4 SCHEDULE MANAGEMENT

.1 The CM shall ensure that the schedules are met.

.2 Provide updated schedule information for monthly reports, as outlined in Section: 2.4.

3.9.5 QUALITY CONTROL

.1 The CM shall ensure that quality control measures are implemented and that impacts on existing operations are minimized.

3.9.6 SHOP DRAWINGS

.1 Shop drawings shall be stamped: "Checked and Certified Correct for Construction" by the CM and stamped: "reviewed" by the Consultant before return to the subcontractor.

.2 The CM shall:

- .1 Review, discuss, record problems and identify agreed remedial action.
- .2 Monitor and record the progress of shop drawing review. Record parties designated for action and follow up.
- .3 On completion of project, forward reviewed shop drawings to the Departmental representative.

.4 Verify that shop drawings include the project number and are recorded in sequence.
.5 Verify the number of copies of shop drawings required.
.6 Provide additional copies for the client and the Labour Canada Fire Protection Engineer's offices.
.7 Expedite the processing of Shop Drawings in a timely manner.

3.9.7 PERMITS AND APPROVALS

The CM will be responsible for coordinating, paying for and obtaining all permits and approvals from local and statutory authorities and shall:

.1 Liaise with local and statutory authorities with respect to hoarding, traffic restrictions, services and associated diversions and/or connections.
.2 Inform PWGSC of their requirements to inform any statutory body via applications or orders.
.3 Ensure that all applications are filed and executed successfully.
.4 Verify that all necessary approvals have been obtained.

3.9.8 SITE REVIEWS

The CM shall:

.1 Arrange with the Departmental representative for the issuance of necessary forms respecting interim and final completion of the work.
.2 Prepare lists of incomplete and deficient items.
.3 Schedule completion of these items with the Sub-Trades and distribute all lists as appropriate.
.4 Distribute interim and final completion certificates.

3.9.9 COMMISSIONING STAGE

During the Commissioning Stage the CM shall:

.1 Complete the commissioning Work in accordance with the requirements outlined in Division 01 and in accordance with the accepted Commissioning Plan.
.2 Prepare the Commissioning Schedule in accordance with the requirements outlined in Division 01 in the CM Contract, including the following milestones for all Components, Systems and Integrated System Testing:
  .1 Component Forms, CM/Subcontractor verification.
  .2 Component Forms, CM/Design Management Team approval.
  .3 Equipment start-ups (as specified in individual specification sections).
  .4 Manufacturer representative start-ups (as specified in individual specification sections).
  .5 System Performance Testing Procedures, CM/Sub-contractor Verification.
  .6 System Performance Testing Procedures, CM/Design Management Team verification coordinated with PWGSC Commissioning Specialist and User Department verification.

.7 Integrated System Performance Testing Procedures, CM/Subcontractor(s) verification.

.8 Integrated System Performance Testing Procedures, CM/Design Team verification, coordinated with PWGSC Commissioning Specialist and User Department verification.

.9 Deferred testing and verification.

.3 Develop project specific forms in greater detail than the sample references included in Division 01 in electronic form.

.4 Develop and implement a tracking system to confirm all commissioning tasks and documentation are complete, reviewed and approved.

.5 Coordinate and direct all sub-trade activity to ensure that all subcontractors:

.1 Complete satisfactory testing and verification of all components, systems and integrated systems in accordance with the Commissioning Plan;

.2 Perform their respective obligations in accordance with the specifications and adhere to the Commissioning Schedule

.6 Ensure that all deficiencies are corrected and final results are included in the final Commissioning Report, prior to submission of the Report to the Departmental representative.

.7 Prepare and submit to the Departmental representative for review and acceptance, a Demonstration and Training Plan

.8 Allocate times, method of presentation and the recording of live presentations in accordance with Division 01, Demonstration and Training.

.9 Provide appropriate and adequate training for building operators in accordance with the accepted Training Plan.

.10 Confirm that all specified training is delivered.

3.10 WARRANTY

3.10.1 POST CONSTRUCTION AND WARRANTY STAGE

During the Post Construction and Warranty Stage the CM shall:

.1 Coordinate Sub-Trade activity to provide final Record Documents (Operations and Maintenance Manuals, As-built drawings and specifications) as required for each sub-trade.

.2 Assemble Record Documents in whole packages per sub-project or as directed by the Departmental Representative.

.3 Provide copies of Record Documents and updated BIM record to PWGSC as directed by the Departmental Representative

.4 Review and verify the accuracy of warranties and guarantees.

.5 Before completion of work, collect all manufacturer's guarantees, and warranties, complete with relevant contract numbers, and submit to the Departmental Representative for review and approval.

.6 Ensure that warranties and guarantees are included in the Operation and Maintenance Manuals;

.7 Review the Final Commissioning Report and comment on the accuracy and completeness;

.8 Coordinate Sub-Trade activity to provide final Record Documents (Operations and Maintenance Manuals, As-built drawings and specifications) as required for each sub-trade.

.9 Within ten (10) months of the commencement of the warranty period, arrange for an inspection of the facility to determine all warranty items to be corrected;

.10 Prepare a deficiency list for review and acceptance by the Departmental representative.

.11 Provide a schedule indicating when correction of all warranty items covered under the warranty will be corrected and submit to the Departmental representative for review and acceptance.

.12 Arrange for and correct all identified deficiencies in accordance with the schedule and advise when all deficiencies have been properly corrected.

.13 Ensure that all warranty deficiencies are properly corrected in a timely manner.

.14 The construction manager warranty inspection and up to 4 return inspections will be included in the fees.

.15 The CM shall be responsible for attending all warranty site meetings.

.16 The CM will participate in a half day lessons learned workshop.

APPENDIX 1

Table 1: Employment Statistics

Employment Statistics:
Fill out the tables provided for each month to provide details on the employment created as a direct result of implementing this project (see first two rows for an example)

- A week of full time employment is calculated at 37.5 hours/week
- Please note the first two rows are for example only

Number of employees	Month: April - March				
	# of weeks employed	Full Time	Part Time	Aboriginal employees (of total line number)	Total Dollar Value
10	4	X		4	$20,000
4	2		X	0	$6,700
Add Rows as needed					
Total					

Name _____ Signature _____ Date _____

Table 2: PWGSC AOC Monthly Sub-Contractor/Business Summary

Total Billed to Date: _____

Total Project Cost: _____

Cost of Supplies, Materials, Equipment, and Services Procured from Inuit Companies			
Inuit Company	Item Description	Costs this Period	Costs to Date
Totals			

Inuit Business is defined as a corporation, partnership, proprietorship and/or joint venture; where controlling interest of the Inuit Business is established by a status Aboriginal, a group of status Inuits, and/or an Inuit Business/Corporation.

_____ _____ _____

Name Signature Date

Table 3: PWGSC AOC MONTHLY LABOUR SUMMARY

Reporting Period: _____

Staff Member[1]	Inuit (Y/N)	Land Claim Beneficiary (specify)	Hours Worked in (Month)																													Total
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Total																																		

Notes:

[1] Personnel included here include all staff who are associated with the Construction Manager's work force including staff, sub-contractors, and sub-consultants.

Monthly Summary:

Total Number of on-site Inuit Person-Hours for the Month: _____

Total Number of on-site Person-Hours for the Month: _____

Monthly Average Inuit employment: _____

Project Summary:

Total Number of on-site Inuit Person-Hours for the Month: _____

Total Number of on-site Person-Hours for the Month: _____

Project Average Inuit employment: _____

_____ _____ _____

Name Signature Date