

SPECIFICATION

RCMP “V” DIVISION

**FUEL TANK REPAIR AND
REPLACEMENT PROJECT**

**PHASE 1
NUNAVUT**

Tender

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V151 – Gym Storage

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Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises the repair and replacement of fuel tanks for various residential and facility buildings located in Nunavut. This work includes; labour, materials and shipping of materials, in accordance with the contract documents and as further described herein.

1.2 SCOPE OF WORK

- .1 Arctic Bay
 - .1 V009 – Residence – Remove and replace tank
 - .2 V100 – Residence – Remove and replace tank
 - .3 V015 – Residence – Remove and replace tank
 - .4 V102 – Facility Building – Remove and replace tank
- .2 Cape Dorset
 - .1 V157 – Residence – Remove and replace tank
 - .2 V149 – Residence – Remove and replace tank
 - .3 V151 – Gym/Storage – Remove and replace tank
 - .4 V153 – Garage/Workshop– Remove and replace tank
 - .5 V156 – Garage – Remove and replace tank
 - .6 V160 – Residence – Remove and replace tank
 - .7 V148 – Facility Building
 - .1 Remove and replace interior tank
 - .2 Remove and replace exterior tank
- .3 Qikiktarjuaq
 - .1 V089 – Garage – Remove and replace tank
 - .2 V103 – Residence – Remove and replace tank
 - .3 V104 – Residence – Remove and replace tank
 - .4 V088 – Facility – Remove and replace tank
- .4 Pond Inlet
 - .1 V135 – Residence – Remove and replace tank
 - .2 V136 – Garage/Gym – Remove and replace tank
 - .3 V137 – Residence – Remove and replace tank
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 - .6 V138 – Facility – Remove and replace tank
- .5 Clyde River
 - .1 V095 – Residence – Remove and replace tank
 - .2 V116 – Garage/Gym – Remove and replace tank

- .3 V118 – Gym/Storage – Remove and replace tank
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- .6 Hall Beach
 - .1 V054 – Garage - Minor Repair to Tank Piping
 - .2 V053 – Residence - Remove and replace tank
 - .3 V055 – Residence - Remove and replace tank
 - .4 V058 – Facility Building - Minor Repair to Tank Piping
- .7 Igloolik
 - .1 V141 - Residence – Remove and replace tank
 - .2 V145 – Gym/storage - Remove and replace tank
 - .3 V158 – Garage / Workshop - Remove and replace tank
 - .4 V159 – Residence – Remove and replace tank
 - .5 V147 – Facility Building
 - .1 Remove interior tanks
 - .2 Install new exterior tanks
 - .3 Update piping
- .8 Iqaluit
 - .1 Iqaluit Hangar

1.3 PRICING

- .1 Supply a cost for each community separately. Ie. One price for Arctic Bay one cost for Cape Dorset, etc.

1.4 PROJECT COMPLETION

- .1 Project is to be complete by December 15th 2017 unless owner authorizes extension.

1.5 MOCK-UP

- .1 A mock-up of the new oil tank systems will be required to be completed by the Contractor prior to ordering of any stands, bases and fittings.
- .2 Mock-up will comprise of a complete system including: tank, steel stand, concrete base, typical piping and fittings, pipe protection, gauges and bollards.
- .3 The mock-up of the following will be required
 - .1 Single tank on steel stand – high
 - .2 Double tank on steel stand – high
 - .3 The mock-up will be reviewed and accepted by the engineer in writing. The mock-up will then become the standard of acceptance for all tanks of that type.
- .4 Contractor is not to order any components until the mock-up has been approved.
- .5 Inspections of all work will be based upon the mock-up.

1.6 SPILL KITS

- .1 All newly installed tanks are to have a spill kit supplied to the building owner. See mechanical specifications.

1.7 WORK SEQUENCE

- .1 All buildings will remain occupied during the renovation.
- .2 Co-ordinate Progress Schedule with Departmental Representative and consultant.
- .3 Maintain fire access/control

1.8 PROTECTION OF EXISTING EQUIPMENT AND SITE

- .1 The contractor is to document and photograph the existing site conditions and equipment at takeover of the work area and supply a digital copy to the consultant as part of the close out documents.
- .2 The contractor is responsible for the protection of all damage caused during the construction process and it will be the responsibility of the contractor to make good to the acceptance of the Project Manager and Consultant.

1.9 CONTRACTOR USE OF PREMISES

- .1 Limit use of premises to allow:
 - .1 Owner Occupancy
 - .2 Work by other Contractors
 - .3 Public Usage
- .2 Keep clear products or equipment which may **interfere** with operation of Building or other contractors.
- .3 Assume responsibility for the protection and safekeeping of products under this contract.
- .4 Co-ordinate use of premises under direction of Consultant and Departmental Representative.
- .5 Limit use of premises for storage. Obtain and pay for use of additional storage or work areas needed for operations under this Contract as required.
- .6 Ensure safe practices and work area to prevent injury or damage to portions of existing work which remain.
- .7 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.

1.10 OWNER OCCUPANCY

- .1 Owner will occupy premises during entire construction period for execution of normal operations
- .2 Co-Operate with Owner in scheduling operations to minimize conflict and to facilitate owner usage.

1.11 EXISTING SERVICES

- .1 Notify Consultant and utility companies of intended interruption of services and obtain required permission. Pay fees and obtain certificates and permits required.

- .2 Where Work involves breaking into or connecting to existing services, give 48 hours' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and tenant operations.
- .3 Provide alternative routes for personnel and vehicular traffic (if required).
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.
- .5 Submit schedule to and obtain approval from Consultant and building operations for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary services when directed by Consultant or as required to maintain critical building and tenant systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, inform consultant and owner prior to capping off in manner approved by authorities having jurisdiction.
- .10 Record locations on as-built drawings of maintained, re-routed and abandoned service lines.

1.12 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each site specific document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.

1.13 CODES AND STANDARDS

- .1 Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards board, the Canadian Standards Association, The National Building Code of Canada 2010, and all applicable Territorial and Municipal codes, and all standards listed below. In the case of conflict or discrepancy the most stringent requirement shall apply.

- .2 Meet or exceed requirements of contract documents, specified standards, codes and referenced documents.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to building operations occupants, public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.4 EXISTING SERVICES

- .1 Notify, utility companies, Consultant, of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

1.5 SPECIAL REQUIREMENTS

- .1 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANNT) Chart.
- .2 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.

1.6 SECURITY CLEARANCES

- .1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.

- .2 No un-cleared personnel will be allowed in any of the buildings.

1.7 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. Smoking is not allowed on the property.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Project Supplementary Conditions

1.2 CONTINGENCY ALLOWANCE

- .1 Include in Contract Price contingency allowance of \$85,000.00.
- .2 Do not include in Contract Price, additional contingency allowances for products, installation, overhead or profit.
- .3 Expenditures under contingency allowance will be authorized in accordance with procedures provided in Change Order and Change Directive.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions.
- B. Quantities of Units to be included in the Base Bid are indicated in Section 004322 – Unit Prices.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Unit Prices.
- B. Related Sections include the following:

1.3 DEFINITIONS

- A. Unit Price is a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit Prices include all necessary material plus cost for delivery, installation, insurance, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of Work in-place that involves use of established Unit Prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of Unit Prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each Unit Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Unit Price No. 1 – Installation of Tiger Loop and filter assembly
 - 1. Description:

- a. Install new tiger loop and filter assembly in existing fuel system as per schematic drawings A4.0
2. Unit of Measurement: Complete installation of One Tiger Loop
- B. Unit Price No. 2 – Installation of new ½” copper fuel tubing.
 1. Description:
 - a. Remove existing ½” copper tubing.
 - b. Install new copper tubing in an existing residential home from the new fuel tank to the furnace, boiler or hot water tank.
 - c. Tubing to be installed compete with hangers and supports as per specifications.
 2. Unit of Measurement: Per foot of installed ½” copper tubing.
- C. Unit Price No. 3 – Installation of new 1” schedule 40 fuel piping.
 1. Description:
 - a. Remove existing 1” fuel piping.
 - b. Install new fuel piping in an existing building from the new fuel piping to the furnace, boiler or hot water tank.
 - c. Piping to be installed compete with hangers, fittings and supports as per specifications.
 2. Unit of Measurement: Per foot of installed 1” schedule 40 pipe.
- D. Unit Price No. 4 – Installation of fusible link ½”
 1. Description:
 - a. Install new fusible link in existing fuel system as per schematic drawings A4.0
 2. Unit of Measurement: Complete installation of One ½” fusible Link.
- E. Unit Price No. 5 – Installation of Ball Valve 1”
 1. Description:
 - a. Install new 1” ball valve in existing fuel system as per schematic drawings A4.0
 2. Unit of Measurement: Install one new Ball Valve 1”
- F. Unit Price No. 6 – Installation of Ball Valve 1/2”
 1. Description:
 - a. Install new 1/2” ball valve in existing fuel system as per schematic drawings A4.0
 2. Unit of Measurement: Install one new Ball Valve 1/2”
- G. Unit Price No. 7 – Installation of new 2” schedule 40 fuel piping.

1. Description:
 - a. Remove existing 1" fuel piping.
 - b. Install new fuel piping in an existing building from the new fuel piping to the furnace, boiler or hot water tank.
 - c. Piping to be installed compete with hangers, fittings and supports as per specifications.

2. Unit of Measurement: Per foot of installed 2" schedule 40 pipe.

H. Unit Price No. 8 – Installation of Ball Valve 2"

1. Description:
 - a. Install new 2" ball valve in existing fuel system as per schematic drawings M3.0

2. Unit of Measurement: Install one new Ball Valve 2"

I. Unit Price No. 9 – Installation of filter assembly

1. Description:
 - a. Install filter assembly in existing fuel system as per schematic drawings M3.0

2. Unit of Measurement: Complete installation of One filter

END OF SECTION

Part 1 General

1.1 ON-SITE DOCUMENTS

- .1 Contract Documents
- .2 Specifications
- .3 Addenda
- .4 Reviewed shop drawings
- .5 Change orders
- .6 Other modifications in contract
- .7 Field test reports
- .8 Copy of approved Work Schedule
- .9 Manufacturers installation and application instructions
- .10 Labour conditions and wage schedules
- .11 Project Record Documents (for as-built purposes)
- .12 Codes and Standards listed in 01 11 00

1.2 ADMINISTRATIVE

- .1 Attend project meetings throughout the progress of the work at the call of Consultant.
- .2 Provide physical space and make arrangements for meetings.
- .3 Consultant will record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .4 Consultant will reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants, affected parties not in attendance, Project Manager, and Contractor.
- .5 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 PRECONSTRUCTION MEETING

- .1 After award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities. Meeting will be held at the location and time designated by the departmental representative

- .2 Departmental Representative, Engineer and Consultant, Contractor, major Subcontractors, will be in attendance. Others may be in attendance at the discretion of the departmental representative or the Contractor. Representatives of the local Building Manager may also be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 2 days before meeting.
- .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Delivery schedule of specified equipment.
 - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .8 Owner provided products.
 - .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures
 - .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals
 - .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .12 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .13 Appointment of inspection and testing agencies or firms.
 - .14 Insurances, transcript of policies.
- .5 Comply with Departmental Representative's allocation of mobilization areas of site; for field offices and sheds, for access, traffic and parking facilities.
- .6 During construction coordinate use of site and facilities through Departmental Representatives procedures for intra-project communications: submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
- .7 Comply with instruction of consultant for use of Temporary utilities and construction facilities.
- .8 Coordinate field engineering and layout work with consultant.

1.4 PROGRESS MEETINGS

- .1 During course of Work at the discretion of the Consultant and Departmental Representative.

- .2 Representatives of the Contractor, major Subcontractors involved in the work and other as required and decided upon by the Departmental Representative or Contractor are to be in attendance. Contractor to notify all sub-contractors.
- .3 Consultant will notify contractor min 5 days prior to meetings
- .4 Consultant to record minutes of meetings and circulate to attending parties and affected parties not in attendance within 5 days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Other business.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Submit to Consultant submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in imperial units.
- .4 Where items or information is not produced in imperial units converted values are acceptable.
- .5 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Engineer's, Consultant's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
- .10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in the Territory of Nunavut, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .4 Allow 14 days for Consultant's review of each submission.
- .5 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .9 After Property Manager's, Engineer's, Consultant's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Consultant and Engineer may reasonably request.

- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Consultant and Engineer.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Consultant and Engineer
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic or 6 copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Consultant and Engineer.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit 6 copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Consultant and Engineer.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit 6 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant and Engineer
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Consultant and Engineer, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by Consultant is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that Consultant approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or

omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.3 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultant's business address.
- .3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in samples which Consultant may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 NOT USED

- .1 Not Used.

Part 2 Execution

2.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify consultant and Project Manager.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Consultant and Project Manager.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Consultant and Project Manager.

1.3 BUILDING SMOKING ENVIRONMENT

- .1 No smoking permitted.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION

- .1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant, instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Consultant will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by consultant for purpose of inspecting and/or testing portions of Work.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Property Manager or Consultant at no cost to Property Manager or Consultant. Pay costs for retesting and reinspection.

1.3 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.4 PROCEDURES

- .1 Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.5 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

1.6 REPORTS

- .1 Submit electronic copies of inspection and test reports to Consultant.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.7 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Consultant.
- .3 Prepare mock-ups for Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.8 MILL TESTS

- .1 Submit mill test certificates as requested.

1.9 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-O121-M1978(R2003), Douglas Fir Plywood.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 DUST TIGHT SCREENS

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

1.4 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.5 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles

1.6 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with property manager and detachment commander locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Project Manager and/or Consultant reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Project Manager based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- .9 Touch-up damaged factory finished surfaces to Consultants satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.6 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Project Manager will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Consultant reserves the right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the Consultant, whose decision is final.

1.8 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.9 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Consultant if there is interference. Install as directed by Consultant.

1.10 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.11 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Engineer of conflicting installation. Install as directed.

1.12 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Engineer.

1.15 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements. Note: Fire panel will alarm when hot cutting is done. Owner and building tenants requires notice when shutting down fire alarm system to do work. When alarm is off, contractor will provide fire watch.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 At penetration of fire rated wall, ceiling or floor construction, completely seal voids with firestopping material in accordance with Section 07 8400 – Firestopping, full thickness of the construction element
- .12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Dispose of waste materials and debris off site.
- .6 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .8 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.

- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Remove stains, spots, marks and dirt from electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .8 Vacuum clean and dust building interiors.
- .9 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .10 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .11 Remove dirt and other disfiguration from exterior surfaces.
- .12 Sweep and wash clean paved areas.
- .13 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .14 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Dispose of waste and separate waste materials for recycling as per requirements of local authorities.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Inspection.
- .2 Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 All Tank Installation Summary Sheets and required photos have been submitted to the engineer prior to inspection being requested. See Section 01 78 00 for standard information sheet and photo requirements.
 - .2 Work has been completed and inspected for compliance with Contract Documents.
 - .3 Defects have been corrected and deficiencies have been completed.
 - .4 Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - .5 Certificates required by Fire Commissioner, Utility companies, Engineering Services and Local Authorities have been submitted.
 - .6 Operation of systems have been demonstrated to Owner's personnel.
 - .7 Work is complete and ready for final inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Consultant and Contractor. If Work is deemed incomplete by Consultant, complete outstanding items and request reinspection.

1.2 CLEANING

- .1 In accordance with Section 01 74 11 – Cleaning.
- .2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with local authorities.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 Not Used

.1 Not Used.

END OF SECTION

TANK INSTALLATION SUMMARY

Tank Location:

Community: _____

Building Address: _____

Date of Installation: _____

Temperature and Weather of Installation: _____

Name of Installer: _____

Tank Information:

Type of Tank: _____

Tank Clearances:
Front:_____ Right Side:_____ Left Side:_____ Rear :_____

Tank Serial Number: _____

Stand Type: _____

Tank Warrantee Start Date: _____

Piping and Accessories Installed:

		Photo Provided
Shut Off Valve at Tank:	_____	_____
Drip Leg and Valve	_____	_____
Flex Connection	_____	_____
Vent Cover	_____	_____
Interstitial Vent Cover	_____	_____
Vent whistle	_____	_____
Fill Cover	_____	_____
Gauge and Protector	_____	_____
Exterior Caulking Installed	_____	_____
Two layers pipe tape at wall entry	_____	_____
Touch Up Paint for all Fittings	_____	_____
Minimum 24" Clearance to tank	_____	_____
Vent Clearance to Window/openings	_____	_____
Fill Clearance to Windows/openings	_____	_____

Interior Piping Installed

		Photo Provided
Interior Shut-off Valves	_____	_____

Warming Pipe _____
De-aerator (tiger loop) _____
Filter _____
Fusible Head Valve: _____
Interior Piping: _____

Type: _____ Length: _____ Photo Provided: _____

Photos

Photo Provided

Complete elevation with tank _____

Close up of tank:
Front: _____
Right side _____
Left Side _____
Rear: _____

Interior Piping Changes: _____
New fittings _____
New Spill Kit _____
Supplied Spill Report Document _____

Submitted By: _____

Date: _____



NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____	
	B OCCURRENCE DATE: MONTH – DAY – YEAR		OCCURRENCE TIME				
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)			
	D GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE			LONGITUDE			
	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS	
F	RESPONSIBLE PARTY OR VESSEL NAME			RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
	G ANY CONTRACTOR INVOLVED			CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED			QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)			QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
I	SPILL SOURCE			SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
	J FACTORS AFFECTING SPILL OR RECOVERY			DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS						
L	REPORTED TO SPILL LINE BY		POSITION		EMPLOYER	LOCATION CALLING FROM	TELEPHONE
	M ANY ALTERNATE CONTACT		POSITION		EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE
REPORT LINE USE ONLY							
N	RECEIVED AT SPILL LINE BY		POSITION		EMPLOYER	LOCATION CALLED	REPORT LINE NUMBER
			STATION OPERATOR			YELLOWKNIFE, NT	(867) 920-8130
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC					SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY		CONTACT NAME			CONTACT TIME		REMARKS
LEAD AGENCY							
FIRST SUPPORT AGENCY							
SECOND SUPPORT AGENCY							
THIRD SUPPORT AGENCY							

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Consultant comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, four final copies of operating and maintenance manuals in English.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.
- .10 Supply one electronic and 5 copies of equipment manuals for all new items installed under this project

1.2 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- .9 Provide scaled CAD files in dwg format on CD.

1.3 CONTENTS - EACH VOLUME

- .1 Table of Contents: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Digital Photos of the sites before and after the tanks have been installed. Provided on a CD or Flash Drive indexed to each community and structure. Photos to be cross referenced to the photos requested in the attached Tank Installation Summary.
- .6 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .7 Training: refer to Section 01 79 00 - Demonstration and Training.

1.4 INSTALLATION REPORT

- .1 Submit installation report for each oil tank installation. See Schedule 1 for Report format.

1.5 AS-BUILTS AND SAMPLES

- .1 Maintain, at site for Consultant one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to 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 record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 All copies of the documents must be turned over to consultant, **NO** copies may be maintained by the General Contractor or Trades.

1.6 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 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour 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 co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .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 01 45 00 - Quality Control.

- .15 Additional requirements: as specified in individual specification sections.

1.7 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour 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 recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.8 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.9 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification sections.
- .2 Provide items with tags identifying their associated faction and equipment.
- .3 Deliver to site; place and store
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listing in Maintenance Manual

1.10 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

- .5 Obtain receipt for delivered products and submit prior to final payment.

1.11 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

1.12 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.13 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Property Manager and Consultant for approval.
- .3 Warranty management plan to include required actions and documents to assure that Property Manager receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Property Manager for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps.
 - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .4 Contractor's plans for attendance at 10 month post-construction warranty inspections.
 - .5 Procedure and status of tagging of equipment covered by extended warranties.
 - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification will follow oral instructions. Failure to respond will be cause for the property manager to proceed with action against Contractor.

1.14 PRE-WARRANTY CONFERENCE

- .1 Meet with Consultant, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Consultant.
- .2 Consultant will establish communication procedures for:
 - .1 Notification of construction warranty defects.
 - .2 Determine priorities for type of defect.
 - .3 Determine reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.15 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Property Manager or Consultant.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

Part 4 SCHEDULES

See following Pages

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Equipment and systems.
- .2 Materials and finishes.
- .3 Spare parts.
- .4 Maintenance manuals.
- .5 Special tools.
- .6 Storage, handling and protection.

1.2 RELATED SECTIONS

- .1 Section 017800 - Closeout Submittals.
- .2 Section 014500 - Quality Control.

1.3 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 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour 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 colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .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.
- .15 Additional requirements: As specified in individual specification sections.

1.4 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour 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 recommended schedule for cleaning and maintenance.
- .4 Building Envelope: include copies of drawings of building envelope components, illustrating the interface with similar or dissimilar items to provide an effective air, vapour and thermal barrier between indoor and outdoor environments. Include an outline of requirements for regular inspections and for regular maintenance to ensure that on-going performance of the building envelope will meet the initial building envelope criteria.
- .5 Additional Requirements: as specified in individual specifications sections.

1.5 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.6 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.7 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

1.8 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

- .1 Demonstrate operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of final inspection.
- .2 Owner will provide list of personnel to receive instructions, and will co-ordinate their attendance at agreed-upon times.

1.2 QUALITY CONTROL

- .1 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 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Consultant approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.

1.4 CONDITIONS FOR DEMONSTRATIONS

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

1.5 PREPARATION

- .1 Verify that conditions for demonstration and instructions comply with requirements.
- .2 Verify that designated personnel are present.

1.6 DEMONSTRATION AND INSTRUCTIONS

- .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the designated location.
- .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
- .3 Review contents of manual in detail to explain aspects of operation and maintenance.

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA S350-M1980(R1998), Code of Practice for Safety in Demolition of Structures.

1.2 SUBMITTALS

- .1 Submit shop drawings in accordance with Sections 01 33 00 - Submittal Procedures 01 00 10 - General Instructions.

1.3 SITE CONDITIONS

- .1 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Consultant immediately.
 - .1 Do not proceed until written instructions have been received from Consultant.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 PREPARATION

- .1 Inspect site with Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.

3.2 PROTECTION

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features and parts of building to remain in place. Provide bracing and shoring required.
- .2 Keep noise, dust, and inconvenience to occupants to minimum.
- .3 Protect building systems, services and equipment.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required.

3.3 SALVAGE

- .1 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .2 Items to be stored in weather tight enclosure to ensure that no damaged is caused prior to re-installation

3.4 SITE REMOVALS

- .1 Remove items as indicated.

3.5 DEMOLITION

- .1 Remove parts of existing building to permit new construction.
- .2 Trim edges of partially demolished building elements to tolerances as defined by Consultant to suit future use.

3.6 DISPOSAL

- .1 Dispose of removed materials, except where specified otherwise, in accordance with authority having jurisdiction.

END OF SECTION



Information Bulletin:

Requirements for Decommissioning a Storage Tank System

Under the *Storage Tank Systems for Petroleum and Allied Petroleum Products Regulations*

Installation, modification or decommissioning of bulk fuel storage fuel storage system, or fuel dispensing system is a regulated activity under the *Storage Tank Systems for Petroleum and Allied Petroleum Products Regulations (the Regs)*. This information bulletin will provide an overview of *the Regs* and its requirements as applicable to the decommissioning or withdrawal of a storage tank system or any component of the storage tank system. **Contact Environmental Services** at the earliest stage of a storage tank withdrawal or decommission project to ensure the requirements are met.

Temporary Withdrawal from Service (s.43) Requirements:

1. The withdrawal lasts less than 2 years.
2. **Record** - owner or operator of a storage tank system that temporarily withdraws the system or any component of it from service must keep a record of the date on which they withdrew the system or component from service. The record must be kept on-site for 5 years.
3. **Cathodic Protection** - if the system is equipped with a cathodic protection system, the cathodic protection system is maintained and operated during the withdrawal
4. **Precision Leak Test** - shop-fabricated aboveground tanks and the system or its component has been out of service for more than one year, those tanks are tested for leaks using a tank precision leak detection test in accordance with section 21 before the system or component is returned to service
5. **Fill Pipe Label** - a label is affixed to the system's fill pipe stating that the system is temporarily out of service

Permanent Withdrawal from Service (s. 44) Requirements:

1. **Certified Person** – the decommissioning of the tank or any component of the tank system must be removed by a approved person* to do so by the province in which the system is located or supervised by a professional engineer.
2. **Decommissioning Record** - the owner or operator must keep a record that includes the date on which they withdrew the system or component from service and that establishes that the storage tank system or component was withdrawn by an approved person* or that the withdrawal was supervised by a professional engineer. The record must be kept on-site for 5 years.
3. **Tank Cleaning and Purging** - the owner or operator of the storage tank system must ensure that





- a. all liquids and sludge are removed and disposed of;
 - b. if a tank is being withdrawn from service, the tank is purged of vapours to less than 10% of the lower flammability limit and the presence of vapours is checked with a combustible gas meter; and
 - c. the withdrawal is done in a way such that there will be no immediate or long-term harmful effect on the environment and it will not constitute a danger to human life or health.
4. **Fill Pipe Label** - The owner or operator of the storage tank system must affix a label to the system's fill pipe stating that the system is permanently out of service.
 5. **Notification** - the owner or operator must notify the Minister, in writing, of the permanent withdrawal from service of a storage tank system or any component of a storage tank system within 60 days after the day on which it is permanently withdrawn from service.

**Approved person – a person licensed or certified by the province or territory in which they work to install/decommission storage tank systems.*



Additional Information:

Storage Tank System Regulations:

<http://laws-lois.justice.gc.ca/eng/regulations/sor-2008-197/index.html>

Environment Canada Enforcement Branch:

<http://www.ec.gc.ca/alef-ewe/Default.asp?lang=En&n=B670A72A-1>

CCME Code of Practice

<https://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=61B26EE8-1>

Contact Information:

Please contact your Environmental Manager at for inquiries on the storage tank regulations or installation requirements.

- D & V Divs – Paul Connor: 204 984-1013
- F & T Divs - Joel Brimacombe: 639-625-3330
- G & K Divs – Daniel Vermeulen 639-625-3345

EnvironmentNWR@rcmp-grc.gc.ca



Part 1 General

1.1 REFERENCES

- .1 Aluminum Association, Inc. (AAI)
 - .1 AAI DAF45-03, Designation System for Aluminum Finishes.
- .2 ASTM International Inc.
 - .1 ASTM A653/A653M-07, Standard Specification for Steel Sheet, Zinc-Coated, (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM B32-04, Standard Specification for Solder Metal.
 - .3 ASTM B456-03, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.81-M90, Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
 - .2 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
 - .3 CGSB 31-GP-107Ma-90, Non-Inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.
 - .4 CGSB 41-GP-6M-1983, Sheets, Thermosetting Polyester Plastics, Glass Fibre Reinforced. Reaffirmation of September 1976.
- .4 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .2 CSA W47.2-M1987(R2008), Certification of Companies for Fusion Welding of Aluminum.
 - .3 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
 - .4 CSA W59.2-M1991(R2003), Welded Aluminum Construction.
- .5 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI SSF 6-1995, Sheet Steel Facts #6, Metallic Coated Sheet Steel for Structural Building Products-July 1995.
- .6 Green Seal Environmental Standards
 - .1 Standard GS-11-2008, 2nd Edition, Paints and Coatings.
 - .2 Standard GS-36-00, Commercial Adhesives.
- .7 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .8 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - February 2004.
 - .1 MPI #76, Quick Dry Alkyd Metal Primer.

- .2 MPI #96, Quick Dry Enamel Gloss.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other building subtrades.
 - .4 Review manufacturer's installation instructions and warranty requirements.

1.3 ACTION SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit shop drawings and catalogue sheets.
 - .2 Indicate materials, thicknesses, sizes, finishes, colours, construction details, removable and interchangeable components, electrical components specifications and power loads, wiring terminal box locations, lamp centres and overlaps, access panels, mounting methods, schedule of signs.
 - .3 Submit drawn-to-scale details for individually fabricated or incised lettering indicating word and letter spacing.
- .3 Samples:
 - .1 Submit duplicate representative sample of each type sign, sign image and mounting method including, but not limited to: graphics, cast letters, sign box installation method, channel letters, and wall plates fixed mounting installation method.

1.4 INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature panel signage or components, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.

1.5 CLOSEOUT SUBMITTALS

- .1 Provide operation and maintenance data for illuminated signs for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.6 QUALITY ASSURANCE

- .1 Welding Certification in accordance with CSA W47.2.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

Part 2 Products

2.1 MATERIALS

- .1 Aluminum extrusions: to designation AA 6063-T5 AA 6006-T5.
- .2 Sheet aluminum: anodizing quality.
- .3 Prefinished sheet aluminum: plain utility sheet with manufacturer applied baked enamel finish.
- .4 Electrical components: CSA approved.
- .5 Welding materials: to CSA W59.
- .6 Solder: to ASTM B32, Type Sn50.
- .7 Self-stick foam tape: 1.6 mm thick, 352.4 kg/m³ density polyurethane open-cell foam tape for sign purposes, with synthetic self-stick adhesive on both sides.
 - .1 Width: to suit sign sizes.
- .8 Bituminous paint: to MPI EXT 5.4D.

2.2 TANK SIGNAGE

- .1 Screen print on steel or aluminum with reflective sheeting finish.
 - .1 WHIMIS Label 1202 10 ¾" x 10 ¾"
 - .2 Spill Report sign 10" x 14"
 - .3 No Smoking Sign 10" x 14"
- .2 U-Channel post: Hot dipped galvanized rolled high tensile steel, length to suit, prepuce with 10 mm holes at 25 mm orc.
- .3 Tamper-proof bolts and nuts: steel zinc plated bolts with cone shaped fluted aluminum nuts.

2.3 FABRICATION

- .1 Fabricate signs in accordance with details, specifications and shop drawings.
- .2 Build units square, true, accurate to size, free from visual or performance defects.
- .3 Fit and securely join sections to obtain tight, closed joints.
- .4 Allow for thermal movement without distortion of components.
- .5 Exposed fasteners permitted where indicated where approved by Consultant and to be inconspicuous and same color and finish as base material or as noted.
- .6 Polish exposed edges of metal to smooth, slightly convex profile.
- .7 Do steel welding to CSA W59 and aluminum welding to CSA W59.2.

- .1 Finish exposed welds flush and smooth.
- .8 Apply bituminous paint to aluminum in contact with dissimilar metals, concrete or masonry.
- .9 Manufacturer's nameplates on sign surface permitted in non-visible locations in completed work.

Part 3 Execution

3.1 INSTALLATION

- .1 Manufacturer's Instructions: compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.
- .2 Erect and secure signs plumb and level at elevations indicated.
- .3 Comply with sign manufacturer's installation instructions and approved shop drawings.
- .4 Mechanical attachment:
 - .1 To concrete or solid masonry: use lag screws and expansion bolts or screws and fibre plugs, as appropriate for stresses involved.
 - .2 To hollow masonry: use toggle bolts or equivalent.
 - .3 To steel: use bolts with nut and lock washers, self-tapping screws.
 - .1 Do steel welding to CSA W59 and aluminum welding to CSA W59.2.
 - .2 Finish exposed welds flush and smooth.
 - .4 To wood: use screws.
 - .5 Secure into framing members behind stud walls or above ceilings.
 - .6 Mechanical fasteners on exterior: non-staining, non-ferrous type.
 - .7 Fabricate special fasteners as required for installation conditions.
 - .8 Mechanical fasteners and methods of attachment subject to Consultant's approval.
 - .1 Obtain Consultant's approval before fixing to structural steel.
- .5 Adhesive attachment:
 - .1 Use self-stick adhesive foam tape to manufacturer's instructions to fix sign and prevent "rocking".
 - .2 Keep tape maximum 1.6 mm from edges.

3.2 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
 - .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
 - .2 Leave signs clean.
 - .3 Remove debris from interior of sign boxes.
 - .4 Touch up damaged finishes.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 231113 Fuel Oil Piping.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings; submit drawings stamped and signed by professional engineer registered or licensed in Territory of Nunavut, Canada, for steel stands and rebar. See structural drawings.
- .3 Shop drawings to show:
 - .1 Mounting arrangements.
 - .2 Operating and maintenance clearances.
- .4 Shop drawings and product data accompanied by:
 - .1 Points of operation on performance curves. (Pumps)
 - .2 Manufacturer to certify current model production.
 - .3 Certification of compliance to applicable codes. (valves, tanks, filters etc.)
- .5 Closeout Submittals
 - .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
 - .2 Operation and maintenance manual approved by, and final copies deposited with Consultant before final inspection.
 - .3 Operation data to include:
 - .1 Control schematics for systems including environmental controls.
 - .2 Description of systems and their controls.
 - .3 Operation instruction for systems and component.
 - .4 Description of actions to be taken in event of equipment failure.
 - .5 Valves schedule and flow diagram.
 - .6 Colour coding chart.
 - .4 Maintenance data to include:
 - .1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
 - .2 Data to include schedules of tasks, frequency, tools required and task time.
 - .5 Performance data to include:
 - .1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.

- .2 Equipment performance verification test results.
- .3 Special performance data as specified. (i.e. tank and pie testing.)
- .6 Approvals:
 - .1 Submit 2 copies of draft Operation and Maintenance Manual to Departmental Representative and Consultant for approval. Submission of individual data will not be accepted unless directed by Consultant.
 - .2 Make changes as required and re-submit as directed by Departmental Representative or Consultant.
- .7 Additional data:
 - .1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.
- .8 Site records:
 - .1 Consultant will provide 1 set of reproducible mechanical drawings. Provide sets of white prints as required for each phase of work. Mark changes as work progresses and as changes occur. Include changes to existing mechanical systems, control systems and low voltage control wiring.
 - .2 Transfer information to reproducibles, revising reproducibles to show work as actually installed.
 - .3 Use different colour waterproof ink for each service.
 - .4 Make available for reference purposes and inspection.
- .9 As-built drawings:
 - .1 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).
 - .2 Submit to Consultant for approval and make corrections as directed.
 - .3 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

1.3 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.
- .2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 MAINTENANCE

- .1 Furnish spare parts in accordance with Section 01 78 00 - Closeout Submittals as follows:
 - .1 One set of packing for each pump.
 - .2 One casing joint gasket for each size pump.
 - .3 One head gasket set for each heat exchanger.
 - .4 One glass for each gauge glass.

- .5 One filter cartridge or set of filter media for each filter or filter bank in addition to final operating set.
- .2 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00 - Closeout Submittals.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 024199 - Demolition for Minor Works.
 - .2 Dispose of waste as per local regulations.

Part 2 Execution

2.1 PAINTING REPAIRS AND RESTORATION

- .1 Do painting in accordance with Section 09 91 10 – Painting.
- .2 Prime and touch up marred finished paintwork to match original.
- .3 Restore to new condition, finishes which have been damaged.

2.2 CLEANING

- .1 Clean interior and exterior of all systems including strainers.

2.3 FIELD QUALITY CONTROL

- .1 Site Tests: conduct following tests in accordance with Section 01 45 00 - Quality Control and Section 23 11 13 – Fuel Oil Piping and submit report as described in PART 1 - SUBMITTALS.
 - .1 Pneumatic testing of tank.
 - .2 Pressure test of piping.
 - .3 Hydrostatic test of tank.

2.4 PROTECTION

- .1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Nameplates.
- .2 Tags.
- .3 Pipe Markers.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Administrative Requirements.
- .2 Section 01 61 00 - Common Product Requirements.
- .3 Section 01 78 10 - Execution Requirements.
- .4 Section 09 91 10 - Painting: Identification painting.

1.3 REFERENCES

- .1 ASME A13.1 - Scheme for the Identification of Piping Systems.

1.4 SUBMITTALS

- .1 Section 01 33 00: Procedures for submittals.
- .2 Submit list of wording, symbols, letter size, and colour coding for mechanical identification.
- .3 Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- .4 Product Data: Provide manufacturers catalogue literature for each product required.
- .5 Samples: Submit [two] labels,] tags.
- .6 Manufacturer's Installation Instructions: Indicate special procedures, and installation.

1.5 PROJECT RECORD DOCUMENTS

- .1 Section 01 78 10: Submittals for project closeout.
- .2 Record actual locations of tagged valves.

Part 2 Products

2.1 NAMEPLATES

- .1 Manufacturers:
 - .1 Seaton.
 - .2 Substitutions: [Refer to Section 01 62 00.]
- .2 Description: Laminated three-layer plastic with engraved [black] letters on light contrasting background colour. 2" x 4"

2.2 TAGS

- .1 Manufacturers:
 - .1 Seaton .
 - .2 Substitutions: [Refer to Section 01 62 00.]
- .2 Plastic Tags: Laminated three-layer plastic with engraved letters on light contrasting background colour. Tag size minimum <40 mm><<1-1/2 inch>> [square].
- .3 Chart: Typewritten letter size list in anodized aluminum frame.

2.3 PIPE MARKERS

- .1 Manufacturers:
 - .1 Seaton Model Set Mark Pipe Marker.
 - .2 Substitutions: [Refer to Section 01 62 00.]
- .2 Colour: Conform to ASME A13.1.
- .3 Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- .4 Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

Part 3 Execution

3.1 PREPARATION

- .1 Degrease and clean surfaces to receive adhesive for identification materials.
- .2 Prepare surfaces to Section 09 91 10 for stencil painting.

3.2 INSTALLATION

- .1 Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

- .2 Install tags with corrosion resistant chain.
- .3 Apply stencil painting to Section 09 91 10.
- .4 Install plastic pipe markers to manufacturer's instructions.
- .5 Install plastic tape pipe markers complete around pipe to manufacturer's instructions.
- .6 Identify air handling units, pumps, heat transfer equipment, tanks, and water treatment devices with [plastic nameplates.] Small devices, such as in-line pumps, may be identified with tags.
- .7 Identify control panels and major control components outside panels with plastic nameplates.
- .8 Identify thermostats relating to terminal boxes or valves with nameplates.
- .9 Identify valves in main and branch piping with tags.
- .10 Identify air terminal units and radiator valves with numbered tags.
- .11 Tag automatic controls, instruments, and relays. Key to control schematic.
- .12 Identify piping, concealed or exposed, with [plastic tape pipe markers.] [Use tags on piping <20 mm><<3/4 inch>> diameter and smaller.] Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed <20 feet>> on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Pipe and pipe fittings.
- .2 Valves.
- .3 Fuel oil storage tanks.
- .4 Accessories.

1.2 RELATED SECTIONS

- .1 Section 01 10 13 - Summary of Work
- .2 Section 01 20 13 - Price and Payment Procedures
- .3 Section 01 33 00 - Administrative Requirements.
- .4 Section 01 61 00 - Common Product Requirements.
- .5 Section 01 78 10 - Execution Requirements.
- .6 Section 08 31 13 - Access Doors And Frames.
- .7 Section 09 91 10 - Painting.
- .8 Section 23 05 16 - Piping Expansion Compensation.
- .9 Section 23 05 29 - Supports And Anchors.
- .10 Section 23 05 53 - Mechanical Identification.
- .11 Section 26 05 80 - Equipment Wiring: Electrical characteristics and wiring connections.
- .12 Section 31 23 18 - Trenching.
- .13 Section 31 23 23 - Backfilling.

1.3 REFERENCES

- .1 ANSI B31.1 - Power Piping.
- .2 ANSI B31.4 - Liquid Petroleum Transportation Piping Systems.
- .3 ANSI B31.9 - Building Service Piping.

- .4 API Spec 12P - Fibreglass Reinforced Plastic Tanks.
- .5 API 650 - Welded Steel Tanks for Oil Storage.
- .6 API 2000 - Venting Atmospheric and Low Pressure Storage Tanks.
- .7 ASME - Boiler and Pressure Vessel Code.
- .8 ASME SEC IX - Welding and Brazing Qualifications.
- .9 ASME B16.3 - Malleable Iron Threaded Fittings.
- .10 ASME B16.18 - Cast Copper Alloy Solder-Joint Pressure Fittings.
- .11 ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings
- .12 ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes.
- .13 ASME B36.10 - Welded and Seamless Wrought Steel Pipe.
- .14 ASTM A53/A53M - Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- .15 ASTM A234/A234M - Piping Fittings of Wrought-Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
- .16 ASTM B88 - Seamless Copper Water Tube.
- .17 AWS A5.8 - Filler Metals for Brazing and Braze Welding.
- .18 AWWA C105 - Polyethylene Encasement for Ductile Iron Pipe Systems.
- .19 CSA B139.2-15 Installation code for oil-burning equipment for residential and small commercial buildings
- .20 CAN/ULC –S670 Standard for Aboveground non-metallic tanks for fuel oil and other combustible liquids
- .21 CAN/ULC –S670, 677, 652, 601, 602, 653, or 655
- .22 Factory Mutual Class 7440 – fusible links
- .23 NFPA 30 - Flammable and Combustible Liquids Code.
- .24 NFPA 31 - Installation of Oil-Burning Equipment.
- .25 ULC/ORD –C842 Guide for the Investigation of Valves for Flammable and Combustible Liquids.
- .26 ULC/ORD –C536 Flexible Metallic Hose

- .27 UL 80 - Steel Tanks for Oil-Burner Fuel.
- .28 UL 142 - Steel Aboveground Tanks for Flammable and Combustible Liquids.
- .29 UL 1316 - Glass Fibre Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol Gasline Mixtures.

1.4 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00: Procedures for submittals.
- .2 Product Data: Provide data on pipe materials, pipe fittings, valves and accessories. Provide manufacturers catalogue information. Indicate valve data and ratings.
- .3 Shop Drawings: Indicate tanks, system layout, pipe sizes, location, and elevations. For fuel oil tanks, indicate dimensions and accessories including manholes and hold down straps.

1.5 SUBMITTALS FOR INFORMATION

- .1 Section 01 33 00: Procedures for submittals.
- .2 Certificates: Certify that tanks/pumps/valves meet or exceed specified requirements.

1.6 SUBMITTALS AT PROJECT CLOSEOUT

- .1 Section 01 78 10: Procedures for submittals.
- .2 Project Record Documents: Record actual locations of piping system, storage tanks, and system components.
- .3 Maintenance Data: Include installation instructions, spare parts lists.
- .4 Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.7 QUALITY ASSURANCE

- .1 Welding Materials and Procedures: Conform to ASME Code.
- .2 Welders Certification: To ASME SEC IX and CSA.
- .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- .4 Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.
- .5 Valves: Manufacturer's name and pressure rating marked on valve body.

- .6 Piping, flanges, unions, couplings: Manufacturer's name and pressure rating marked on body.

1.8 REGULATORY REQUIREMENTS

- .1 Conform to CSA B139.2-15 and CSA B139.2-15 for installation of fuel oil system.
- .2 Provide certificate of compliance from authority having jurisdiction indicating approval of installation of fuel oil system.
- .3 Products Requiring Electrical Connection: Listed and classified by CSA as suitable for the purpose specified and indicated.

1.9 DELIVERY, STORAGE, AND PROTECTION

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Protect piping and fittings from soil and debris with temporary end caps and closures. Maintain in place until installation.

1.10 WARRANTY

- .1 Section 01 78 10.
- .2 Provide thirty-year manufacturer warranty for oil tank against defects and corrosion.

1.11 EXTRA MATERIALS

- .1 Section 01 78 10.
- .2 Provide two repacking kits for each size valve.
- .3 Provide two oil filters for each boiler or furnace.
- .4 Provide dipstick and water finding paste.
- .5 Provide spill kit for each tank.

Part 2 Products

2.1 ABOVE GROUND PIPING

- .1 Copper Tubing: ASTM B88M, Type K,L,M, hard drawn.
 - .1 Fittings: ASME B16.18, cast copper alloy or ASTM B16.22 wrought copper and bronze.
 - .2 Joints: AWS A5.8 Classification BCuP-3 or BCuP-4 silver braze.
- .2 Copper Tubing: ASTM B88M, Type K,L, annealed.
 - .1 Fittings: ASME B16.26, cast bronze.

- .2 Joints: Flared.
- .3 Steel Pipe: ASTM A53 or ASME B36.10, Schedule 40 black.
 - .1 Fittings: ASTM B16.3, malleable iron, or ASTM A234/A234M, wrought carbon steel and alloy steel welding type.
 - .2 Joints: NFPA 30, threaded or welded to ASME 16.3 or ASME 16.39.
- .4 No compression fittings. No union requiring packing or gaskets. No right and left couplings. No solder or braze materials with a MP<538C.
- .5 Pipe jointing compound – CAN/ULC-S642. Suitable for fuel oil.

2.2 PIPE HANGERS AND SUPPORTS

- .1 Hangers for Pipe Sizes 15 to 40 mm, Carbon steel, adjustable swivel, split ring.
- .2 Hangers for Pipe Sizes 50 mm and Over: Carbon steel, adjustable, clevis.
- .3 Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
- .4 Wall Support for Pipe Sizes to 80 mm: Cast iron hook.
- .5 Vertical Support: Steel riser clamp.
- .6 Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- .7 Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

2.3 FLANGES, UNIONS, AND COUPLINGS

- .1 Pipe Size 50 mm and Under:
 - .1 Ferrous pipe: 1034 kPa (150 psi) malleable iron threaded unions.
 - .2 Copper tube: 1034 kPa (150 psi) bronze unions with brazed joints. No solder or braze materials with a MP<538C.
- .2 Pipe jointing compound – CAN/ULC-S642. Suitable for fuel oil.

2.4 BALL VALVES (BV-1)

- .1 Manufacturer: Kitz 68A
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Morrison Bros.
 - .2 Toyo
 - .3 Substitutions: [Refer to Section 01 62 00.]
- .3 Class 600 WOG, bronze, full bore, forged brass ball, brass gland and PTFE Teflon seats, steel lever handle, solder or threaded ends.

- .4 Exterior valves suitable for cold temperatures to -40C (-40F).
- .5 Conforms to ULC/ORD-C482.

2.5 CHECK VALVES (CV-1)

- .1 Manufacturer: Beckett Model 12430, 12440
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Morrison Bros.
 - .2 Kitz Fig 22
 - .3 Substitutions: [Refer to Section 01 62 00.]
- .3 MSS SP-80, Class 125, bronze body and cap, bronze swing disc, threaded ends.

2.6 FLEXIBLE CONNECTORS (FC-1)

- .1 Manufacturer: OPW Model Stainless Steel Flex Connectors.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: [Refer to Section 01 62 00.]
- .3 Bronze inner hose and braided exterior sleeve, suitable for temp rating -40F to 105F. Max operating pressure 1375kPa (200 psi) CWP.
- .4 ULC/ORD C536 Flexible Metallic Hose.

2.7 DEAERATOR (DA-1)

- .1 Manufacturer: Westwood Products: Tigerloop Ultra with screw-on oil filter
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: Not permitted.
- .3 Temp rating -7C to 40C (20F-105F). Max operating pressure 55 kPa (8psi). Max nozzle capacity 75.8 L/min (20GPH).

2.8 FUSIBLE LINKS (FL-1)

- .1 Manufacturer: Firomatic.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: Not permitted.
- .3 Max temp rating 74C (165F).
- .4 ULC 842 listed.

2.9 TANK WHISTLE (TW-1)

- .1 Manufacturer: Beckett.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: [Refer to Section 01 62 00.]
- .3 Lockable, with screen on vent cover.

2.10 FILL CAP (FC-1)

- .1 Manufacturer: Beckett Speed Fill.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: [Refer to Section 01 62 00.]
- .3 Zamak casting, lockable, cap chained to fill opening.

2.11 FILL BOX (FB-1)

- .1 Manufacturer: Morrison 517 Series 3-1/2 Gallon AST Spill Containers.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: [Refer to Section 01 62 00.]
- .3 3 1/2 gallon (13.25 liters) capacity
- .4 Hinged cover lockable with a padlock
- .5 Body: 16 gauge spun steel, powder coated white
- .6 Cover: 16 gauge steel, powder coated white

2.12 SPILL KITS (SK-1)

- .1 Manufacturer: SPC Oil Only Spill Kits (Economy and 55Gal drum)
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Enpac
 - .2 Substitutions: [Refer to Section 01 62 00.]
- .3 Residences: 5Gal capacity
- .4 Detachments: 20Gal capacity.

2.13 VENT CAPS (VC-1)

- .1 Manufacturer: Beckett. Model: Zinc-plated mushroom vent cap.
- .2 Other acceptable manufacturers offering equivalent products:

- .1 Substitutions: [Refer to Section 01 62 00.]
- .3 Zinc plated cast iron, with screen.

2.14 LEVELOMETER (LI-1)

- .1 Manufacturer: K TECH LEVELOMETER Model Midget Model 277 Pneumatic Indicator
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 King Tank Gauges.
 - .2 Rocket Wireless Gauge.
 - .3 Substitutions: [Refer to Section 01 62 00.]
- .3 ULC/ORD-C180-97 listed.

2.15 OIL FILTER

- .1 Manufacturer: Canadian General Filters
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: [Refer to Section 01 62 00.]
- .3 Suitable for oil burner.

2.16 WARM-UP PIPE (WP-1,2)

- .1 Shop manufactured. See sketch SK-1 in Appendix A.
- .2 WP-1: Schedule 40 pipe, 250mm (10") dia., 600mm (24") long, 31L.
- .3 WP-2: Schedule 40 pipe, 100mm (4") dia., 600mm (24") long, 5L.
- .4 With 25mm (1") drain valve and air bleed valve. (BV-1)

2.17 ABOVEGROUND FUEL STORAGE TANKS (T-1)

- .1 Manufacturer: Vilco D252.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: Not permitted.
- .3 Tank: CAN/ ULC-S670, double wall, fibreglass, oval with integral molded support feet, tappings for accessories, threaded connections.
- .4 Capacity: 1136 L. (250 gallons).

2.18 INDOOR DOUBLE-WALL STORAGE TANKS (T-2)

- .1 Manufacturer: Steelcraft.

- .2 Other acceptable manufacturers offering equivalent products:
 - .1 DTE Industries
 - .2 Clemmersteel
 - .3 Roth
 - .4 Regal Tanks
 - .5 Substitutions: [Refer to Section 01 62 00.].
- .3 Tank: CAN/ ULC-S602, double wall steel construction, tappings for accessories, threaded connections. Vacuum monitored, or contained type designed to contain at least 100% of tank volume with monitoring (as per CSA B139.1.1-15 Section 6.2). Sizes as per schedule.

2.19 FUEL OIL PUMPS

- .1 Manufacturer: Viking Model FH-432X.
- .2 Other acceptable manufacturers offering equivalent products:
 - .1 Substitutions: Not permitted.
- .3 Casing: Bronze, rated for 860 kPa (125 psi) working pressure with integral pressure relief valve.
- .4 Impeller: Bronze gears, positive displacement.
- .5 Drive: Direct connected with flexible coupling.
- .6 Accessories: Adjustable pressure control valve, bleed valve, mechanical seal.
- .7 ULC listed for fuel oil.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 10 13: Verification of existing conditions before starting work.
- .2 Verify that excavations are to required grade, dry, and not over-excavated.

3.2 PREPARATION

- .1 Ream pipe and tube ends. Remove burrs.
- .2 Remove scale and dirt, on inside and outside, before assembly.
- .3 Prepare piping connections to equipment with flanges or unions.

3.3 INSTALLATION

- .1 Install to manufacturer's instructions, stamped drawings, and CSA B139.2-15.
- .2 Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- .3 Install piping using fittings manufactured to ANSI standards. Provide threaded fittings, except use welded fittings where piping is concealed.
- .4 Route piping in orderly manner and maintain gradient.
- .5 Install piping to conserve building space and not interfere with use of space.
- .6 Group piping whenever practical at common elevations.
- .7 Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- .8 Provide clearance for installation of insulation and access to valves and fittings.
- .9 Provide access where valves and fittings are not exposed. [Coordinate size and location of access doors with Section 08 31 13.]
- .10 Where pipe support members are welded to structural building framing, scrape, brush clean, weld, and apply one coat of zinc rich primer.
- .11 Where pipe travels through buildings walls, use pipe sleeves or wrap pipe with two layers or pipe wrap.
- .12 Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting. Refer to Section 09 91 10.
- .13 Identify piping systems including underground piping. refer to Section 23 05 53.
- .14 Install valves with stems upright or horizontal, not inverted.
- .15 Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.
- .16 Test system in accordance with CSA B139.1-15 and authority having jurisdiction. Isolate tank from piping during tests. Clean strainers and filters after testing and provide new filter upon handover.

3.4 FUEL TANK INSTALLATION

- .1 Install tanks and associated piping to manufacturer's instructions, stamped drawings, and CSA B139.2-15.
- .2 Test tank as per manufacturer's instructions. Upon delivery, perform pneumatic testing as per manufacturer's instructions.

- .3 Mount aboveground tanks on foundation or stands as indicated on drawings.
- .4 Clean and flush day tank/warming tank prior to delivery to site. Seal until pipe connections are made.
- .5 Fill tanks at project turn-over with appropriate fuel. Do not transfer oil from old tank to new tank. At first fill, perform hydrostatic test of tank as per CSA B139.2-15 section 6.9.
- .6 Ensure level gauges have leak-proof and vapour-proof connections. Calibrate level gauges.

END OF SECTION

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by RCMP to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Construction Progress Schedule to be Completed in Microsoft Project or Similar Software.
- .3 Plan to complete Work in accordance with prescribed milestones and time frame.
- .4 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

- .5 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Submit to Consultant within 5 working days of Award of Contract as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Consultant within 5 working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

1.5 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Consultant will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.

1.7 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 **Products**

2.1 **NOT USED**

.1 Not used.

Part 3 **Execution**

3.1 **NOT USED**

.1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Northwest Territories
 - .1 The Workers Compensation Act latest edition.

1.2 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan .
- .3 Submit copies of Contractor's authorized representative's work site health and safety inspection reports to Consultant or authority having jurisdiction, as required.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.

1.3 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.4 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Consultant prior to commencement of Work.

1.5 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements .

1.6 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

- .2 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.7 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.8 COMPLIANCE REQUIREMENTS

- .1 Comply with The Workers Compensation Act, Workplace Safety Regulation, Northwest Territories Regulation.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.9 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise RCMP verbally and in writing.

1.10 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Consultant.

1.11 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant.
- .2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Consultant may stop Work if non-compliance of health and safety regulations is not corrected.

1.12 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 **Products**

2.1 **NOT USED**

.1 Not used.

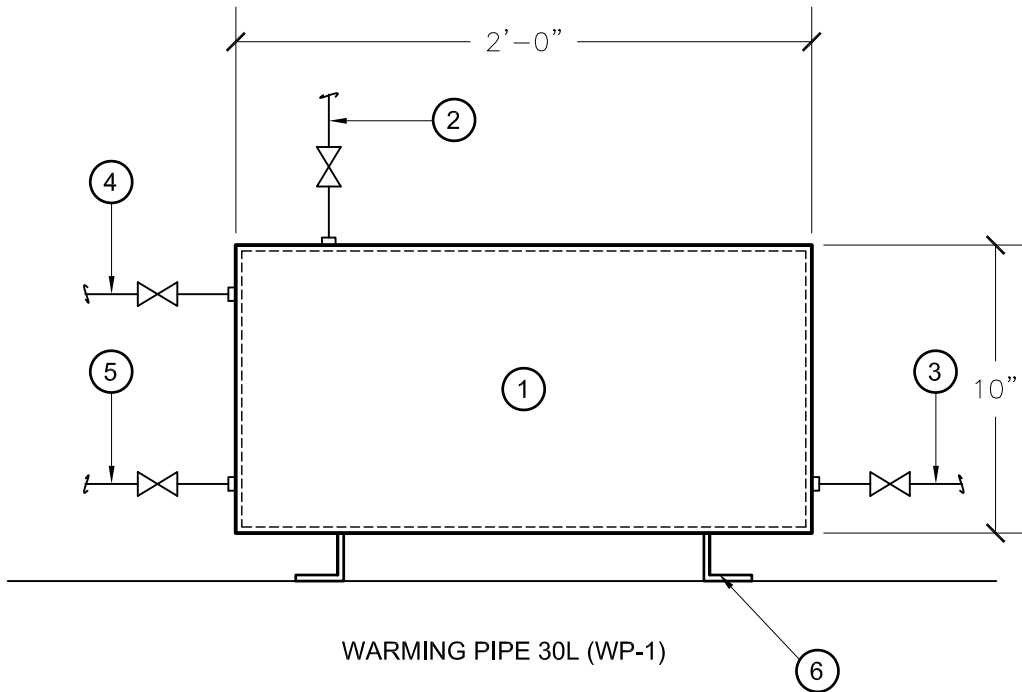
Part 3 **Execution**

3.1 **NOT USED**

.1 Not used.

END OF SECTION

Appendix A



DRAWING NOTES: (#)

1. 10" Ø SCHEDULE 40 PIPE X 24" LONG C/W 1/4" STEEL PLATE WELDED ON EACH END.
2. 1" Ø BLEED LINE + VALVE. CLOSE VALVE AND PROTECT END OF LINE WITH PLUG ONCE TANK IS FILLED.
3. SUPPLY LINE 1" Ø INLET SCREWED.
4. 2" Ø SUPPLY LINE SCHEDULE 40, SCREWED.
5. 1" Ø DRAIN LINE C/W VALVE & PLUG, SCREWED.
6. 2" x 2" X 1/4 "ANGLE SUPPORT LEGS, 12" LONG.

NOTES:

1. TANK AND PIPE TO BE PAINTED YELLOW.
2. TANK TO BE LABELED WARMING PIPE.
3. ALL VALVES TO TO BE LABELED. (SUPPLY, RETURN ETC.)
4. PROVIDE SHOP DRAWING FOR REVIEW.

REVISION NO.

SK - 1
JOB NO.
16-028-14-30

PROJECT TITLE
RCMP "V" DIVISION OIL TANK REPLACEMENT

SHEET TITLE
WARMING PIPE 30L (WP-1)

DATE (YY MM DD)
17 06 08

SCALE
SCALE

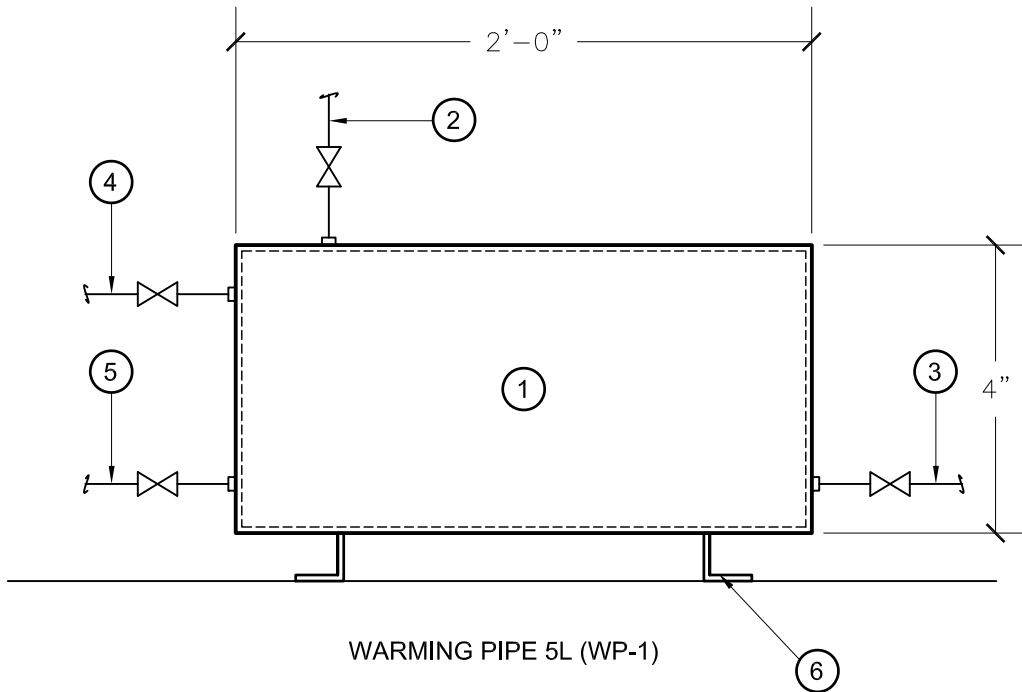
DRAWN BY
WD

CHECKED BY
RS

LOCATION
VARIOUS LOCATION

**can
tec**
ENGINEERING AND DRAFTING
1948 MAIN STREET, WINNIPEG, MANITOBA TEL: (204) 943-7222 FAX: (204) 947-5717
<http://www.cantecservices.ca/>

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WARMING PIPE 5L (WP-1)

DRAWING NOTES: (#)

1. 4" Ø SCHEDULE 40 PIPE X 24" LONG C/W 1/4" STEEL PLATE WELDED ON EACH END.
2. 1" Ø BLEED LINE + VALVE. CLOSE VALVE AND PROTECT END OF LINE WITH PLUG ONCE TANK IS FILLED.
3. SUPPLY LINE 1" Ø INLET SCREWED.
4. 2" Ø SUPPLY LINE SCHEDULE 40, SCREWED.
5. 1" Ø DRAIN LINE C/W VALVE & PLUG, SCREWED.
6. 2" x 2" X 1/4 "ANGLE SUPPORT LEGS, 12" LONG.

NOTES:

1. TANK AND PIPE TO BE PAINTED YELLOW.
2. TANK TO BE LABELED WARMING PIPE.
3. ALL VALVES TO TO BE LABELED. (SUPPLY, RETURN ETC.)
4. PROVIDE SHOP DRAWING FOR REVIEW.

REVISION NO.

SK - 2

JOB NO.
16-028-14-30

PROJECT TITLE
RCMP "V" DIVISION OIL TANK REPLACEMENT

SHEET TITLE
WARMING PIPE 5L (WP-2)

DATE (YY MM DD)
17 06 08

SCALE
SCALE

DRAWN BY
WD

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LOCATION
VARIOUS LOCATION



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CLYDE RIVER

V095 Residence



Photo 1 Exterior Elevation



Photo 2 Exterior Piping Under Duplex



Photo 3 Mechanical Room Piping

V116 Garage



Photo 4 Exterior Elevation



Photo 5 Interior Piping

V118 Gym/Storage/Generator



Photo 6 Exterior Elevation



Photo 7 Interior Piping



Photo 8 Interior Piping



Photo 9 Interior Piping

V119 Detachment



Photo 10 Exterior Tank Elevation



Photo 11 Exterior Tank Elevation



Photo 12 Interior Furnace 1 and 2 Piping



Photo 13 Hot Water Tank Fuel Piping



Photo 14 Hot Water Tank Fuel Piping



Photo 15 Crawl Space Entry Piping



Photo 16 Day Tank

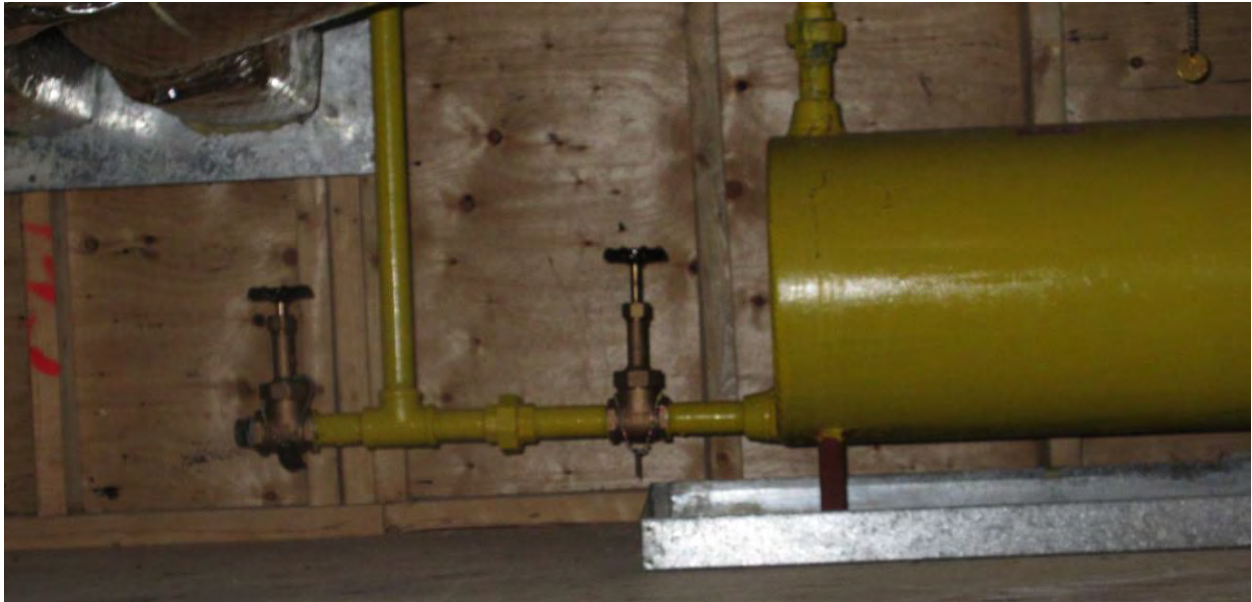


Photo 17 Day Tank



Photo 18 Furnace No.3 Fuel Piping

CAPE DORSET

House V147



Photo 1



Photo 2



Photo 3

V151 Storage Room/Gym

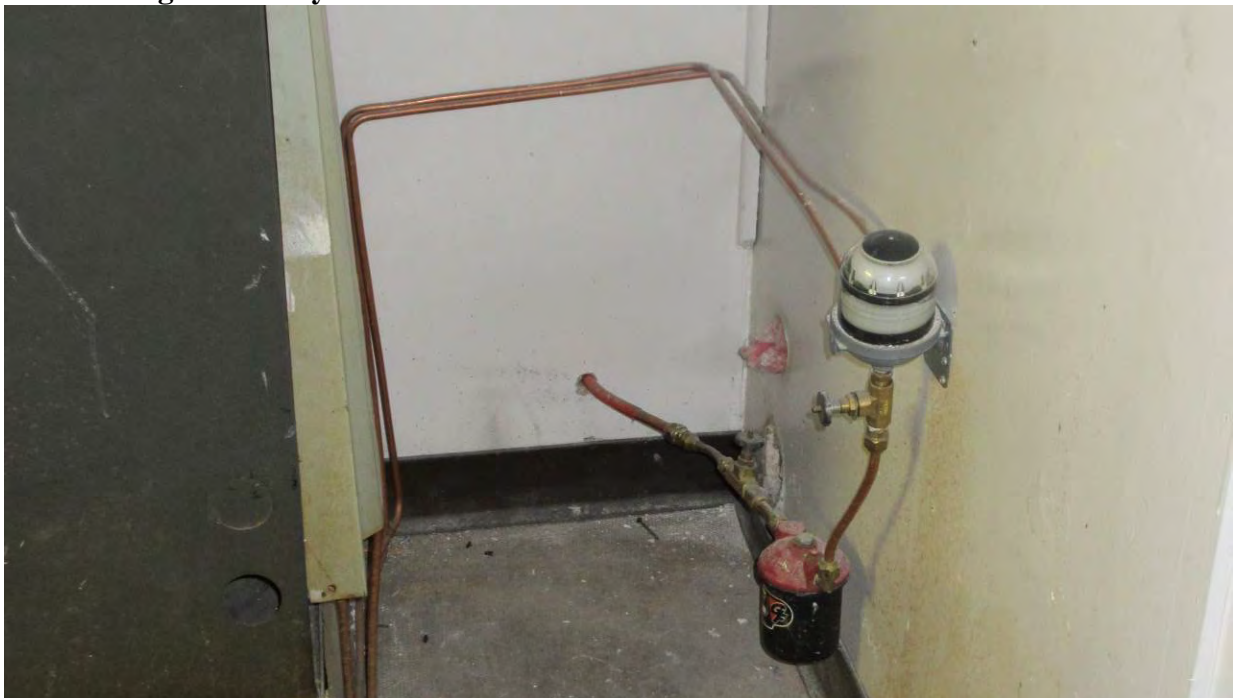


Photo 4 Fuel Line Entry into Gym



Photo 5 Existing Fuel Tank

V153 – Garage /Workshop



Photo 6 Rear Elevation of Fuel Tank



Photo 7 Fuel Tank Exterior

V156 Garage



Photo 8 Tank in Side Shed



Photo 9 Interior Piping



Photo 10 Interior Piping

V157 Residence



Photo 11 Exterior Elevation



Photo 12 Exterior Elevations



Photo 13 Interior Piping



Photo 14 Piping from Crawl Space

V160 Residence

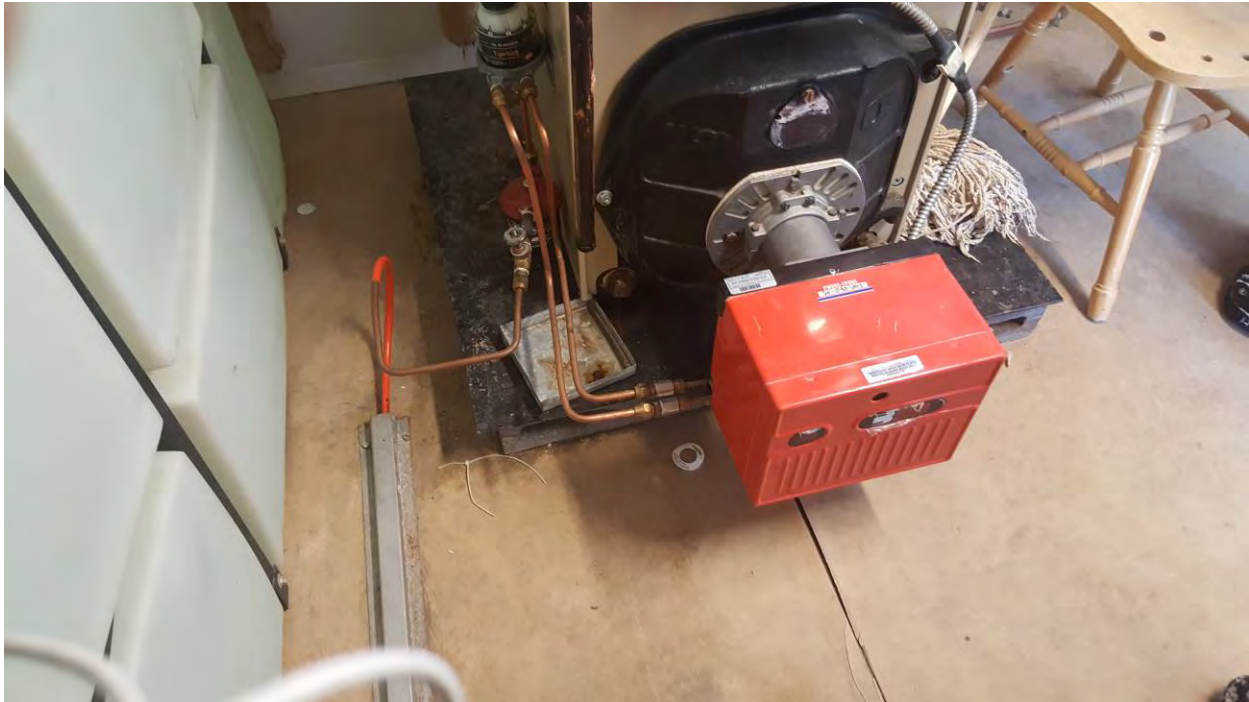


Photo 15 Interior Piping



Photo 16 Interior Piping from exterior tank



Photo 17 Exterior Tank

END OF SECTION

CLYDE RIVER

V095 Residence



Photo 1 Exterior Elevation



Photo 2 Exterior Piping Under Duplex



Photo 3 Mechanical Room Piping

V116 Garage



Photo 4 Exterior Elevation



Photo 5 Interior Piping

V118 Gym/Storage/Generator



Photo 6 Exterior Elevation



Photo 7 Interior Piping



Photo 8 Interior Piping



Photo 9 Interior Piping

V119 Detachment



Photo 10 Exterior Tank Elevation



Photo 11 Exterior Tank Elevation



Photo 12 Interior Furnace 1 and 2 Piping



Photo 13 Hot Water Tank Fuel Piping



Photo 14 Hot Water Tank Fuel Piping



Photo 15 Crawl Space Entry Piping



Photo 16 Day Tank

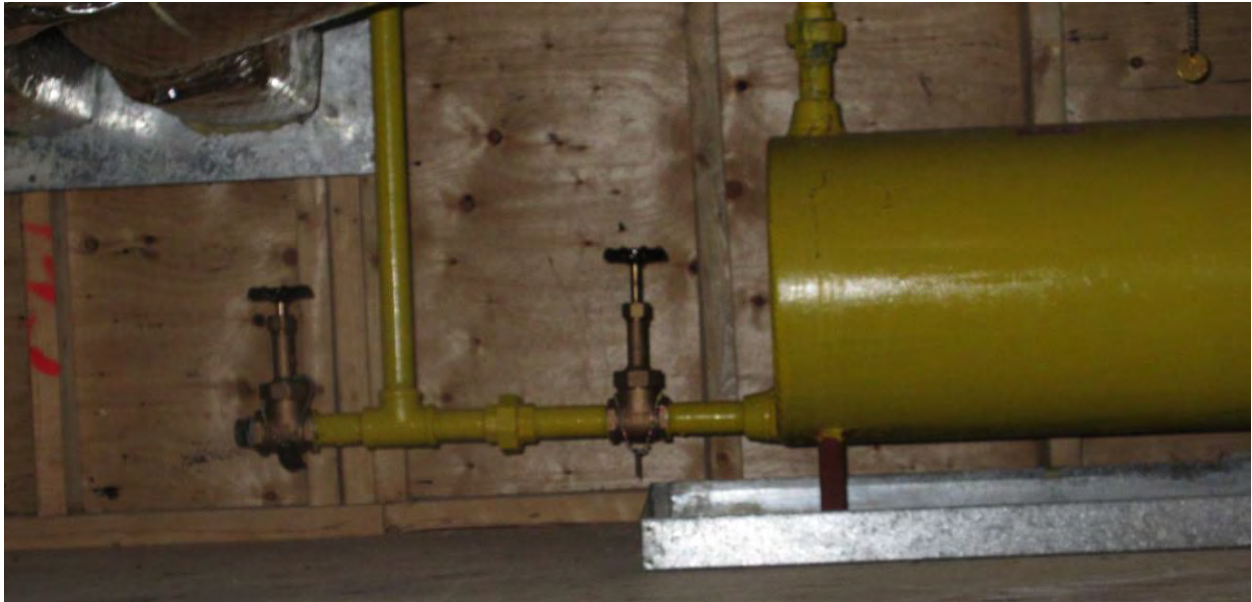


Photo 17 Day Tank



Photo 18 Furnace No.3 Fuel Piping

HALL BEACH

V054 – GARAGE



Photo 1



Photo 2

V053 – RESIDENCE



Photo 3

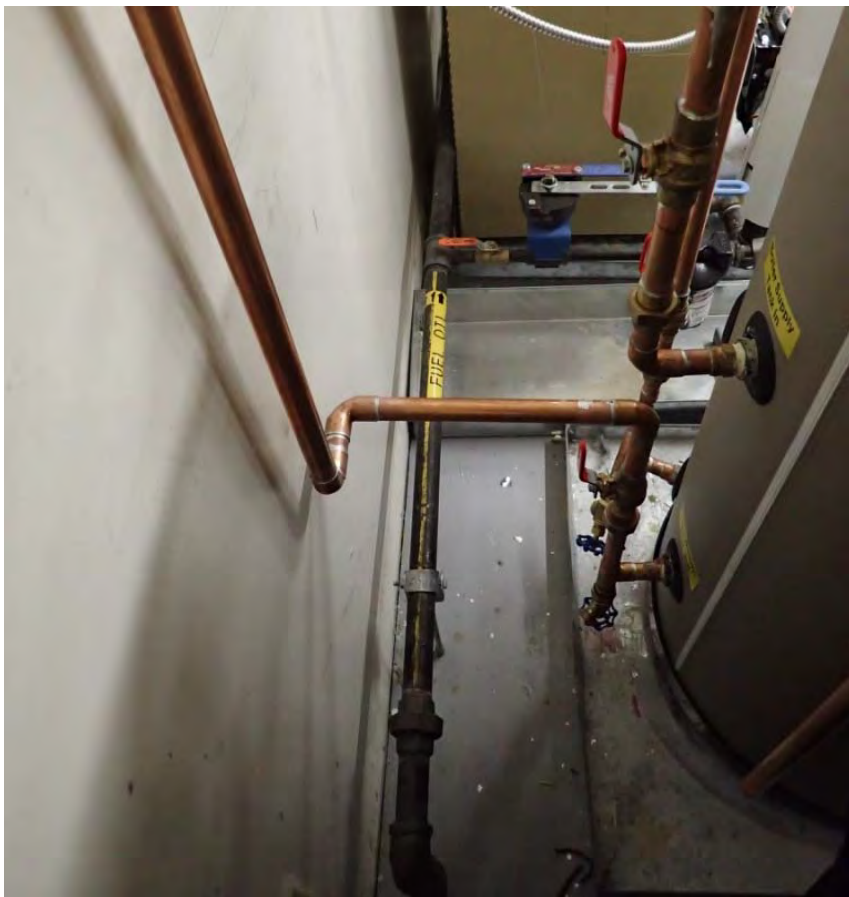


Photo 4 FUEL LINE



Photo 5 BOILER PIPING

V055 – RESIDENCE



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

V058 – FACILITY BUILDING



Photo 11



Photo 12



Photo 13



Photo 14

IGLOOLIK

V141 Residence



Photo 1 Exterior Elevation



Photo 2 Exterior Elevation



Photo 3 Interior Piping



Photo 4 Interior Piping

V145 Gym/Storage



Photo 5 Exterior Piping

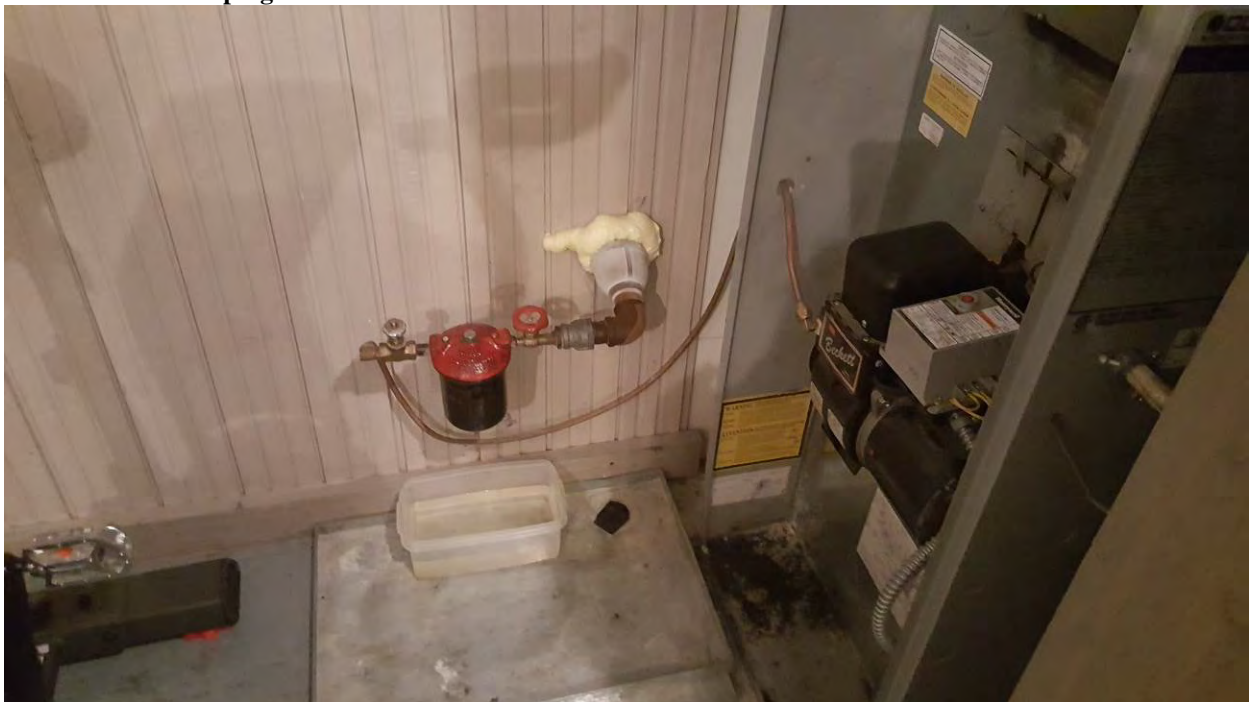


Photo 6 Interior Piping

V158 Garage/Workshop



Photo 7 Exterior Piping



Photo 8 Exterior Tank



Photo 9 Interior Piping



Photo 10 Interior Piping

V159 Residence



Photo 11 Exterior Elevation



Photo 12 Interior Piping

V147 Detachment



Photo 13 Exterior Fill and Vents



Photo 14 Exterior Stairs to be Removed and Re-Installed



Photo 15 Interior Tanks to be removed



Photo 16 Interior Tanks



Photo 17 Interior Venting to be removed



Photo 18 Hot water tank piping



Photo 19 Furnace Piping

IQALUIT – HANGER



Photo 1 Tank Fill



Photo 2 Top of Tank



Photo 3 PIPING TO TANK



Photo 4 Piping into Building



Photo 5 Fuel Pumps



Photo 6 Fuel Pumps



Photo 7 Vent Through Roof



Photo 8 Fuel Pumps

Pond Inlet

V135 Residence



Photo 1 Exterior Elevation



Photo 2 Interior Piping



Photo 3 Interior Piping

V136 Garage/Gym/Storage



Photo 4 Exterior Elevation



Photo 5 Exterior Elevation



Photo 6 Interior Piping



Photo 7 Interior Piping

V138 Detachment



Photo 8 Furnace Room No. 1



Photo 9 Furnace Room No. 1



Photo 10 Furnace No. 1 Piping



Photo 11 Furnace No. 2 Piping



Photo 12 Furnace No.2 Piping



Photo 13 Furnace No. 3 Piping



Photo 14 Furnace No. 4 Piping



Photo 15 Crawl Space Piping



Photo 16 Crawl Space Piping to Furnaces 1 and 2

V139 Residence



Photo 17 Interior Tank



Photo 18 Interior Piping



Photo 19 Fuel Lines On Floor



Photo 20 Fuel Lines



Photo 21 Fuel Lines at Furnace



Photo 22 Fuel Line at Boiler



Photo 23 Exterior Fill Lines



Photo 24 Exterior Elevation

V140 Residence



Photo 25 Exterior Elevation



Photo 26 Interior Piping



Photo 27 Interior Piping

QIKIOTARJUAQ

V089 - GARAGE



Photo 1



Photo 2

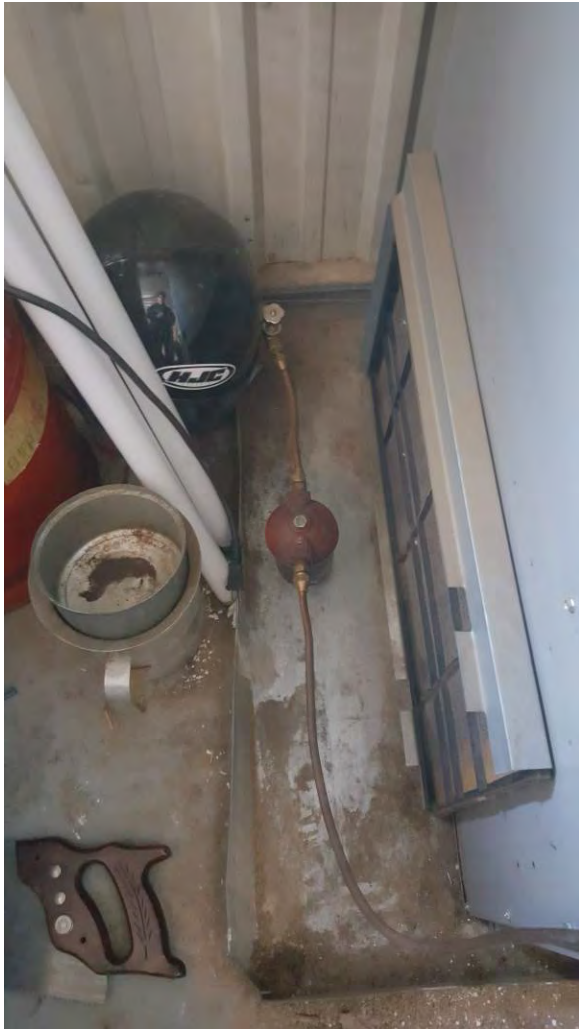


Photo 3

V104 – RESIDENCE



Photo 4



Photo 5 Interior Piping



Photo 6 Interior Piping

V103 – RESIDENCE



Photo 7



Photo 8 Interior Piping

V088 – FACILITY BUILDING



Photo 9



Photo 10



Photo 11 FUEL PIPE ENTRY INTO CRAWL SPACE



Photo 12 EXISTING GENERATOR DAY TANK



Photo 13 INTERIOR DAY TANK – BOILERS



Photo 14 INTERIOR PIPING

ARCTIC BAY

V102 - DETACHMENT



Photo 1: Outdoor above ground fuel tank



Photo 2: Exterior piping



Photo 3: Indoor furnace



Photo 4: Indoor water heater

V009 – RESIDENCE



Photo 1: Outdoor above ground fuel tank



Photo 2: Exterior piping



Photo 3: Indoor furnace



Photo 4: Indoor water heater



Photo 5: Indoor piping & accessories

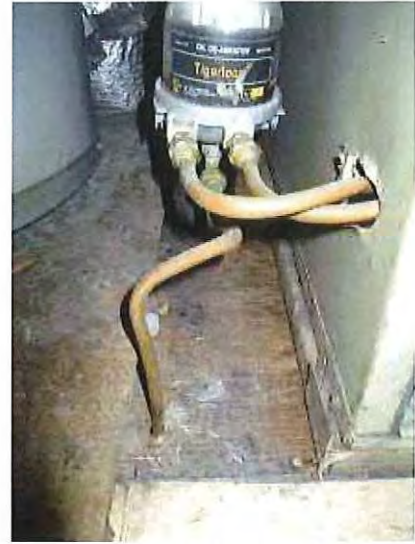


Photo 6: Indoor piping and accessories

V100 – RESIDENCE



Photo 1: Outdoor above ground fuel tank



Photo 2: Interior furnace and water heater



Photo 3: Interior piping and accessories