CONSTRUCTION FACILITIES

1. GENERAL

1.1 Offices and Sheds

.1 Offices

.1 Office may be at contractor's premises in Iqaluit.

.2 Equipment/Tool/Materials Storage

.1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause the least interference with work activities.

1.2 Temporary Utilities

.1 Temporary Power and Light

1 Provide and pay for temporary power required during construction, for temporary lighting and the operating of power tools, which is in addition to the power and lighting currently available at the plant.

.2 Arrange for connection with appropriate utility company. Pay all costs for installation, maintenance and removal.

.3 Provide and maintain temporary lighting throughout the project.

.4 Provide and pay for temporary site lighting for night time hours. Install lamps in suitable locations to obtain unobstructed light over entire area.

.5 Perform daily inspection of temporary lighting and replace burned out and missing lamps. Relocate promptly any lights that become obstructed by new work.

.2 Temporary Heating

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside the building must be vented to the outside or be flameless type. Solid fuel salamanders not permitted.

.3 Maintain temperatures of minimum 10°C in areas where construction is in progress, unless indicated otherwise in specifications.

.4 Ventilate heated areas and keep building free of exhaust or combustion gases.

.5 Be responsible for damage to the Work due to failure in providing adequate heat and protection during construction.

.3 Temporary Telephone

.1 Provide and pay for temporary telephones necessary for own use.

.4 Water Supply

.1 Provide own water supply as required.

.5 Temporary Sanitary Facilities

.1 Provide sufficient sanitary facilities for all in accordance with local health authorities.

.2 Maintain facilities in clean condition.

.6 Temporary Fire Protection

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Open fires and burning of rubbish are not permitted on the site.

.7 Dewatering

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.3 Construction Aids

.1 Hoisting

.1 Provide, operate and maintain hoists required for moving of workers, material and equipment.

.2 Ladders, Stairs

.1 Provide and maintain adequate temporary ladders and stairs required for construction.

.2 Secure to structure.

.3 Ladders and stairs are to comply with all requirements of safety authority.

.3 Scaffolding

.1 Provide and maintain scaffolding temporary stairs.

.2 Scaffolding is to be rigid, secure and constructed to ensure adequate safety for workers. Erect and remove without damage to the building or finishes.

.4 Temporary Retaining Walls

.1 Provide temporary sheeting, piling or shoring as required to protect excavations, and trenches from damage caused by rain water, ground water and other soil and weather conditions. Erect in a manner which will not encumber the performance of the Work.

.5 Explosives

.1 Provide for the use of explosives when required. Advise Engineer if explosives are required. When using, conform to the requirements of local governing authorities.

.2 Explosives are to be handled and used only by licensed personnel.

.3 Protect adjacent properties, work in progress and workers from damage or injury when using explosives. Place sufficient and adequate signs around site to warn the public that explosives are being used.

.4 Instruct workers as to the procedures to be taken prior to and during each detonation. Provide ample warning prior to each detonation and ensure all workers fully recognize these warnings.

.6 Explosive Actuated Fastening Tools

.1 Provide for the use of explosive actuated fastening tools when required. When using, conform to the requirements of CAN 3 Z166.1-M85 - "Power Actuated Tools" and local governing authorities.

.7 Welding Machines and Air Compressors

1 If required for performance of the work these are the responsibility of the respective users. Locate outside of building.

1.4 Security and Protection

.1 Protection for Off-Site & Public Property

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

.2 Site Storage/Loading

.1 Confine the Work and the operations of employees to limits indicated by the Contract Documents. Do not unreasonably encumber the premises with products.

.2 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the Work.

.3 Protection of Building Finishes & Equipment

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, hoardings as required.

.3 Be responsible for damage incurred during construction.

.4 Existing Services

.1 Maintain existing services in operation at all times during construction.

.2 Protect all existing services from damage. Repair services damaged by construction at no additional cost to the Owner.

.3 If service interruptions are necessary, such interruptions shall be made only at times approved by the Engineer.

.4 When breaking into or connecting to existing services or utilities, carry out work at times directed by local governing authorities, with a minimum of disturbance to the Work and pedestrian and vehicular traffic.

.5 Protect, relocate or maintain existing active services as required. When inactive services are encountered, cap off in a manner approved by local governing authorities having jurisdiction.

.5 Warning and Traffic Signs

.1 When Work is performed within public areas, provide and erect adequate warning and traffic signs as necessary to give the public proper warning. Place signs significantly in advance to enable the public to respond to directions.

.2 Warning and traffic signs shall be illuminating type, visible to the public and traffic during night time hours.

.6 Temporary Fencing

.1 Provide temporary fences and barricades around all excavations, open shafts, open stairwells, or other areas of construction.

.2 Provide temporary fencing as needed to ensure security of the site.

1.5 Access Roads and Parking

.1 Access to Site

.1 Provide and maintain access roads, ramps and construction runways as required for access to and on site. Conform to requirements of local governing authorities when required. Locate these traffic facilities where they are least disruptive to normal street traffic.

.2 Public Traffic Flow

.1 Provide and maintain flagpersons, traffic signals, barricades and flares/lights/lanterns as required to perform the Work and protect the public. Make arrangements with local governing authorities when these facilities will disrupt the normal flow of public traffic.

.3 Construction Parking

.1 Parking will be permitted on site provided it does not disrupt the performance of Work.

.2 Do not allow parking on site if disruptive to public traffic flow or access to site.

1.6 Temporary Controls

.1 Weather Enclosures

.1 Provide weather tight closures to unfinished door and window openings, and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.2 Dust Tight Screens

.1 Provide dust tight screens or partitions to localize dust generating activities, and for the protection of workers, finished areas of Work and the public.

.2 Maintain and relocate protection until such work is complete.

.3 Project Cleanliness

.1 Maintain the Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Owner or other Contractors.

.2 Remove waste material and debris from the site and deposit in waste container at the end of each working day.

.3 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

.4 Snow Removal

.1 Remove snow and ice from access roads, parking areas, offices and storage areas.

.2 Remove snow and ice from building surfaces as necessary for construction.

1.7 Installation / Removal

.1 Provide construction facilities, temporary facilities, controls and signs in order to execute the Work expeditiously.

.2 Remove from site after use.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

END OF SECTION

MATERIAL AND EQUIPMENT

1. GENERAL – NOT USED

2. PRODUCTS

2.1 Quality of Products

.1 Provide new materials, equipment and articles incorporated in the Work, not damaged or defective and of the best quality (compatible with specifications) for the purpose intended. If requested furnish evidence as to type, source and quality of products provided.

.2 Defective materials, equipment and articles whenever found may be rejected regardless of previous inspection. Inspection by the Engineer or an inspector does not relieve the Contractor of his responsibility but is merely a precaution against oversight or error. Remove and replace defective materials at own expense and be responsible for all delays and expenses caused by rejection.

.3 Should any dispute arise as to the quality or fitness of materials, equipment or articles, the decision rests strictly with the Engineer based upon the requirements of the Contract Documents.

.4 Unless otherwise indicated in the specifications, maintain uniformity of manufacturer for any particular or like item throughout the building.

.5 Permanent labels, trademarks and nameplates on materials, equipment and articles are not acceptable in prominent locations except where required for operating instructions and when located in mechanical or electrical rooms.

2.2 Availability of Products

.1 Immediately upon signing the Contract, review Product requirements and anticipate foreseeable delivery delays in any items. If delays in deliveries of materials, equipment or articles are foreseeable, propose substitutions or other remedial action in ample time to prevent delay in performance of the Work.

.2 If such proposal is not given to the Engineer, the Engineer reserves the right to substitute more readily available Products later in order to prevent delays at no additional cost to the Owner.

.3 No substitution of any item will be permitted unless the item cannot be delivered to the job site in time to comply with the Schedule.

.4 To receive approval, proposed substitutes must equal or exceed the quality, finish and performance of those specified and/or shown, and must not exceed the space requirements allotted on the drawings.

.5 Provide documentary proof of equality, difference in price (if any) and delivery dates in the form of certified quotations from suppliers of both specified items and proposed substitutions.

2.3 Storage, Handling and Protection of Products

.1 Handle and store products in a manner to prevent damage, contamination, deterioration and soiling and in accordance with manufacturer's recommendations when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturers' seals and labels intact. Do not remove packaging or bundling until required in the Work.

.3 Products subject to damage from weather are to be stored in weatherproof enclosures.

.4 Store cementitious materials clear of earth on concrete floors and away from walls.

.5 When required for grout or mortar materials, keep sand clean and dry. Store on polyethylene and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet metal and lumber on flat, solid supports and keep clear of ground.

.7 Remove oily rags and any other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion of materials.

2.4 Manufacturers' Directions

.1 Unless otherwise specified, install or erect all products in accordance with manufacturers' recommendations. Do not rely on labels or enclosures provided with products. Obtain instructions directly from manufacturers.

.2 Notify the Engineer, in writing, of any conflicts between the specifications and manufacturers' instructions so that the Engineer may establish the course of action.

.3 Improper installation or erection of products due to failure in complying with these requirements authorizes the Engineer to require any removal and re-installation that may be considered necessary, at no increase in Contract Price.

2.5 Transportation Costs of Products

.1 Pay all costs for transportation of products required for the Work.

2.6 Spare Parts

.1 Spare parts are to be supplied by the Contractor as required in the various specification sections. The lists in these sections are intended to include all parts which normally would be required within the first two years for normal preventative maintenance and where fabrication requirements for special parts would delay delivery and could keep an item of equipment out of service for an extended period.

3. EXECUTION – NOT USED

4. WORKMANSHIP

4.1 General Requirements

.1 Workmanship is to be of the best quality executed by workers fully experienced and skilled in their respective trades.

.2 At all times enforce discipline and good order among workers. Do not employ any unfit person or anyone unskilled in the duties assigned to him. The Engineer reserves the right to require the removal from site of workers deemed incompetent, careless, insubordinate or otherwise objectionable.

.3 Decisions as to the quality of or fitness of workmanship in cases of any dispute rests solely with the Engineer whose decision is final.

4.2 Co-ordination

.1 Co-ordinate the work of all Subcontractors.

.2 Ensure that all Subcontractors examine the drawings and specifications for other parts of the Work which may affect the performance of their work.

.3 Ensure that sleeves, openings and miscellaneous foundations are provided as required for the Work.

.4 Ensure that items to be built in are supplied when required with all necessary templates, measurements and shop drawings.

4.3 Concealment

.1 In finished areas conceal all pipes, ducts and wiring except where indicated otherwise on drawings or in specifications.

.2 Before installation inform the Engineer if there is a contradictory situation. Install as directed.

4.4 Location of Fixtures

.1 Consider the location of fixtures, outlets, and other mechanical and electrical items indicated on drawings as approximate. The actual location of these items is to be as required or directed to site conditions at the time of installation and as is reasonable.

.2 Before installation inform the Engineer if there is a contradictory situation. Install as directed.

4.5 Cutting and Remedial Work

.1 Perform all cutting and remedial work that may be required to make the several parts of the Work come together properly. Coordinate and schedule the Work to ensure that cutting and remedial work are kept to a minimum.

.2 Should the Owner or anyone employed by him be responsible for ill-timed work necessitating cutting and/or remedial work to be performed, the cost of such work will be valued as per the General Conditions.

.3 Employ specialists familiar with the materials affected in performing cutting and remedial work. Perform in a manner to neither damage nor endanger any portion of the work.

.4 Do not cut, drill or sleeve any load-bearing members without written approval of the Engineer.

4.6 Fastenings

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent material unless otherwise specified.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive, non-staining fasteners and anchors for securing exterior work unless otherwise specified.

.4 Space anchors within their load limit or shear capacity and ensure that they provide positive permanent anchorage. Wood plugs are not acceptable.

.5 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

4.7 Protection of Work in Progress

.1 Adequately protect all work completed and in progress. Repair or replace all damaged work.

.2 Prevent overloading of any part of the Work.

4.8 Cleaning

.1 Remove waste materials and debris from the site at regular intervals. Do not burn waste materials and debris on site.

5. MEASUREMENT

5.1 Metric Project

.1 Unless otherwise noted, this Project has been designed and is to be constructed in the S.I. metric system of measurements.

.2 Where specified metric elements will not be available when required, submit with Tender proposals for alternative products in accordance with the "Alternatives/Equals" clause of the Instructions to Bidders.

.3 During construction, when specified metric elements are unattainable at the time they are required to meet the Construction Schedule, the contractor shall notify the Engineer in writing and suggest alternative substitutions. Costs due to these substitutions shall be borne by the Contractor.

END OF SECTION

SYSTEMS DEMONSTRATIONS

1. GENERAL

1.1 Intent

.1 Operate the facility and demonstrate operation and maintenance of equipment and systems to Owner's personnel for two weeks prior to date of Substantial Completion.

1.2 Requirements Included

.1 Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

.2 When specified in individual Sections, require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.

1.3 Submittals

.1 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Owner's approval.

.2 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.3 Give time and date of each demonstration, with a list of persons present.

1.4 Conditions for Demonstrations

.1 Equipment has been inspected and put into operation.

.2 Testing, adjust, and balance has been performed and equipment and systems are fully operational.

.3 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

2. PRODUCTS – NOT USED

3. EXECUTION

3.1 Preparation

.1 Verify that conditions for demonstration and instructions comply with requirements.

.2 Verify that designated personnel are present.

3.2 Demonstration

.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at scheduled times, at the equipment location.

.2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction

.3 Review contents of manual in detail to explain all aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions

END OF SECTION

CONTRACT CLOSEOUT

1. GENERAL

1.1 Related Requirements

.1 Section 01720 - Submission of Record Drawings

.2 Section 01300 - Submittals

.3 Section 01735 - Commissioning

.4 General Conditions

1.2 Final Cleaning

.1 When the Work is at Substantial Completion, remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining Work.

.2 Remove waste products and debris and leave the Work clean and suitable for occupancy by Owner.

.3 When the Work is at Final Completion, remove surplus products, tools, construction machinery, equipment, waste products and debris.

.4 Leave the Work broom clean before the final inspection process commences.

.5 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.6 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.

.7 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.9 Broom clean and wash exterior walks, steps and surfaces.

.10 Remove dirt and other disfigurations from exterior surfaces.

.11 Clean and sweep roofs, gutters, downspouts, areaways and sunken wells.

.12 Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment.

1.3 Systems Demonstration

.1 See Section 01670.

1.4 Documents

.1 Collect reviewed submittals (Section 01300) and assemble documents executed by Subcontractors, suppliers and Manufacturers.

.2 Submit material prior to final application for Substantial Inspection. For items of Work delayed materially beyond date of Substantial Completion provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

.3 Provide warranties and bonds fully executed and notarized.

.4 Execute transition of Performance and Labour and Materials Payment Bond to warranty period requirements.

.5 Submit a final statement of accounting giving total adjusted Contract Sum, previous payments and monies remaining due.

.6 Engineer will issue a final change order reflecting approved adjustments to Contract Sum not previously made.

.7 Provide record information (Section 01720) prior to Substantial Completion.

1.5 Removal of Temporary Facilities

.1 Prior to application for Substantial Completion, remove all temporary offices and furniture, hoardings, fencing, tree and plant protection, and all other items used to aid the performance of the Work. Make good surfaces.

1.6 Project Commissioning

.1 Expedite and complete deficiencies and defects identified by the Engineer at no cost to owner.

.2 Review maintenance manual contents (operating, maintenance instructions, record "as-built" drawings, spare parts, materials) for completeness.

.3 Review cash allowances in relation to Contract Price, change orders, retainage, hold-backs and other Contract Price adjustments.

.4 Submit required documentation such as statutory declarations, Workers' Compensation Certificates, warranties, certificates of approval or acceptance from regulating bodies.

.5 Attend "end-of-work" testing and break-in or start-up demonstrations.

.6 Review inspection and testing reports to verify conformance to the intent of the documents and that changes, repairs or replacements have been completed.

.7 Review condition of equipment, which have been used in the course of the work to ensure turning over at completion is in "as new condition" with warrantees dated and certified from time of Substantial Completion of the Work.

.8 Arrange and coordinate instruction of Owner's staff in care, maintenance and operation of building systems and finishes by Suppliers or Subcontractors.

.9 Provide on-going review, inspection and attendance to building call-back, maintenance and repair problems during the Warranty periods.

1.7 Inspection / Takeover Procedures

.1 Prior to application for Substantial Completion, carefully inspect the Work and ensure it is complete, that major and minor construction deficiencies are complete and/or corrected and the building is clean and in condition for occupancy. Notify the Engineer in writing, of satisfactory completion of the Work and request a final inspection.

.2 During the final inspection, a list of deficiencies and defects will be tabulated. Correct same.

.3 When the Engineer considers deficiencies and defects have been corrected and it appears all requirements of the Contract have been performed, make application for final completion.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

END OF SECTION

PROJECT RECORD DOCUMENTS

1. GENERAL

1.1 Requirements Included

.1 Record documents, samples, specifications

.2 Equipment and systems.

.3 Product data, materials and finishes, and related information.

1.2 Related Requirements

.1 Section 01050 – Field Engineering.

.2 Section 01300 – Submittals.

.3 Section 01310 – Schedules, Progress Reports.

.4 Section 01400 – Quality Control.

.5 Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 Record Documents and Samples

.1 Maintain at the site for Engineer one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to the Contract.

5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store Record Documents and Samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label and file in accordance with Section number listings in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.

.5 Keep Record Documents and samples available for inspection by Engineer.

1.4 Recording As-Built Conditions

.1 Record information on a set of blue line opaque drawings, provided by Engineer

.1 Identify drawings as "Project Record Copy". Maintaining in good condition and make available for inspection on site for the Engineer at all times.

.2 Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.

.2 Record information concurrently with construction progress.

.3 Record locations of concealed elements of mechanical and electrical services and all other components which may be concealed. Do not conceal work until required information is recorded.

.1 Record all conduit runs complete with size, routing and wire count.

.4 Contract Drawings and shop drawings: Legibly mark each item to record actual construction, including:

.1 Measure depths of elements of foundation in relation to finish first floor datum

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.5 Specifications: Legibly mark each item to record actual construction, including;

.1 Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Submit marked Record Drawings with application for Substantial Completion Certificate.

.7 Other Documents: Maintain manufacturer's certifications, inspection certifications, field test records, and other documents required by individual specifications sections.

1.5 Equipment and Systems

.1 Each Item of Equipment and Each System: Include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.

.3 Include installed color-coded wiring diagrams.

.4 Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's coordination drawings, with installed color-coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

PROJECT RECORD DOCUMENTS

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01400.

.15 Additional Requirements: As specified in individual specification sections.

1.6 Materials and Finishes.

.1 Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and Weather-exposed Products: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommend schedule for cleaning and maintenance.

.4 Additional Requirements: As specified in individual specifications sections.

2. PRODUCTS – NOT USED

3. EXECUTION – NOT USED

END OF SECTION