



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



SOW - MCTS BUILDING DEMOLITION AND SITE REMEDIATION

CCG GROS CAP MCTS

NEAR

SAULT STE. MARIE, ON

MARITIME AND CIVIL INFRASTRUCTURE

Prepared by: AB

Approved by: BY

Revision: 0

File: EWT 8055-119

Rev Date: June 5, 2017



TABLE OF CONTENTS

SECTION: 011000 GENERAL INSTRUCTIONS 1

SECTION: 013300 SUBMITTAL PROCEDURES 5

SECTION: 013530 HEALTH AND SAFETY REQUIREMENTS 6

SECTION: 013543 ENVIRONMENTAL PROCEDURES 7

SECTION: 014500 QUALITY CONTROL..... 10

SECTION: 016100 COMMON PRODUCTS REQUIREMENT 12

SECTION: 024117 STRUCUTRE DEMOLITION 14

SECTION: 028200.01 DESIGNATED SUBSTANCE REMOVAL – MINIMUM
PRECAUTIONS..... 18

SECTION: 055129 METAL STAIRS 23

SECTION: 3223113 CHAIN-LINK FENCES AND GATES 26

APPENDIX B1: SITE LOCATION AND PHOTOGRAPHS

APPENDIX B2: SUMMATY OF SUBMITALS.....

APPENDIX B3: DRAWINGS.....

APPENDIX B4: DESIGNATED SUBSTANCE SURVEY

APPENDIX B5: GEOTECHNICAL INVESTIGATION



SECTION: 011000 GENERAL INSTRUCTIONS

PART 1 - GENERAL

1.1 Minimum Standards

- .1 Perform work in accordance with National Building Code of Canada (NBCC) and any other code of provincial or local application. In the case of any conflict or discrepancy, the more stringent requirements shall apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents;
 - .2 Specified standards, codes and referenced documents, most recent edition

1.2 Description of Work

- .1 Work under this Contract includes but is not limited to the provision of all labour, materials, and equipment required to complete with all appurtenances identified herein, including:
 - .1 Demolition and disposal of the existing radio equipment building in its entirety, approximately 15 m x 6 m [49' x 20'];
 - .2 Demolition and disposal of the following reinforced concrete foundations;
 - .1 Main building's foundation, approximately 15 m x 6 m x 0.3 m [49' x 20' x 1'];
 - .2 Abandoned diesel generator foundation, approximately 3 m x 1.5 m x 0.3 m [10' x 5' x 1];
 - .3 Abandoned anchor foundation, approximately 0.6 m x 0.6 m x 0.6 m [2' x 2' x 2']; and,
 - .4 Seven [7] waveguide bridge Sonotube foundations, 0.406 m [16"] diameter.
 - .3 Removal and disposal of waveguide bridge, approximately 23 m [75' 6"];
 - .4 Modification of the existing chain-link fence with barbed wire, including;
 - .1 Removal and disposal of 70 m [230'] of fencing;
 - .2 Addition of 23 m [75' 6"] of fencing; and,
 - .3 Relocation of existing 4.5 m [15' 9"] single swing gate opening.
 - .5 Supply and install two [2] metal stairs and platforms for the existing new building



1.3 Submittals

- .1 Mandatory submittals and schedule for submission are detailed below and in Appendix B2. The following identifies general requirements only. The relevant sections must be consulted for a complete listing of mandatory content.
- .2 Detailed Schedule:
 - .1 Deadline: No later than ten [10] working days following award.
 - .2 Deliverables:
 - .1 The contractor shall furnish a high-level schedule outlining the major construction milestones. Schedule shall clearly define the anticipated start and finish of the project.
- .3 Demolition Plan:
 - .1 Deadline:
 - .1 No less than 10 working days prior to mobilization.
 - .2 Deliverables:
 - .1 A Demolition Plan of sufficient detail to demonstrate that the Contractor has considered all the challenges of the project and is prepared to undertake the works in a competent and professional manner in accordance with all legislation, including:
 - .1 Core Project member contact information (site foreman and project manager);
 - .2 Complete listing of all Subcontractors;
 - .3 Project specific safety program (Section 013530);
 - .4 Project environmental protection plan (Section 013543); and,
 - .5 Demolition plan (Section 024117); and,
 - .6 Designated Substance Plan (Section 028200.01).
- .4 Supplemental Material
 - .1 Deadline:
 - .1 21 calendar days following acceptance of the works
 - .2 Deliverables:
 - .1 As-built red-lined drawings



1.4 Contractor Qualifications

- .1 The work must be carried out under the supervision and responsibility of a sole specialized Contractor.
- .2 The Contractor must have experience in performing similar work.
- .3 All electrical work shall be undertaken by a licensed electrician.

1.5 Site Location

- .1 The site location is at Coast Guard's Gros Cap MCTS site (see Appendix B1 for photographs and map screenshots of the site)
- .2 The site coordinates are 46°32'16.53"N 84°34'54.53"W
- .3 The closest settlement is Prince, ON
- .4 Before tendering, Contractors should familiarize themselves with the location, scope of work, site restrictions, and temporary measures (including snow clearing), if required for completing the work as specified.
- .5 Contractor should note that this work is to be performed on the site of an existing operational tower where radio frequency transmission and reception is occurring.

1.6 Existing Conditions

- .1 Bidders must make their own estimate of the difficulties associated with all phases of the works.
- .2 The contractor must include in their costs all expenses related to the difficulties of working at the sites.
- .3 A copy of a recent geotechnical subsurface investigation has been included in Appendix B5
- .4 A recent Designated Substance Survey (Hazardous Building Materials Assessment) has been completed and is included in Appendix B4
- .5 Pictures of the site have been included in Appendix B1

1.7 Contractor's Access to Site

- .1 Contractor is responsible for transportation of all labour, materials, and equipment to and from the sites, including any and all material furnished or itemized for salvage by Coast Guard.
- .2 The site is accessible by truck, via gravel road.
 - .1 The road is not serviced in the winter. The successful bidder will be responsible for arranging and paying for any snow plowing required.



1.8 Temporary Facilities

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Arrange, pay for, and maintain temporary electrical power supply as required for construction, and water supply as required, in accordance with governing regulations and ordinances.
- .3 Maintain emergency spills kit on-site at all times.

1.9 Fees, Permits, Certificates and Information

- .1 Contractor shall provide authorities having jurisdiction with all information requested.
 - .1 Contractor shall provide copies to Coast Guard of any documentation submitted to other authorities related to the work described in this document.
 - .2 Contractor shall pay fees and obtain certificates and permits required.
 - .3 Contractor shall furnish certificates and permits when requested.

1.10 Protection of Existing Work

- .1 Care shall be taken to safeguard any existing structures and/or equipment. Upon completion of the work, all rejected materials, materials declared surplus by Coast Guard, and debris shall be removed from the site.

1.11 Reference Documents

- .1 The most recent publication or edition of any document referenced in this specification should be used unless the referencing clause states that this clause does not apply.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Deadline

- .1 All aspects of the project shall be completed no later than November 10, 2017.



SECTION: 013300 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 General

- .1 This section specifies general requirements and procedures for the Contractor's submissions of documents to Coast Guard for review.
- .2 Do not proceed with the work until Coast Guard has reviewed submitted documents or samples.
- .3 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by Coast Guard's review of the submitted documents.
- .5 Notify Coast Guard, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Coast Guard's review of submission, unless Coast Guard gives written acceptance of specific deviations.
- .7 Make any changes to submissions that Coast Guard may require consistent with Contract Documents and resubmit as directed by Coast Guard.
- .8 Provide Coast Guard with a written notice, when resubmitting, of any revisions other than those requested by Coast Guard.

1.2 Submission Requirements

- .1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- .2 Allow five (5) working days, or as stipulated in the specifications, for Coast Guard to review the submission.
- .3 The Contractor's Engineer shall stamp and sign any submissions requiring a Professional Engineer's seal certifying his approval of samples, verification of field measurements, and compliance with Contract Documents.



SECTION: 013530 HEALTH AND SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 General

- .1 Observe construction safety measures of National Building Code 2005, Part 8, Provincial Government, Worker's/Workmen's Compensation Board and municipal authority provided that in any case of conflict or discrepancy the more stringent requirements shall apply.
- .2 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada and Health and Welfare Canada.
- .3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations, and Quebec Safety Code for the construction industry (latest revision).
- .4 Deliver copies of WHMIS data sheets to Coast Guard on delivery of materials.
- .5 The Contractor shall implement a safety program which shall address all elements of the work.

1.2 Contract Submittals

- .1 Within 5 days of award of Contract, submit to Coast Guard two copies of Contractor's and Sub-Contractor's Project specific safety program including:
 - .1 A listing of all activities specific to the project and their Health & Safety risks or hazards.
 - .2 Detailed descriptions of how the activities are to be carried out as well as methods for mitigating hazards and risks.
 - .3 A listing of personnel responsible for health and safety measures, and Emergency procedures.
 - .4 Material Safety Data Sheets for hazardous products to be utilized in the execution of the works.



SECTION: 013543 ENVIRONMENTAL PROCEDURES

PART 1 - GENERAL

1.1 Scope of Work

- .1 The Contractor must implement and enforce the following procedures throughout the duration of the work to mitigate potential negative impacts on the surrounding environment.

1.2 References

- .1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
- .2 Canadian General Standards Board (CGSB)
- .3 Transportation of Dangerous Goods
- .4 Canadian Council of Ministers of the Environment (CCME) Documentation
- .5 Canadian Environmental Protection Act

1.3 Submittals

- .1 Project Environmental Protection Program
 - .1 Deadline: With Construction Plan
 - .2 Deliverables:
 - .1 Equipment features (age, spill containment)
 - .2 Staging, refueling, and cleaning areas
 - .3 Concrete wash-out and/or containment procedures.
 - .4 Waste disposal methods and sites

PART 2 - PRODUCTS

2.1 General

- .1 Avoid use of hazardous products. Use environmentally friendly products where practical.



PART 3 - EXECUTION

3.1 Construction Area

- .1 Confine construction activities to as small an area as practical.
- .2 Establish material storage, cleaning, and refueling areas where impacts to the surrounding environment will be negligible or readily mitigated.

3.2 Stockpiling of materials

- .1 Materials must be stockpiled as far from the shoreline as practical. Tarps must be used to control dust and run-off.

3.3 Disposal of Wastes

- .1 Clean-up the site at the end of each working day.
- .2 All waste material to be disposed of in a legal manner at a site approved by local authorities. Transporter/hauler must be appropriately licensed.
 - .1 Recycle or reuse materials where possible
- .3 Fires and burning of rubbish on site not permitted.
- .4 Do not bury rubbish and waste materials on site.

3.4 Clearing and Grubbing

- .1 Only clear vegetation that interferes with construction.

3.5 Drainage

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
 - .1 Suspend works during periods of heavy rainfall and add temporary covers to encourage run-off
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances by constructing appropriate control measures (sand bags/silt fence)
 - .1 Sediment control measures shall be inspected and improved/cleaned/replaced as necessary.

3.6 Pollution Control

- .1 Provide methods, means, and facilities to prevent the contamination of soil, water, and atmosphere from the discharge of pollutants produced by construction operations.



- .2 Vehicles, machinery, and equipment shall be in good repair, equipped with emission controls as applicable and operated within regulatory requirements.
- .3 Abide by local noise by-laws.
- .4 Avoid unnecessary idling of vehicles or heavy machinery
- .5 Limit use of equipment around the shoreline where possible
- .6 Implement and maintain dust and particulate control measures in accordance with provincial requirements
- .1 All bulk material haul equipment shall be appropriately tarped. Watertight vehicles shall be used to haul wet materials
- .7 Designate a cleaning area for tools to limit water use and runoff. Do not allow deleterious materials to enter waterways. Ensure emptied containers are sealed and stored safely for disposal.
- .8 The Contractor shall take all necessary precautions to guard against the release of any noxious substance or pollutant to the environment. In the event of any spill the Contractor shall take immediate action to contain the release and mitigate any impact.
- .1 Materials and equipment to intercept, contain, and clean-up any spill or other release shall be maintained on site throughout the construction period and must be readily accessible at all times
- .2 Any uncontrolled release of a known contaminant (spills, fire/smoke) shall be reported to appropriate Provincial Authority and Coast Guard. Spills of deleterious substances to be immediately contained and cleaned up in accordance with provincial regulatory requirements.
- .1 Provincial Authority: Ontario Spills Action Centre 1-800-268-6060



SECTION: 014500 QUALITY CONTROL

PART 1 - GENERAL

1.1 Inspection

- .1 Canadian Coast Guard or its representative shall have access to the work at all times. If parts of the work are prepared off-site or in a shop, access shall be given to such work throughout the duration of the project.
- .2 In the event the work must be submitted to special testing, inspection or approvals prescribed by Canadian Coast Guard in these specifications or provided for in work-site regulations, the request for inspection must be made without unreasonable delay.
- .3 The below list identifies key milestones where the Canadian Coast Guard will require an opportunity to take samples/inspect:
 - .1 Subgrade verification: Coast Guard representative shall inspect sub-grade upon completion of any excavation where a design bearing surface is to be achieved.
 - .2 Concrete testing: The contractor will be responsible to test concrete for air, slump and strength during the pour.
 - .3 Final completion: The Coast guard will conduct a final inspection upon completion.

1.2 Procedures

- .1 Provide Canadian Coast Guard with advance notice whenever testing is required in accordance with these specifications, so that all parties involved can be present.
- .2 Provide necessary manpower and installations for obtaining and handling samples and material on site.
- .3 Provide access to site if the site is of remote nature whereby the contractor is responsible for providing access to the site

1.3 Rejected Work

- .1 Remove defective work, whether incorporated into the work or not, which has been rejected by Canadian Coast Guard as failing to comply with the contract documents. Replace or re-execute in accordance with the Contract Documents.

1.4 Tests and Mixture Formulas

- .1 Supply test reports and required mixture formulas.

1.5 Factory Tests

- .1 Submit test certificates as prescribed in the relevant section of the specifications.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



1.6 Acceptance of Work

- .1 Canadian Coast Guard will make acceptance visits of work executed by the Contractor at critical milestones identified in the following sections.
- .2 The Contractor shall inform Canadian Coast Guard at least five (5) working days before these inspection visits.
- .3 All work shall be completed in compliance with the specifications before requesting the visit for inspection. If the work is not completed or deemed non-compliant, the Contractor shall be responsible for all costs incurred for subsequent inspections.



SECTION: 016100 COMMON PRODUCT REQUIREMENTS

PART 1 - General

1.1 General

- .1 Secure Coast Guard approval of all products to be incorporated into the works. Work shall not commence until product data and/or samples have received Coast Guard approval.
- .2 Supply and/or fabricate material and equipment of prescribed quality, with performance conforming to established standards.
- .3 Use new material and equipment unless otherwise specified.
- .4 Ensure replacements parts may be readily procured.
- .5 Use products from one manufacturer for material and equipment of same type or classification, unless otherwise specified.

1.2 Manufacturer's Instructions

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify Canadian Coast Guard in writing of any conflict between these specifications and manufacturer's instructions; Canadian Coast Guard will designate which document is to be followed.

1.3 Compliance

- .1 When material or equipment is specified by standard or performance specifications, upon request of Canadian Coast Guard, obtain an independent testing laboratory report from the manufacturer, stating that material or equipment meets or exceeds specified requirements.

1.4 Substitution

- .1 Where specific products have been specified, proposals for substitution may only be submitted after award of contract. Such requests must include statements of respective costs of items originally specified and the proposed substitution.
- .2 No substitutions will be permitted without prior written approval of Canadian Coast Guard. Substitutions will be considered by Canadian Coast Guard only when:
 - .1 Materials specified in Contract Documents, are not available; or,
 - .2 Delivery date of materials selected from those materials specified would unduly delay completion of contract; or,
 - .3 Alternative materials to those specified which are brought to the attention of and considered by Canadian Coast Guard as equivalent to the material specified will result in a credit to the Contract amount.



Fisheries and Oceans Canada / Pêches et Océans Canada

Canadian Coast Guard

Garde côtière canadienne



- .3 Should the proposed substitution be accepted either in whole or in part, the Contractor must assume full responsibility and costs when such substitution affects other work on the project including any and all design or drawing changes required as a result of substitution.

1.5 Submittals

- .1 Provide product specifications and/or samples upon request from Coast Guard.



SECTION: 024117 STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 Scope of Work

- .1 Work of this section includes the supply of all labour, material, and equipment, necessary to complete the following:
 - .1 Demolition and disposal of the existing radio equipment building in its entirety, approximately 15 m x 6 m [49' x 20'] this includes, but is not necessary limited to the following:
 - .1 Exterior double wythe unreinforced concrete block walls;
 - .2 Flat built-up roof;
 - .3 Pre-cast ceiling slabs;
 - .4 Interior walls;
 - .5 Electric service;
 - .6 Entrance porch and concrete slab; and,
 - .7 Doors, and any other items that might be uncovered during demolitions.
 - .2 Demolition and disposal of the following reinforced concrete foundations;
 - .1 Main building's foundation;
 - .2 Abandoned diesel generator foundation;
 - .3 Abandoned anchor foundation; and,
 - .4 Seven [7] waveguide bridge Sonotube foundations.
 - .3 Removal and disposal of waveguide bridge, approximately 23 m [75' 6"];
 - .4 Removal and disposal of 70 m [230'] of the existing chain-link fence with barbed wire fence;
 - .5 All disposal shall be at a licensed waste disposal facility.

1.2 Related Sections

- .1 Section 028200.01, Designated Substance Plan

1.3 References

- .1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.



- .1 CAN/CSA-S350 (Latest Edition) Code of Practice for Safety in Demolition of Structures.
- .2 Canada Labour Code Part II - January 2008
- .3 NRC-CNRC National Building Code of Canada 2015
- .4 Ontario Occupational Health and Safety Act and Regulations
- .5 CAN/CSA C22.1 Canadian Electrical Code, Part 1
- .6 CAN/CSA-A23.1-04 Concrete Materials and Methods of Concrete Construction

1.4 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.
 - .1 Demolition Plan:
 - .1 Deadline:
 - .1 No less than 10 working days prior to mobilization
 - .2 Deliverables:
 - .1 Method of demolition including all associated tasks and schedule;
 - .2 Methods for protecting the site from demolition debris.
 - .3 The ultimate disposal location of all waste materials and debris.
 - .1 Include documentation detailing regulatory approval for waste disposal facility and transporter.
 - .3 Work under this section shall not proceed until written approval of the demolition plan has been received from the Coast Guard.
 - .4 Submit copies of certified receipts from the disposal sites for all material removed from the work site upon request.

1.5 Existing Conditions

- .1 A drawing of the site plan is included in Appendix B3.
- .2 Main Building:
 - .1 Drawings are not available for the existing old building, which has reached beyond its life expectancy.
 - .2 A recent Designated Substance Survey (Hazardous Building Materials Assessment) has been completed and is included in Appendix B4.



- .3 The following is a description of the building refer to Appendix B1 for photographs;
 - .1 Roof: the roof is a built-up flat roof topped with 300 mm [12"] of gravel. The flat roof has metal flashing all around the soffit, with a drain pipe down through the interior of the building
 - .2 Exterior walls: the exterior walls are double wythe unreinforced and unfilled concrete block walls with a total thickness of 200 mm [7 5/8"]
 - .3 Main building's foundation: the foundation is presumed to be 15 m x 6 m x 0.3 m [49' x 20' x 1'] reinforced concrete. Coast Guard is not confident of the existing foundation sizes. For bidding purposes, Contractors shall assume the dimensions provided increases or decreases in actual quantities will be dealt with through the change management procedure detailed in the General Conditions.
 - .4 Concrete block porch: the entrance porch is 3.2 m x 1.7 m [10.5' x 5.5']. The walls are unreinforced and unfilled concrete block. The roof has timber joists and metal sheeting.
 - .5 Interior: the interior contains suspended acoustic ceiling with fluorescent lighting, painted concrete flooring, and unreinforced concrete block walls lined with gypsum board.
 - .6 Electrical: the building is still connected to hydro service
- .3 Miscellaneous reinforced concrete foundations:
 - .1 Drawings are not available for all the below components. Photographs are included in Appendix B1.
 - .1 Abandoned anchor foundation: remove and dispose one [1] 0.6 m x 0.6 m x 0.6 m [2' x 2' x 2'] abandoned anchor foundation as shown in Appendix B1
 - .2 Abandoned diesel generator foundation: remove and dispose one [1] reinforced concrete foundation, approximately 3 m x 1.5 m x 0.3 m [10' x 5' x 1']
 - .3 Waveguide's bridge Sonotubes: remove and dispose Seven [7] waveguide bridge Sonotube foundations, 0.406 m [16"] diameter. Drawings are included in Appendix B3.
 - .4 Chain-Link Fence:
 - .1 Remove and dispose 70 m [230'] of the existing chain-link fence with barbed wire fence. Typical chain-link fence drawing is included in Appendix B3.
 - .5 Wave-guide Bridge:
 - .1 Remove and dispose metal waveguide bridge posts, approximately 23 m [75' 6"];

PART 2 - PRODUCTS

2.1 General

- .1 Not used



PART 3 - EXECUTION

3.1 General

- .1 Work under this section shall be continuous and proceed without interruption unless otherwise approved by Coast Guard.

3.2 Protection

- .1 Implement effective controls to catch/collect all building debris during demolition.
- .2 Implement effective controls to prevent injury to workers, property, and local traffic.

3.3 Preparation

- .1 Erect warning signs and barricades.
- .2 Ensure all environmental protection/mitigation measures are in place.
- .3 Ensure all items identified for salvage have been removed and stored.

3.4 Demolition

- .1 Prior to demolition, insure that the electrical service to the building is safely disconnected by a licensed electrician. Cut the hydro line and bury it at least 1 m [3'] underground.
- .2 Demolish existing building and items identified in section 1.5 in their entirety
- .3 Ensure that demolition does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution
- .4 Ensure demolition is undertaken safely. If at any period during demolition the safety of the Contractor's staff cannot be maintained take preventative measures, stop work and immediately notify Coast Guard.

3.5 Disposal

- .1 All material for disposal is to be disposed of off-site at a licensed disposal/recycling facility.



SECTION: 028200.01 DESIGNATED SUBSTANCE PLAN – MINIMUM PRECAUTIONS

PART 1 - GENERAL

1.1 Scope of Work

- .1 Comply with requirements of this Section and the Designated Substance Survey in Appendix B4 when performing following work:
 - .1 Removing and disposing non-friable, white interior caulking, containing chrysotile asbestos, at corners of plywood (locations are indicated on drawing in Appendix B3);
 - .1 Break, cut, grind, sand, drill, scrape, vibrate or abrade non-friable asbestos containing materials using non-powered hand-held tools, and the material is wetted to control the spread of dust or fibers. If the work is to be done by means of power tools, then dust-collecting devices equipped with HEPA filters shall be used.
 - .2 Removing and disposing of lead-containing paint on doors, at the locations identified on drawing in Appendix B3.
 - .1 If the work is to be done by means of power tools, then dust-collecting devices equipped with HEPA filters shall be used.
 - .3 Comply with the recommendation outlined in the Designated Substance Survey report in Appendix B4.

1.2 Related Sections

- .1 Structure Demolition, Section 024117

1.3 References

- .1 Work under this section shall be undertaken in strict conformance with the most recent revisions of the following references, in the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 CAN/CGSB-1.205-2003, Sealer for Application of Asbestos Fibre Releasing Materials
 - .2 Canadian Environmental Protection Act, 1999
 - .3 NRC-CNRC National Building Code of Canada 2015
 - .4 Ontario Occupational Health and Safety Act and Regulations
 - .5 Transportation of Dangerous Goods Act, 1992 (TCGA)

1.4 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.



.1 Designated Substance Plan:

.1 Deadline:

- .1 No less than 10 working days prior to mobilization

.2 Deliverables:

- .1 Proof satisfactory to Coast Guard that suitable arrangements have been made to dispose designated substances in accordance with requirements of authority having jurisdiction
- .2 Proof of Contractor's Asbestos Liability Insurance.
- .3 Work under this section shall not proceed until written approval of the demolition plan has been received from the Coast Guard.

1.5 Quality Assurance

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is performed
- .1 Health and Safety in accordance with Section 013530 - Health and Safety Requirements.

1.6 Existing Conditions

- .1 A Designated Substance Survey (Hazardous Materials Survey) has been conducted on the building. Non-friable, white interior caulking, containing chrysotile asbestos, at corners of plywood walls were found (see drawing in Appendix B3). It was identified to CCG that some of the doors in the building possess lead-containing paint, see LP-004 and LP-007 on drawing in Appendix B3.
- .2 Notify Coast Guard Representative of friable material discovered during work. Do not disturb such material pending instructions from Coast Guard's representative

PART 2 - PRODUCTS

2.1 Lead Removal Materials

- .1 The following materials may be used to control the spread of lead-containing paint flakes:
- .1 Polyethylene sheets
- .2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.
- .3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual lead paint residue.



- .4 Label containers with pre-printed cautionary Warning Lead clearly visible when ready for removal to disposal site

2.2 Asbestos Removal Materials

- .1 The following materials may be used to control the spread of dust or fibers:
 - .1 Drop Sheets:
 - .1 Polyethylene: 0.15 mm thick.
 - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene
 - .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material
 - .3 Waste Containers: contain waste in two separate containers
 - .1 Inner container: 0.15 mm thick sealable polyethylene waste bag
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag
 - .3 Labelling requirements: affix pre-printed cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.
 - .4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres
 - .5 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water

PART 3 - EXECUTION

3.1 Lead Abatement Procedure:

- .1 Before beginning Work, isolate lead-containing substances using preprinted cautionary warning signs
- .2 Remove lead based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.
- .3 Seal filled containers. Clean external surfaces thoroughly by wet sponging
- .4 After completion of stripping work, wire brush and wet sponge surface from which lead based paint has been removed to remove visible material. During this work keep surfaces wet.



- .5 After wire brushing and wet sponging to remove visible lead based paint, and after encapsulating lead containing material impossible to remove, wet clean entire work area, and equipment used in process. Do not disturb work area for 8 hours.
- .6 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

3.2 Asbestos Procedure:

- .1 Before beginning Work, isolate asbestos substances work areas using preprinted cautionary warning signs
 - .1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.
 - .2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.
 - .3 Do not use compressed air to clean up or remove dust from any surface
- .2 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done
 - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused
 - .3 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.
 - .1 Perform Work to reduce dust creation to lowest levels practicable
- .4 Frequently and at regular intervals during Work and immediately on completion of work:
 - .1 Dust and waste to be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping, and placed in a waste container, and
 - .2 Drop sheets to be wetted and placed in a waste container as soon as practicable
- .5 Cleanup:
 - .1 Place dust and asbestos containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.
 - .2 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.
 - .3 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal Authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that the appropriate guidelines and regulations for asbestos disposal are followed



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



- .4 Perform final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.



SECTION: 055129 METAL STAIRS

PART 1 - General

1.1 Scope of Work

- .1 Work of this section includes the supply of all labour, material, and equipment, necessary to complete the following:

- .1 Supply and install two [2] metal stairs and platforms for the existing new building

1.2 Related Sections

- .1 Not used

1.3 References

- .1 Work under this section shall be undertaken in strict conformance with the most recent revisions of the following references, in the case of any conflict or discrepancy the more stringent requirements shall apply.

- .1 Canada Labour Code Part II – January
- .2 Ontario Occupational Health and Safety Act and Regulations
- .3 NRC-CNRC National Building Code of Canada 2015
- .4 CAN/CSA G164 - Hot Dip Galvanizing of Irregularly Shaped Articles.
- .5 CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding)
- .6 ASTM A123/A 123M-09 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel
- .7 ASTM A780M-09 Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings
- .8 National Association of Architectural Metal Manufacturers (NAAMM)
 - .1 AMP 510-[92], Metal Stair Manual

1.4 Submittals

- .1 Submittals shall be forwarded to Coast Guard in accordance with the provisions of section 013300.

- .1 Metal Stairs:

- .1 Deadline:

- .1 Prior to fabrication



.2 Deliverables:

- .1 Submit shop drawings indicating construction details, sizes of metal sections and thickness of metal sheet.

1.5 Existing Conditions

- .1 A new building has been recently installed within the site's compound. The existing new building has two [2] exterior doors that require new sets of stairs for access. The total ramp height has been measured to be approximately 480 mm [19"]. The doors are both 1 m [3'] wide. Photographs of the new building have been included in Appendix B1.

1.6 Design Requirements:

- .1 All components of the stairs, platform, and handrails shall be either made of aluminum or galvanized steel
- .2 The design shall be as per the National Building Code of Canada (NBCC) 2015
- .3 The stair systems shall have 1.2m x 1.2m [4' x 4'] platform
- .4 The stairs systems shall have their own supporting structure (legs) and shall not utilize the building's edge for vertical support
- .5 The stair systems shall bear on the existing reinforced concrete pads 1.83 m wide x 2.44 m [6' x 8'] long. Refer to existing new foundation drawing in Appendix B3.
- .6 The stairs shall be at least 900 mm [3'] wide
- .7 Tread width shall be at least 280 mm [11"] wide
- .8 Rise shall be at least 125 mm [5"] and no more than 180mm [7"]
- .9 The stairs shall have handrails 865 mm to 1070 mm high, installed at both sides
- .10 The top of the nosing of stairs shall have a rounded or beveled edge extending not less than 6 mm and not more than 14 mm measured horizontally from the front of the nosing

1.7 Quality Assurance

- .1 Coast Guards minimum inspection requirements are detailed below. The Contractor shall be responsible to notify Coast Guard of the date and time that the works may be inspected. Notice must be provided no less than three (3) working days in advance to permit scheduling of quality assurance testing. All deficiencies in the works identified at the time of inspection shall be remedied to the satisfaction of Coast Guard, by the Contractor at their expense. Work shall not progress until inspections have been completed and the Contractor has been provided with written notice to proceed with the works.



PART 2 - PRODUCTS

2.1 General

- .1 All materials described in this section shall be supplied by Contractor
- .2 All materials used to fabricate stair systems shall be either aluminum or galvanized steel
- .3 Steel sections: to CAN/CSA-G40.20/G40.21 Grade [300 W]
- .4 Steel plate: to CAN/CSA-G40.20/G40.21, Grade [260 W]
- .5 Welding materials: to [CSA W59]
- .6 Bolts: to ASTM A 307

PART 3 - EXECUTION

3.1 Fabrication

- .1 Fabricate to NAAMM, Metal Stair Manual
- .2 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur.
- .3 Accurately form connections with exposed faces flush; mitres and joints tight. Make risers of equal height.
- .4 Grind or file exposed welds and steel sections smooth.

3.2 Finishes

- .1 If steel is selected, galvanizing shall be as follows:
 - .1 Galvanizing: hot dipped galvanizing with zinc coating
 - .2 Shop coat primer: to CAN/CGSB-1.40.
 - .3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

3.3 Installation

- .1 Install stair systems on top of existing concrete pad
- .2 Install plumb and true in exact locations, using welded connections wherever possible to provide rigid structure. Provide anchor bolts, bolts and plates for connecting stairs to structure
- .3 Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.



SECTION: 323113 CHAIN-LINK FENCES AND GATES

PART 1 - GENERAL

1.1 General

- .1 Work of this section includes the supply of all labour, material and equipment required to complete:
 - .1 Modification of the existing chain-link fence with barbed wire, including;
 - .1 Addition of approximately 23 m [75' 6"] of fencing; and,
 - .2 Relocation of existing one [1] 4.5 m [15' 9"] single swing gate opening.
 - .2 Repairing of one [1] broken brace on the existing fence

1.2 Related Sections

- .1 Structure Demolition, Section 024117

1.3 References

- .1 Work under this section shall be undertaken in strict conformance with all listed references, In the case of any conflict or discrepancy the more stringent requirements shall apply.
 - .1 Canada Labour Code Part II – January
 - .2 Ontario Occupational Health and Safety Act and Regulations
 - .3 NRC-CNRC National Building Code of Canada 2015
 - .4 Ontario Provincial Standard Specification OPSS 772
 - .5 Ontario Provincial Standard Specification OPSS 1541 Chain-Link Fence Components
 - .6 Construction Specification for Concrete Structures OPSS 904
 - .7 CAN/CSA G164 - Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .8 CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding)
 - .9 ASTM A123/A 123M-09 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel
 - .10 ASTM A780M-09 Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings

1.4 Existing Conditions

- .1 The compound is secured via a chain-link fence with barbed wire. A drawing of the existing fence compound is shown in Appendix B3



- .2 The existing fence has a perimeter of approximately 132 m [433']. It is to be reduced to become 84 m [275'] following the demolition of the old building
- .3 The existing compound has a 4.5 m [15' 9"] single swing gate opening
 - .1 The contractor may salvage and re-use components from the existing gate
- .4 Before commencing work under this section the Contractor must establish the location of all buried services that may interfere with the execution of the work.
- .5 All work of this section shall be witnessed by Coast Guard or its representative.
- .6 A recent geotechnical investigation has been included in Appendix B5 for reference.

1.5 Quality Assurance

- .1 Coast Guards minimum inspection requirements are detailed herein. The Coast Guard representative may perform a spot visual inspection to determine conformance with the workmanship, design, and dimensional requirements of this specification. Failure to conform to the specification may result in a partial or complete inspection of the installation and removal and replacement of all defective workmanship or materials by the Contractor at their expense.

PART 2 - PRODUCTS

2.1 General

- .1 All materials described in this section shall be supplied by Contractor
- .2 Chain-link fence components shall be according to OPSS 1541

2.2 Concrete

- .1 Concrete shall have a nominal minimum 28-Day compressive strength of 20 MPa.

PART 3 - EXECUTION

3.1 Site Preparation

- .1 Prior to the commencement of fencing operations, all debris shall be removed and ground undulations shall be corrected along the fence line to obtain a smooth and uniform gradient.
- .2 All trees, stumps, and brush along the fence line shall be cut off at ground level and all logs and overhanging branches that interfere with the installation of the fence shall be removed.

3.2 Chain-Link Fence

- .1 Chain-link fence shall be installed at locations specified on drawing in Appendix B3
- .2 All posts shall be installed plumb and to the depth specified on drawings in Appendix B3



- .3 Posts shall be cut to the required height above the ground to present a smooth and uniform profile. Line post spacing shall be in equal horizontal distances with a maximum of 3,000 mm between line posts
- .4 All posts shall be fitted with waterproof metal caps designed to fit and fasten securely over the posts. All line post caps shall carry top wire
- .5 Corner posts shall be installed at horizontal deflections in the fence line of 10 degrees or more
- .6 Straining posts shall be installed at equal intervals

3.3 Footings

- .1 All posts shall be installed according to drawings in Appendix B3
- .2 Concrete placing, curing, and protection from the elements shall be according to OPSS 904

3.4 Bracing

- .1 A brace rail or brace wire shall be placed diagonally across the panel at all ends and gateposts. Corner and straining posts shall be supported with diagonal braces placed on both sides of the post. The higher end of the diagonal brace shall be connected at the terminal post.
- .2 End fittings shall be secured by a 6 mm bolt placed through the fitting and braced at both ends of the brace.

3.5 Top Rails, Top Wires, and Bottom Wires

- .1 Top rails or top wires shall be installed as specified in drawing in Appendix B3
- .2 Top rails or top wires shall be fastened securely to line post tops using waterproof caps
- .3 In sag locations, the post and cap shall be drilled and fastened with a self-tapping screw to ensure a secure fit.
- .4 Top rails shall be fastened to terminal posts with centre bands
- .5 Top and bottom wires shall be stretched tight and securely fastened to terminal posts with turnbuckles and centre bands
- .6 One turnbuckle shall be used between terminal posts

3.6 Fence Fabric

- .1 Fence fabric shall not be installed until the concrete footings have cured for a minimum of 5 Days
- .2 Spread spoils from drilling in a manner so as not to hinder site drainage.
- .3 The fabric shall be stretched tight and securely fastened to terminal posts with steel tension bars and steel or aluminum tension bands. The longitudinal axis of the diamond pattern shall be perpendicular to the slope of the top rail or top wire



- .4 The fabric shall be securely fastened to the line posts, bottom wire, and top rail or top wire with wire ties.
 - .1 The fabric shall not be fastened to any diagonal braces
- .5 Manually fastened round wire ties shall engage one strand of the chain-link fence fabric with one end of the tie by wrapping it with two 360 degree turns and then wrapping the body of the tie around the post or top rail a minimum of 180 degrees. The remaining end of the tie shall be secured to the second strand of the chain-link fence fabric by wrapping it with two 360 degree turns. The fabric and the main body of the tie shall be drawn tightly to the rail or post
- .6 Power fastened wire ties shall engage two strands of the chain-link fence fabric at a diamond joint closest to the post or top rail. The manufacturer's installation instructions shall be followed to complete the operation. The ends shall be twisted three full twists or one and one half machine turns. The end of the tie shall be positioned on the post or rail so that it is parallel to the chain-link fence fabric
- .7 The ends of wire ties shall not protrude beyond the vertical plane on either side of the chain-link fence fabric. Protruding ends of wire ties shall be removed.

3.7 Barbed Wire

- .1 Barbed wire shall be installed as per the drawings in Appendix B3. The barbed wire shall be pulled taut to remove all slack and shall be firmly installed in the slots of the barbed wire arms. The ends of the barbed wire shall be securely connected at the terminal posts with brace bands. Barbed wire arms shall be installed with the arm pointing towards the roadway

3.8 Gate

- .1 Parts of the existing gate may be salvaged and re-used, provided it meets the following:
 - .1 Shall be installed at location indicated in drawings in Appendix B3
 - .2 Shall have barbed edge at the top
 - .3 Shall have a chain hook to hold gates open and double gates shall have a steel gate centre rest with a drop bolt for the closed position
 - .4 The surface grade within the required gate sweep area shall be low enough to permit free movement of the gate

3.9 Zinc Coating Repairs

- .1 Cut ends, field drilled holes, and damaged areas of hot dip galvanized coatings on galvanized components shall be repaired according to ASTM A 780.

3.10 Site Restoration

- .1 After fence installation, the site shall be cleaned and trimmed and the ground restored to a neat and original condition existent prior to the fencing operations.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



APPENDIX B1: SITE LOCATION AND PHOTOGRAPHS



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne

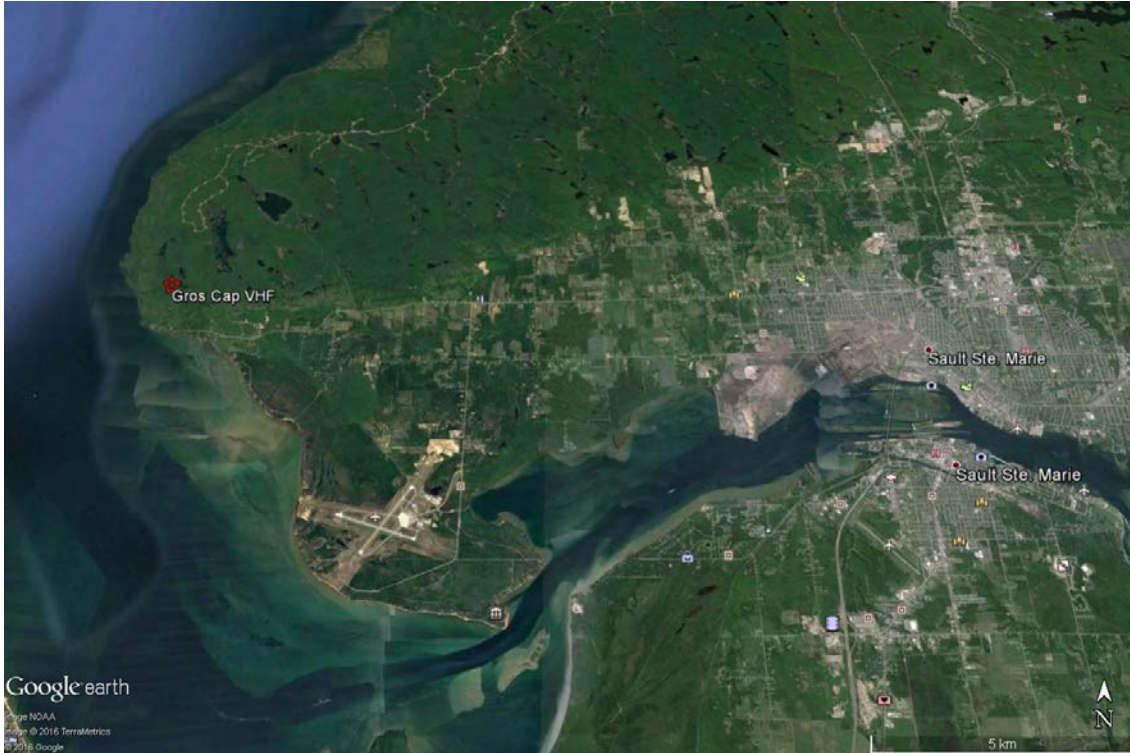


Figure 1: Site Location 46°32'16.53"N 84°34'54.53"W



Figure 2: Old radio equipment building [West] (to be demolished)



Figure 3: Old radio equipment building facing [East] and entrance porch (to be demolished)



Figure 4: Old radio equipment building facing [North] (to be demolished)



Figure 5: Old equipment building [South] (to be demolished)



Figure 6: Old equipment building interior (to be demolished)



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 7: Typical cable troughs (to be demolished)



Figure 8: Old equipment interior (to be demolished)



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 9: Mould on shelves (to be demolished). See Hazardous Materials Survey in Appendix B4 for removal procedure.



Figure 10: Gravel on Built-up roof (to be demolished)



Figure 11: Precast concrete panels on the roof of the building (to be demolished)



Figure 12: Abandoned concrete anchor (to be demolished)



Figure 13: Abandoned diesel generator foundation slab (to be demolished) [bottom of picture].



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 14: One of the three lead paint containing exterior doors of the building (to be demolished).



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 15: grey door contains lead paint.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 16: Broken brace. To be repaired.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 17: Waveguide Bridge to be demolished. There are 7 posts, the post adjacent to the tower is not to be demolished. New building is not shown in this picture.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 18: Waveguide bridge to be demolished. The post adjacent to the tower containing equipment is not to be demolished.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 19: Waveguide bridge post adjacent to the tower with mounted equipment (not to be demolished).



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



Figure 20: New equipment building (not to be demolished). Stair systems to be installed in front of red doors. Waveguide bridge to the left of the building is to be demolished.



Figure 21: One of two doors of new building. Notice concrete pad extending in front of door.



Figure 22: Approximate measurement from concrete pad to floor level in door opening. To be confirmed by contractor.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



APPENDIX B2: SUMMARY OF SUBMITALS



Following Contract Award	
Submission Description	Section(s)
Deadline: ten [10] working days following award	
Detailed schedule:	011100
Deadline: Prior to Fabrication of Metal Stairs	
Shop Drawings:	055129
Deadline: ten [10] working days prior to mobilization	
Construction Plan	
a) Project specific safety plan	011100
b) Project environmental protection program	011100
c) Demolition plan	024117, 028200
Deadline: twenty-one [21] calendar days following acceptance of the works	
As-built drawings	011100



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne

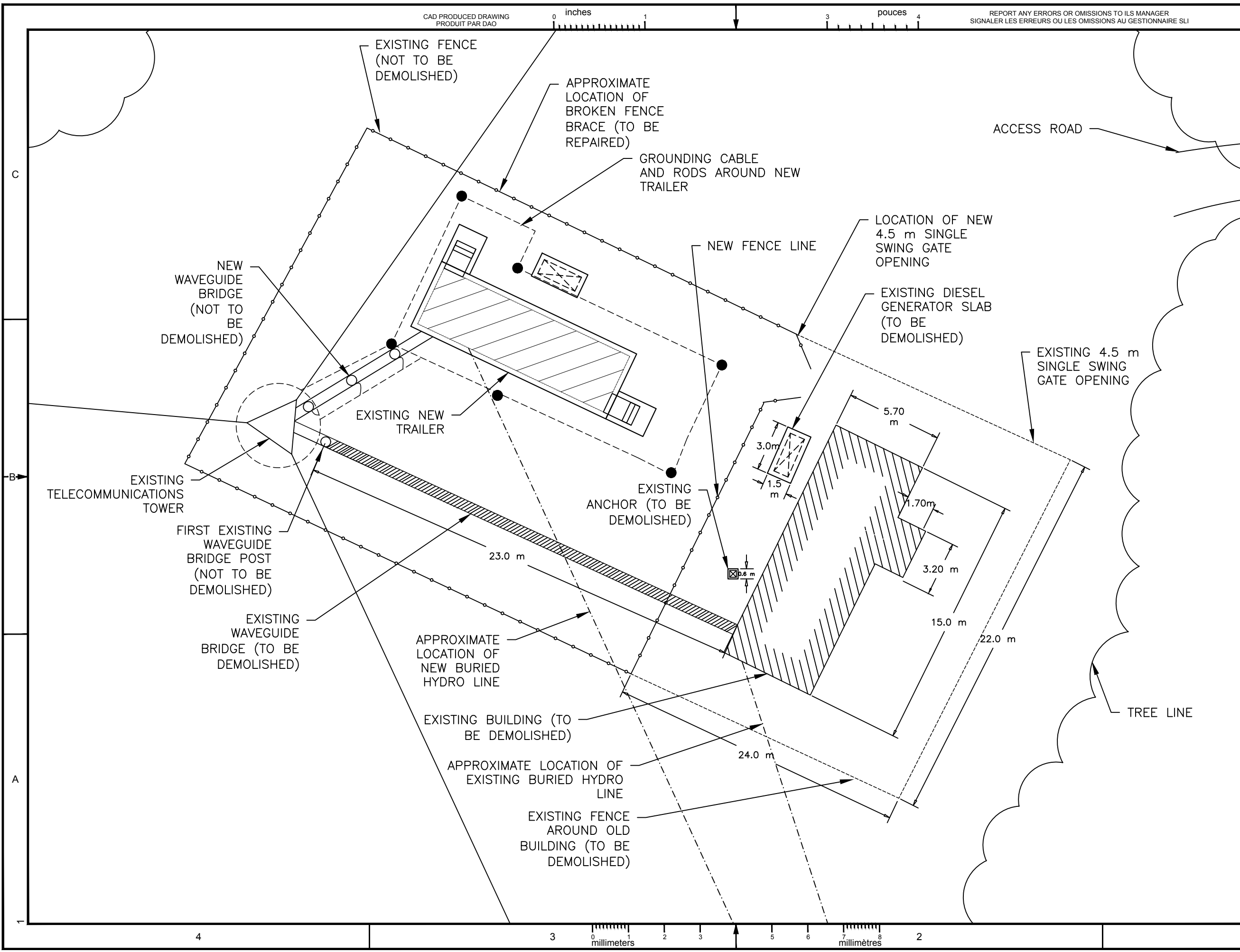


APPENDIX B3: DRAWINGS

Vendor / Sous-traitant

NOTES:

1. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE.
2. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.



0	DESCRIPTION	BY	yyyy-mm-dd
rev	description	by	date

Asset - Actif

GROS CAP MCTS
BUILDING DEMOLITION AND SITE REMEDIATION

Drawing - Dessin
SITE PLAN

designed - conception	date
AB	2017-06-05
drawn - dessiné	date
AB	2017-06-05
checked - vérifié	date
BY	2017-06-05
approved - approuvé	date
BY	2017-06-05

CCG ref. no. - no. réf. GCC	scale - échelle
	NTS
drawing no. - no. dessin	sheet-feuille
1	01/04
	rev
	0

File / Fichier: DEMOLITION.DWG - Printed / Imprimé: 2017/06/05 2:58

ANSI B

Vendor / Sous-traitant

NOTES:

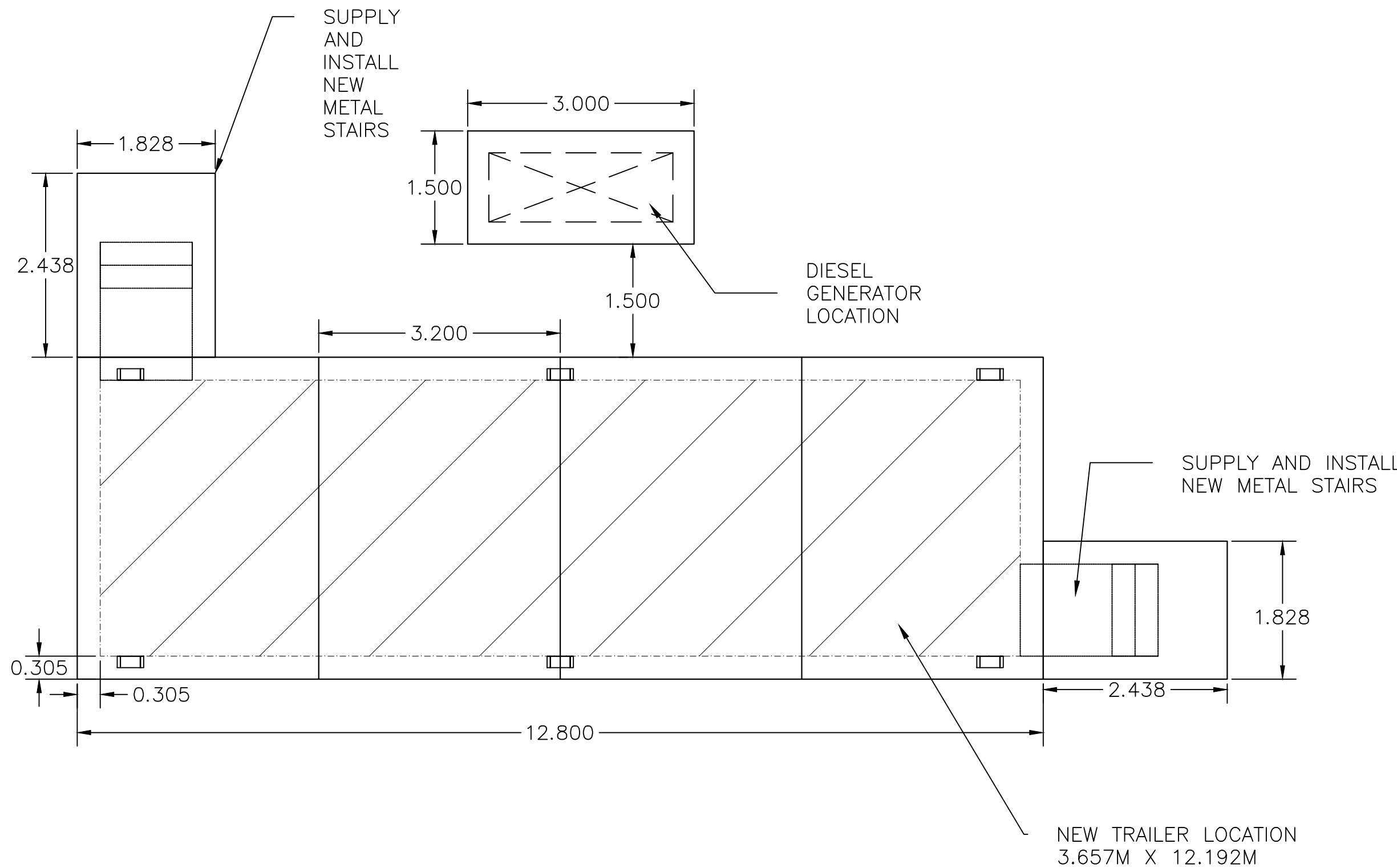
1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.

C

B

A

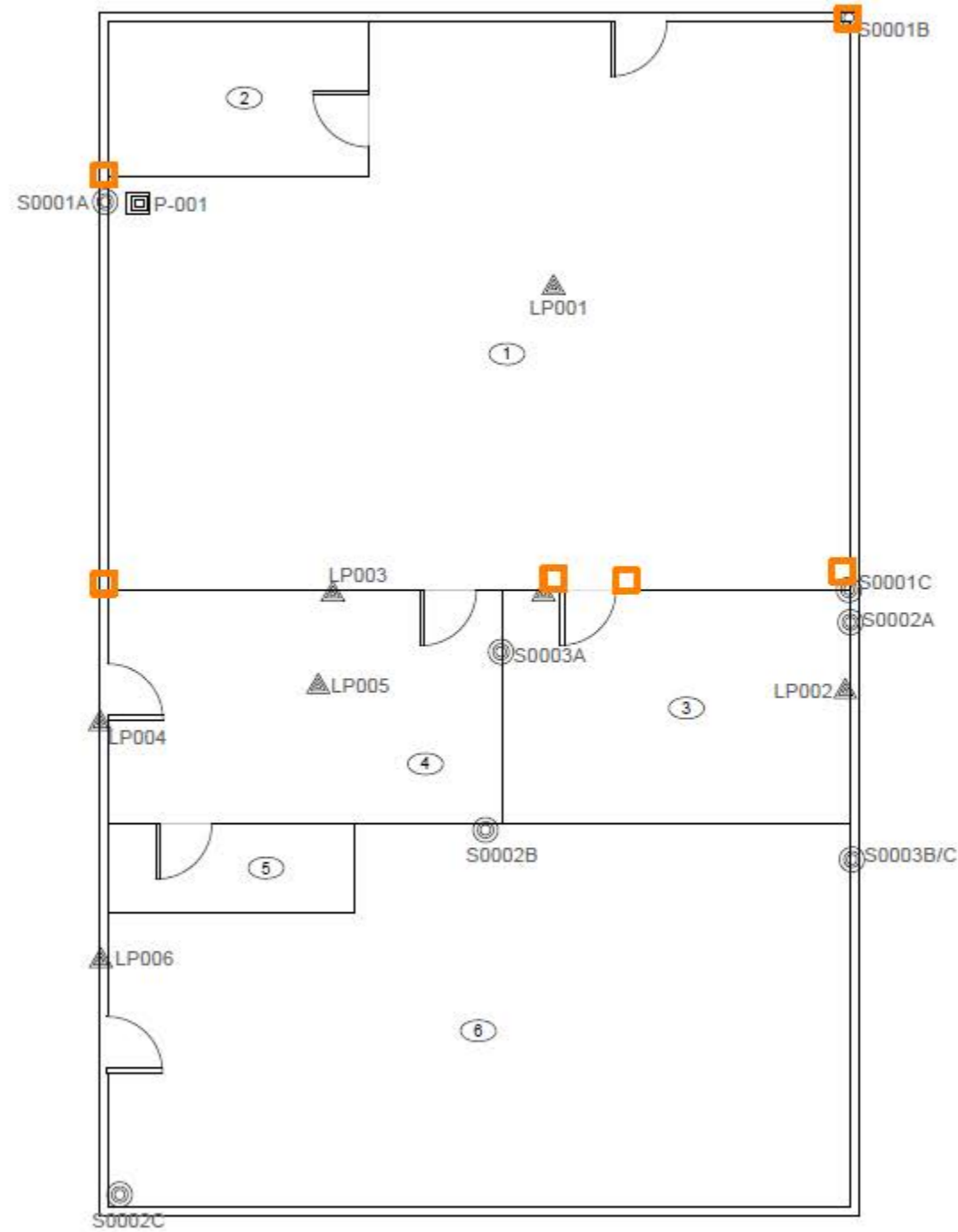
2



0	DESCRIPTION	BY	yyyy-mm-dd
rev	description	by	date
	Asset - Actif		
	GROS CAP MCTS		
	EXISTING SLAB For NEW BUILDING (NOT TO BE DEMOLISHED)		
	Drawing - Dessin		
	CONCRETE SLAB		
	designed - conception	date	
	BY	2016-08-23	
	drawn - dessiné	date	
	BH	2016-08-23	
	checked - vérifié	date	
	BY	2016-08-23	
	approved - approuvé	date	
	BY	2016-08-23	
	CCG ref. no. - no. réf. GCC	scale - échelle	
		NTS	
	drawing no. - no. dessin	sheet-feuille	rev
	2	02/04	0

File / Fichier: TEMPORARY PROJECT FILES - SHORTCUT.DWG - Printed / Imprimé: 2017/06/14 11:32

ANSI B



LEGEND:

- (X) PINCHIN LOCATION NUMBER
- ⊙ ASBESTOS BULK SAMPLE
- ▲ LEAD BULK SAMPLE
- ▣ PCB BULK SAMPLE
- ◻ ASBESTOS CONTAINING CAULKING

CLIENT:

CANADIAN COAST GUARD

LOCATION:

COAST GUARD, GROS CAP,
SAULT STE MARIE, ONTARIO
MCTS SITE

TITLE:

HAZARDOUS MATERIALS
ASSESSMENT
MAIN FLOOR

DATE:

2016/10/24

PROJECT #:

119273

DRAWN BY:

C.L.

DRAWING:

1 OF 1

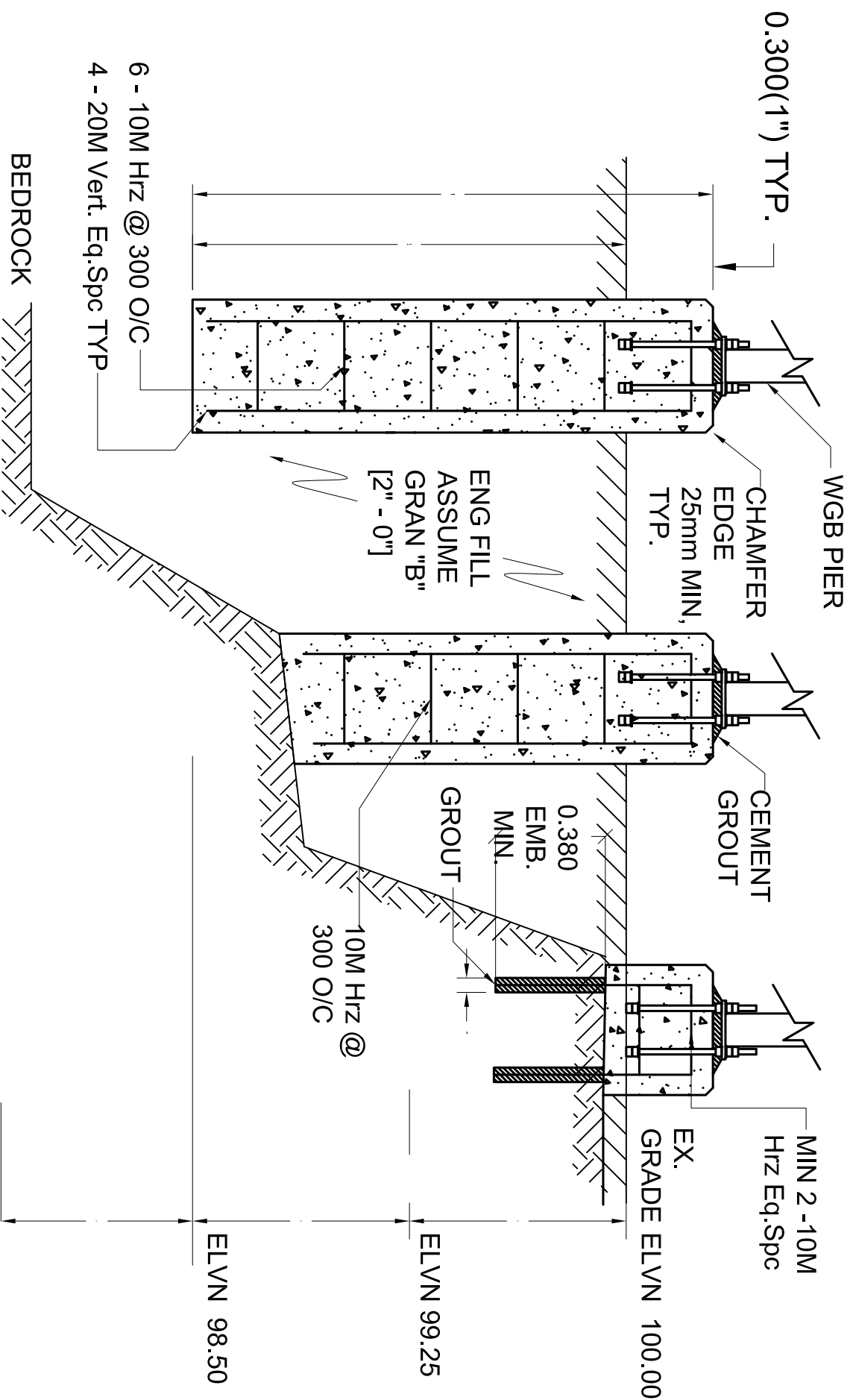
CHECKED BY:

J.S.

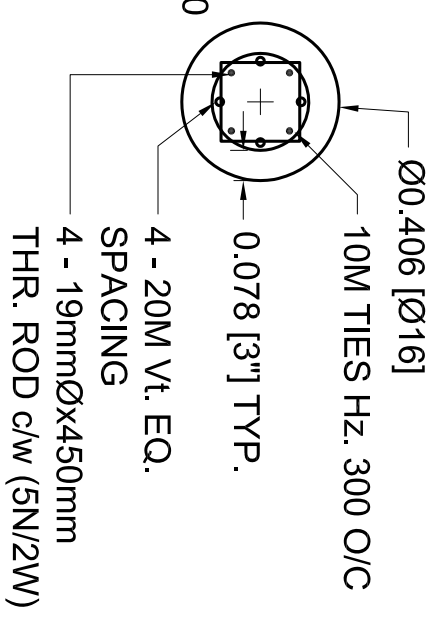
SCALE:

NTS

PROFILE VIEW



PLAN VIEW



Notes:

Piers shall be cast to a depth of 1.5m below ex. grade (Type A). Where bedrock is encountered at an elevation of less than 1.5m the configuration of the pier shall be amended to Type B or C depending upon the depth to bedrock.

Reinforcement: Deformed bars as per CSA G30.18 M92, Fy 400 Mpa.
Fabrication, placement, cover, and support as per CSA A23.

Grout: SIKKA MBED or equal
Concrete: Quikrete 5000 or equal HES

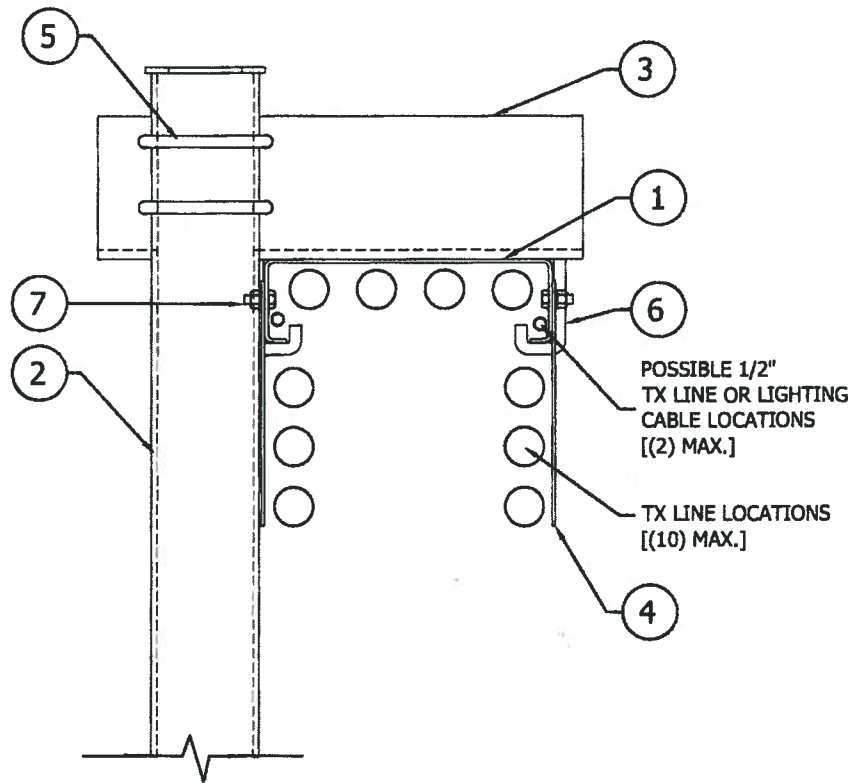
CABLEWAY GUIDE PIERS

CAPE CROKER TRAILER WAVE GUIDE POST FOUNDATIONS TYPICAL DETAILS TYPES

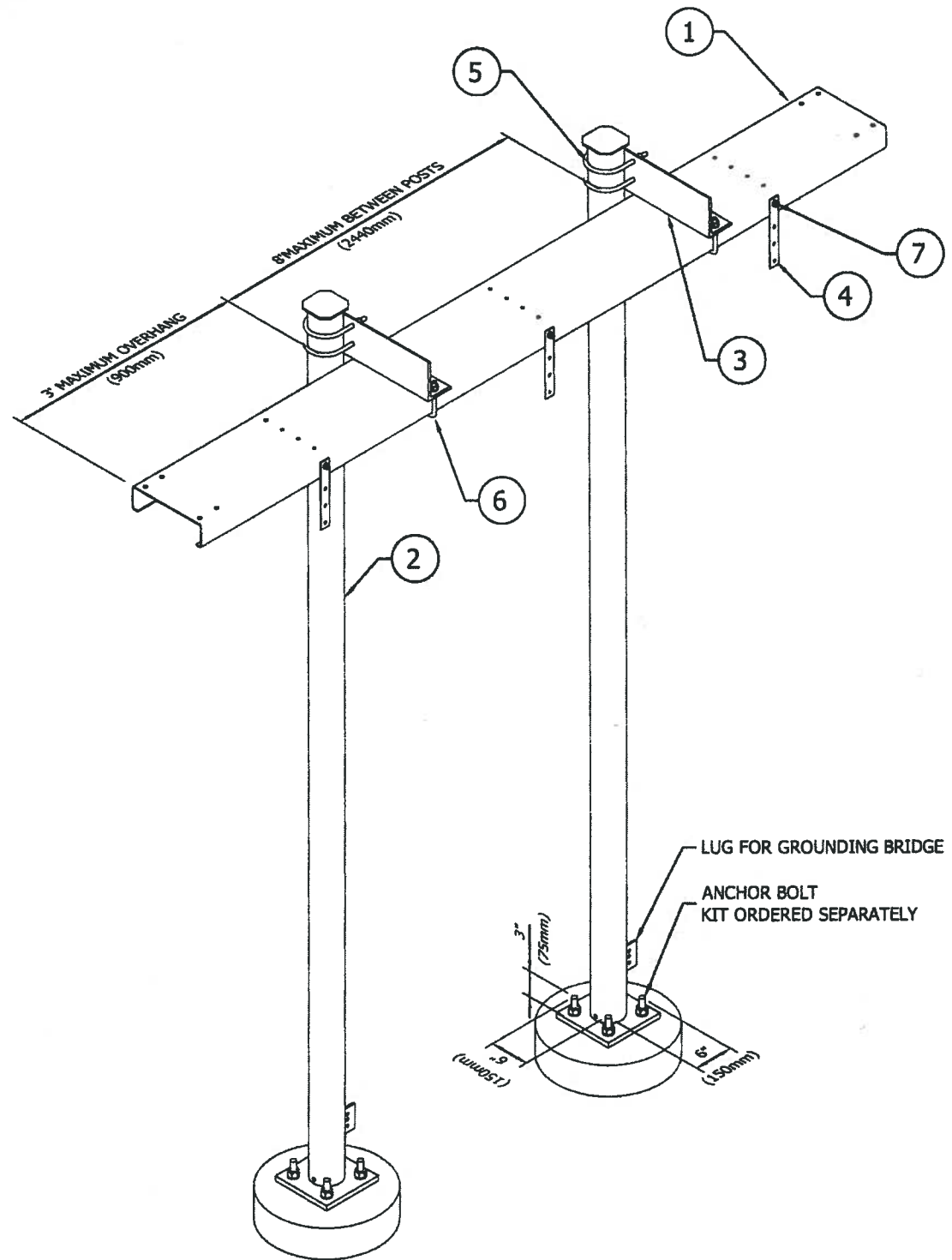
Fisheries and Oceans Canada
Pêches et Océans Canada
Canadian Coast Guard
Garde côtière canadienne
Central & Arctic Region
Région du centre et de l'Arctique
Maritime and Civil Infrastructure (MCI), Integrated Technical Services
520 Exmouth St., Sarnia, ON N7T 8B1

FILE No.:	EWT 8055-248	SCALE:	N.T.S.	DWG No.:	T-03
Rv.	DATE	DESCRIPTION	DRAWN	APP'D	
O	30-08-12	DRAWING INITIATED.	R.C.S.		

BILL OF MATERIAL KIT #STB001-S				
ITEM	QTY.	PART NO.	DESCRIPTION	Wt./lb
1	1	91171B	SAMSON CHANNEL 12"@5/32"x10'	115#
2	2	91166F2	HSS 4 1/2"ODx11' WELD'T	226#
3	2	TX001A	BRACE ARM L 6x4x3/8"	40#
4	6	91171C	PL. 1 1/2"x1/8"	6#
5	4	110260	1/2" U-BOLTS @ 5 1/16" c/c	
6	4	111041	1/2" SQUARE J-BOLTS	
7	6	110459	3/8" x 1" GR.5 BOLT ASSY	
TOTAL				390#




END VIEW



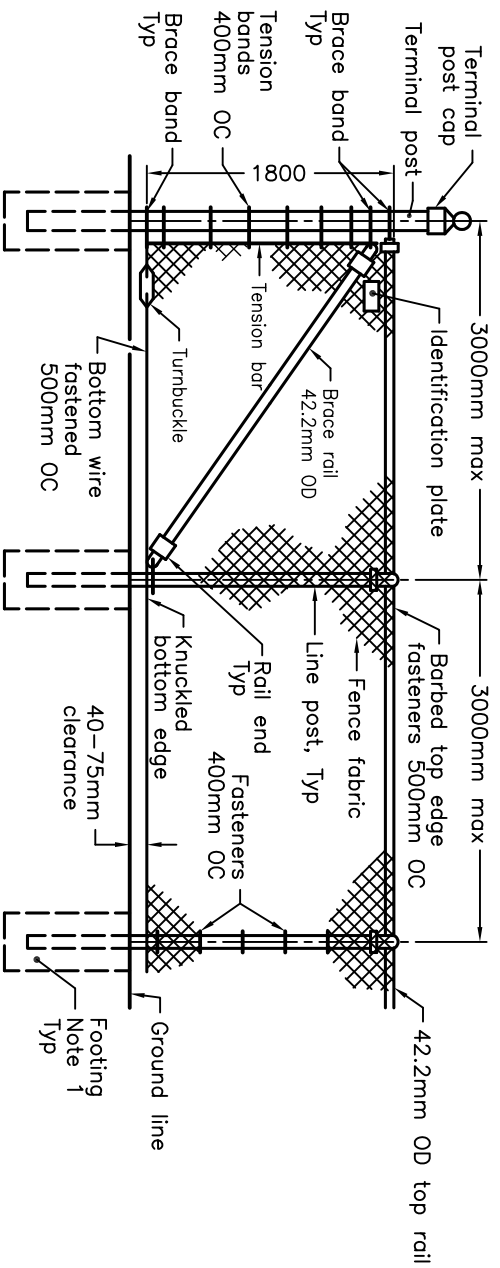
NOTE:

WHEN DETERMINING END OVERHANG, CONSIDER LOCATION OF EXISTING TOWER AND BUILDING FOUNDATION.

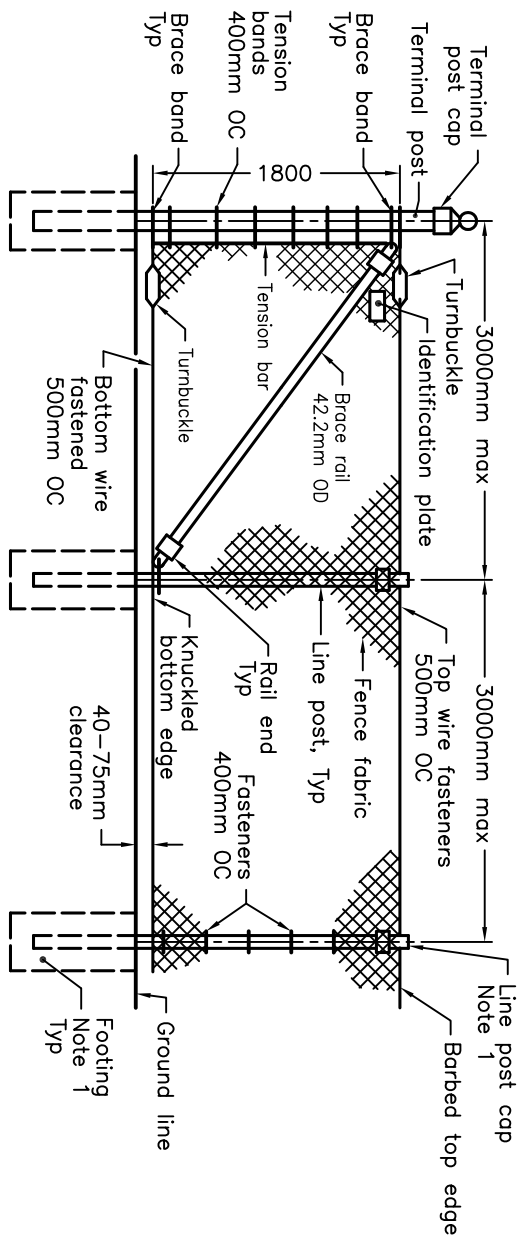
	Fisheries and Oceans Canada	Pêches et Océans Canada
	Canadian Coast Guard Central & Arctic Region	Garde côtière canadienne Région du centre et de l'Arctique
	Maritime and Civil Infrastructure (MCI), Integrated Technical Services 520 Exmouth St., Sarnia, ON N7T 8B1	

WAVE GUIDE DRAWING TYPICAL DETAILS POST AND WAVE GUIDE TRAY

FILE No.: EWT 8055 -000		SCALE: N.T.S.	DWG No. T-01	
Rv.	DATE	DESCRIPTION	DRAWN	APP'D
O	19-06-12	DRAWING INITIATED.	R.C.S.	




CHAIN-LINK FENCE WITH TOP RAIL

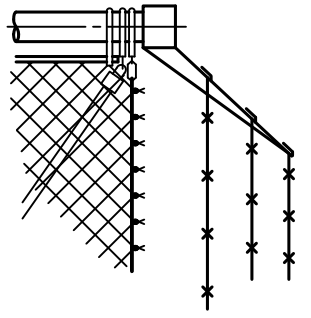
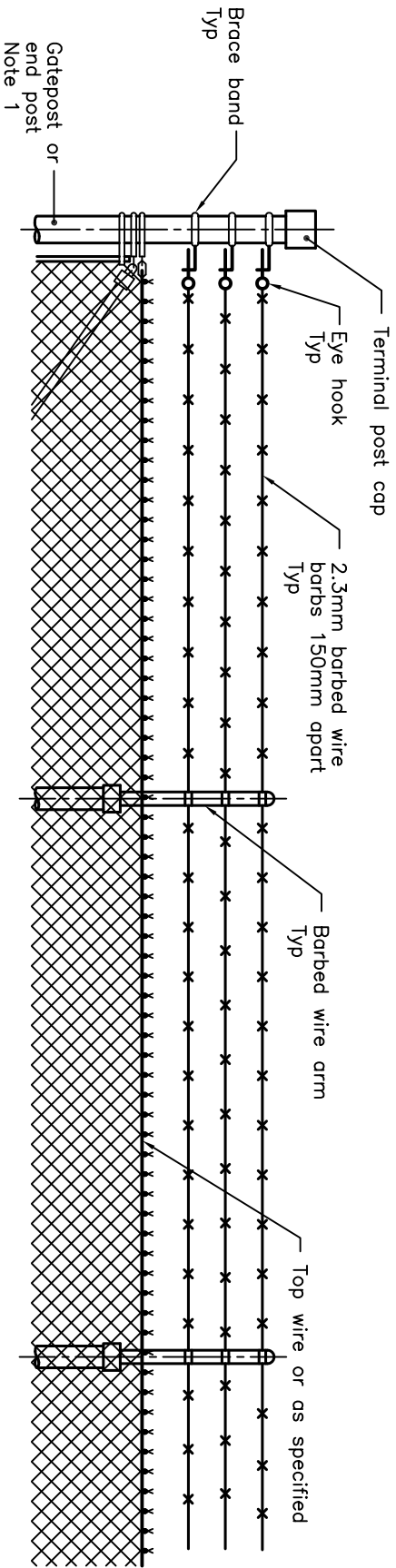


CHAIN-LINK FENCE WITH TOP WIRE (Follow)

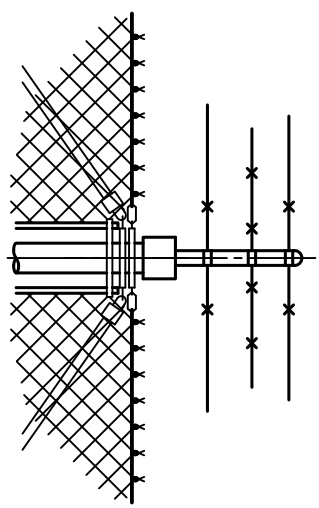
NOTES:

- 1 For footing details and line post cap detail refer to OPSD 972.132.
- A Fence as viewed from the roadway.
- B All dimensions are in millimetres unless otherwise shown.

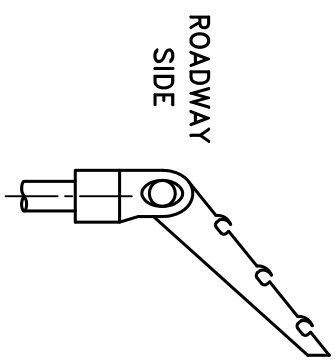
ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2012	Rev 2	
FENCE, CHAIN-LINK INSTALLATION - ROADWAY				
OPSD 972.130				



CORNER POST WITH BARBED WIRE ARM



STRAINING POST WITH BARBED WIRE ARM



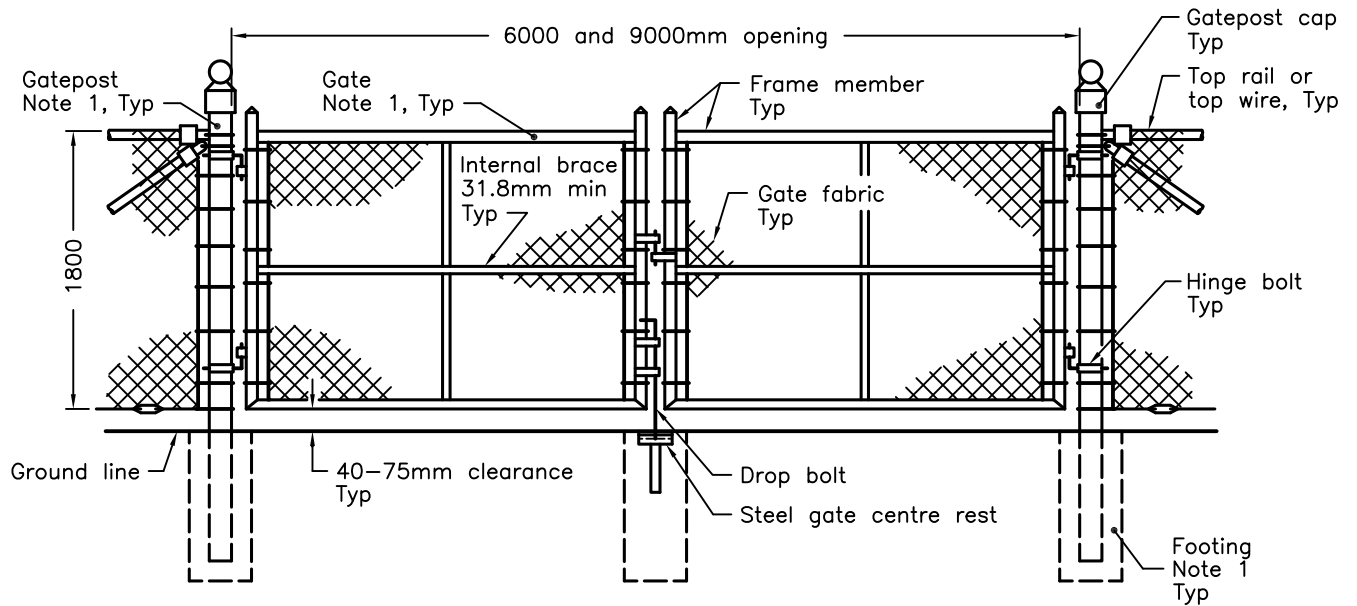
LINE POST WITH BARBED WIRE ARM

ROADWAY SIDE

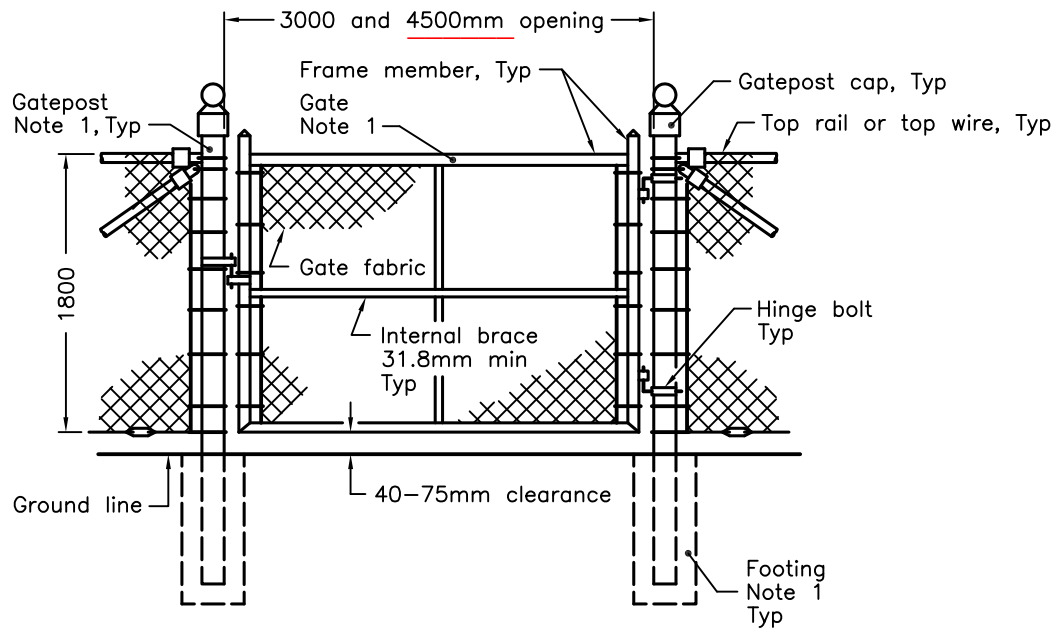
NOTES:

- 1 Terminal post shall be lengthened when barbed wire is specified, except when barbed wire arms are used.
- A Installation as viewed from the roadway. Shall be towards roadway and away from inner part of compound.
- B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2012	Rev 2	
FENCE, CHAIN-LINK COMPONENT - BARBED WIRE				
		OPSD 972.101		



DOUBLE SWING GATE OPENING (Do not follow)



SINGLE SWING GATE OPENING (follow)

NOTES:

- 1 For footing details and Gate and Gatepost Details Table refer to OPSD 972.132.
- A Gates as viewed from the roadway.
- B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

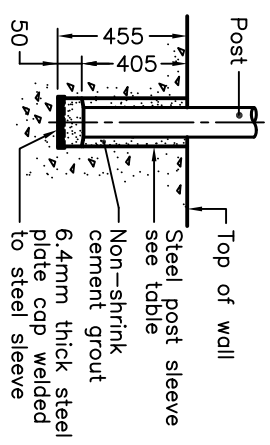
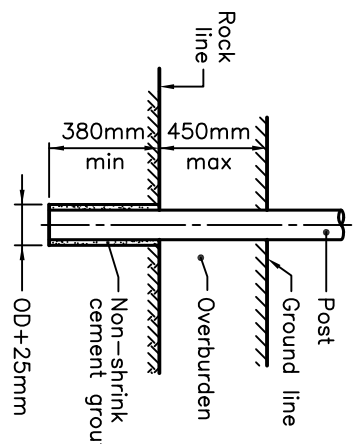
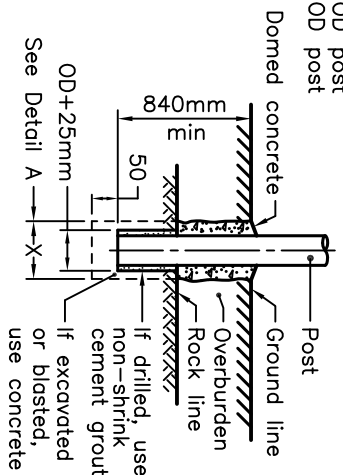
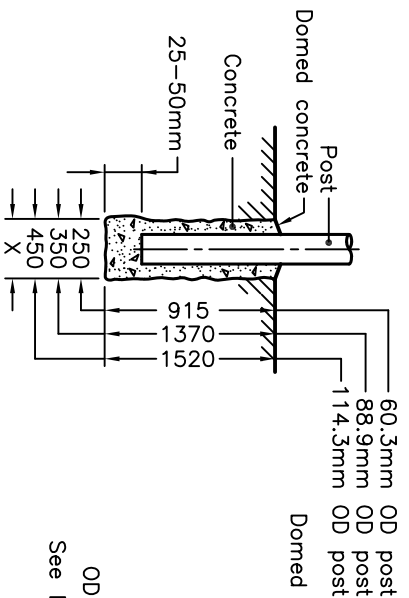
Nov 2012

Rev 2

FENCE, CHAIN-LINK
COMPONENT - GATE



OPSD 972.102

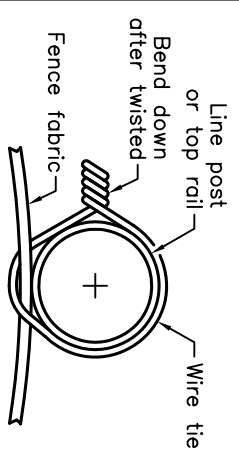
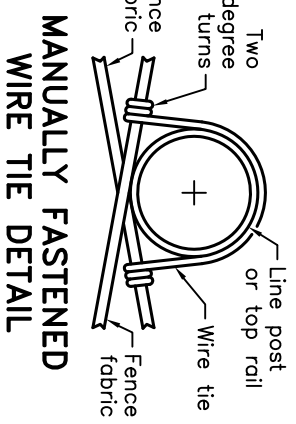
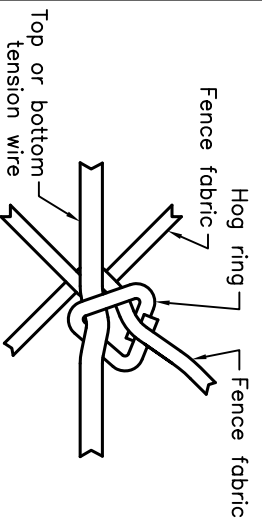


DETAIL A
FOOTING IN EARTH

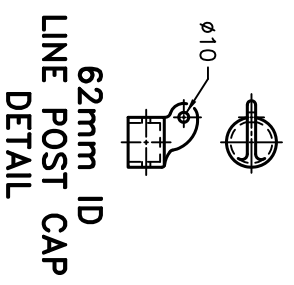
DETAIL B
FOOTING IN SHALE, LOOSE OR FRIABLE ROCK, OR SOLID ROCK WITH MORE THAN 450mm OVERBURDEN
Do not follow

DETAIL C
FOOTING IN SOLID ROCK LESS THAN 450mm OVERBURDEN
Do not follow

DETAIL D
FOOTING IN RETAINING WALL
Do not follow



POWER FASTENED WIRE TIE DETAIL



NOTES:

- 1 All posts and frame members are Schedule 40, Regular Grade, steel pipe.
 - 2 The actual weight shall not vary by more than 10% of the nominal weight.
- A All dimensions are in millimetres unless otherwise shown.

POST DETAILS TABLE (Note 1)						
Post/Frame Member Type	OD	Post Length		Wall Thickness	Nominal Weight kg/m (Note 2)	
		Standard	Retaining Walls			
Line post	60.3	2.6	2.0	3.91	5.4	
Terminal Post	88.9	2.9	2.3	5.49	11.3	
Gates (Single 3.0m, Double 6.0m)	88.9	2.6	n/a	5.49	11.3	
Gates (Single 4.5m, Double 9.0m)	42.2	n/a	n/a	3.56	3.4	
Gatepost	114.3	2.9	n/a	6.02	16.1	
Frame Members	48.3	n/a	n/a	3.68	4.0	
Line Post	88.9	n/a	0.455	5.49	11.3	
Terminal Post	114.3	n/a	0.455	6.02	16.1	

ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2012 Rev 0

FENCE, CHAIN-LINK DETAILS AND TABLE

OPSD 972.132





Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



APPENDIX B4: DESIGNATED SUBSTANCE SURVEY



Hazardous Building Materials Assessment

46°32'16.53"N - 84°34'54.53"W,
Gros Cap, Ontario

Prepared for:

Canadian Coast Guard

520 Exmouth Street
Sarnia, Ontario, N7T 8B1

Attention: Amar Beilouni
Construction Technologist

November 2, 2016

Pinchin File: 119273



Issued to: Canadian Coast Guard
Contact: Amar Beilouni
Construction Technologist
Issued on: November 2, 2016
Pinchin File: 119273
Issuing Office: 126 Queen Street East, Suite 3,
Sault Ste. Marie, ON P6A 1Y5
Primary Pinchin
Contact: Joshua Sikorski



Author: Joshua Sikorski, C.E.T.
Operations Manager
705.575.9207
jsikorski@pinchin.com

Reviewer: Michael Harrett, C.E.T.
Regional Practice Lead
613.541.1013
mharrett@pinchin.com



EXECUTIVE SUMMARY

Canadian Coast Guard (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment of the Coast Guard Gros Cap MCTS Site, located at 46°32'16.53"N - 84°34'54.53"W, Gros Cap, Ontario. Pinchin performed the assessment on October 19, 2016.

The objective of the assessment was to identify specified hazardous building materials in preparation for building demolition. The results of this assessment are intended for use with a properly developed scope of work and performance specification.

The assessed area consisted of the entire building. The Client reported that the demolition would only consist of the building and will not include the fencing or radio tower.

SUMMARY OF FINDINGS

Asbestos: Asbestos-containing materials (ACM) were confirmed to be present as follows:

- Non-friable, white interior caulking, containing chrysotile asbestos, at corners of plywood wall corners and door frames, location 1.

Lead: Lead was confirmed present in select paints/surface coatings and is present in emergency light batteries.

Silica: Crystalline silica is present in concrete, mortar and masonry.

Mercury: Mercury vapour is present in fluorescent lamps and liquid mercury is present in thermostat ampules.

Polychlorinated Biphenyls (PCBs): PCBs may be present in light ballasts.

Mould: The OSB shelving in location 3 is water damaged and has mould growth present.

SUMMARY OF RECOMMENDATIONS

The following is a summary of significant recommendations; refer to the body of the report for detailed recommendations:

1. Remove and properly dispose of asbestos-containing materials prior to demolition;
2. Remove and properly dispose of PCB ballasts and mercury-containing items prior to demolition; and
3. Follow appropriate safe work procedures when handling or disturbing lead, silica and mould.



Please refer to Section 4.0 of this report for detailed recommendations regarding administrative, demolition activities.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.



TABLE OF CONTENTS

1.0	INTRODUCTION AND SCOPE	1
	1.1 Scope of Assessment.....	1
2.0	BACKGROUND INFORMATION	2
3.0	FINDINGS	2
	3.1 Asbestos	2
	3.2 Lead	5
	3.3 Silica	7
	3.4 Mercury	7
	3.5 Polychlorinated Biphenyls	8
	3.6 Mould	9
4.0	RECOMMENDATIONS	9
	4.1 General	9
	4.2 Building Demolition Work	9
5.0	TERMS AND LIMITATIONS	11
6.0	REFERENCES.....	11

APPENDICES

APPENDIX I	Drawings
APPENDIX II-A	Asbestos Analytical Certificates
APPENDIX II-B	Lead Analytical Certificates
APPENDIX II-C	PCB Analytical Certificates
APPENDIX III	Methodology



1.0 INTRODUCTION AND SCOPE

Canadian Coast Guard (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment of Coast Guard Gros Cap MCTS Site, located at 46°32'16.53"N - 84°34'54.53"W, Gros Cap, Ontario.

Joshua Sikorski, Operations Manager performed the assessment on October 19, 2016. The surveyor was accompanied by Amar Beilouni, Construction Technologist during the assessment. The building was unoccupied at the time of the assessment.

The objective of the assessment was to identify specified hazardous building materials in preparation for building demolition. This assessment is intended to be used for pre-demolition purposes only, and may not provide sufficient detail for long term management of hazardous materials as required by Health and Safety regulations. The results of this assessment are intended for use with a properly developed scope of work and performance specification.

1.1 Scope of Assessment

The assessment was performed to establish the location and type of specified hazardous building materials incorporated in the structure(s) and its finishes. The assessed area consisted of all parts of the building. The Client reported that the demolition would only consist of the building and will not include the fencing or radio tower.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos;
- Lead;
- Silica;
- Mercury;
- Polychlorinated Biphenyls (PCBs); and
- Mould.

The following Ontario Designated Substances are not typically found in building materials in a composition/state that is hazardous and were not included in this assessment:

- Arsenic;
- Acrylonitrile;
- Benzene;
- Coke oven emissions;



- Ethylene oxide;
- Isocyanates; and
- Vinyl chloride monomer.

2.0 BACKGROUND INFORMATION

Building Description Item	Details
Building Use	Radio Monitoring Station
Number of Floors/Levels	One storey
Total Area of Building (Square Feet)	~ 1,000
Year of Construction/Significant Additions/Renovations (area assessed)	~ 1980
Structure	Concrete block, concrete
Exterior Cladding	Concrete block
HVAC	Electric radiators
Roof	Sloped pre-finished metal, No Access
Flooring	Concrete
Interior Walls	Drywall, plywood, concrete block
Ceilings	Acoustic ceiling tiles, existing structure

3.0 FINDINGS

3.1 Asbestos

3.1.1 Suspect Building Materials Not Found

The following types of building materials may historically contain asbestos but were not observed in the building and are not discussed in the report findings:

- Sprayed fireproofing or thermal insulation;
- Texture finishes (acoustic/decorative);
- Plaster;

- Asbestos cement products;
- Vinyl sheet flooring;
- Vinyl floor tiles and mastic; and
- Roofing felts and tar.

3.1.2 Thermal Systems Insulation (TSI)

3.1.2.1 Pipe Insulation

Pipes are either uninsulated or insulated with non-asbestos fibreglass.

3.1.2.2 Mechanical Equipment Insulation

Mechanical equipment is either uninsulated or insulated with non-asbestos fibreglass.



Photo1: Electric baseboard radiators, uninsulated.

3.1.3 Vermiculite

Vermiculite was observed in the block wall cavities, however it was analyzed and no asbestos was detected (samples S0003 A-C).

3.1.4 Acoustic Ceiling Tiles

Fibreglass ceiling tiles were present within the assessed area and visually determined to be non-asbestos.



Photo 2: 2' x 4' fibreglass lay-in ceiling tile, does not contain asbestos.

3.1.5 *Drywall Joint Compound*

Drywall (gypsum board) and drywall joint compound is present as a wall finish in various locations throughout the building. Based on the results of the testing (samples S0002 A-C), the drywall joint compound does not contain asbestos.

3.1.6 *Sealants, Caulking, and Putty*

White caulking at corners of plywood wall corners and door frames, contains chrysotile asbestos (samples S0001 A-C). Caulking is non-friable and is in good condition.

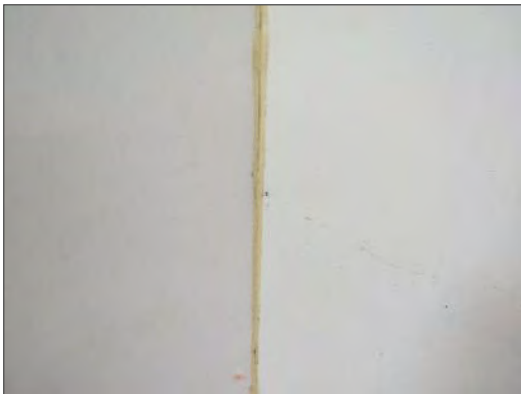


Photo 3: White interior caulking, plywood wall corners (S0001 A-C), asbestos-containing.

3.2 Lead

3.2.1 Paints and Surface Coatings

A total of seven paint samples were collected from interior and exterior painted finishes. The following table summarizes the analytical results for paints sampled and their locations:

Sample Number	Colour, Substrate Description	Locations	Lead (%)
LP-001	Red on concrete floor	1, 2, 3 and 6	< 0.008%
LP-002	White on drywall	Location 1 – 6 walls	< 0.005%
LP-003	Beige on concrete block	Location 1 – 6 walls	< 0.007%
LP-004	Red on metal door	Location 4 and 6 doors	4.1%
LP-005	Grey on concrete floor	Location 4 and 5	0.004%
LP-006	White on concrete block	Exterior walls	0.025%
LP-007	Grey on wood door	Location 1, 2 and 3 doors	0.49%

All paints containing elevated or insignificant levels of lead were found to be in good condition and not flaking, peeling or delaminating.

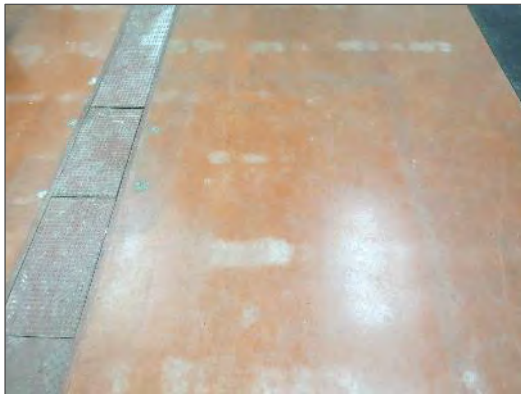


Photo 4: Red paint on concrete floor, insignificant lead concentration.



Photo 5: White paint on drywall, insignificant lead concentration.



Photo 6: Beige on concrete block, insignificant lead concentration.



Photo 7: Red paint on metal door, lead-containing.



Photo 8: Grey paint on concrete floor, insignificant lead concentration.



Photo 9: White on concrete block, insignificant lead concentration.



Photo 10: Grey paint on wood door, lead containing.

3.2.2 *Lead Products and Applications*

Lead-containing batteries are present in emergency lighting present in the building.



Photo 11: Emergency light, location 1.

3.2.3 *Presumed Lead Materials*

Lead may be present in a number of materials which were not assessed and/or sampled. The following materials, where found, should be considered to contain lead:

- electrical components, including wiring connectors, grounding conductors, and solder.

3.3 **Silica**

Crystalline silica is a presumed component of the following materials where present in the building:

- poured or pre-cast concrete; and
- masonry and mortar.

3.4 **Mercury**

3.4.1 *Lamps*

Mercury vapour is present in fluorescent lamps.

3.4.2 Mercury-Containing Devices

Mercury is present as a liquid in thermostats ampules.



Photo 12: Mercury-containing thermostat.

3.5 Polychlorinated Biphenyls

3.5.1 Caulking

White caulking is present at interior corners on plywood sheeting (sample P-001) and contains <0.5 ppm PCBs. The material is a non-PCB solid based on the threshold given in SOR/2008-273 (50 ppm).

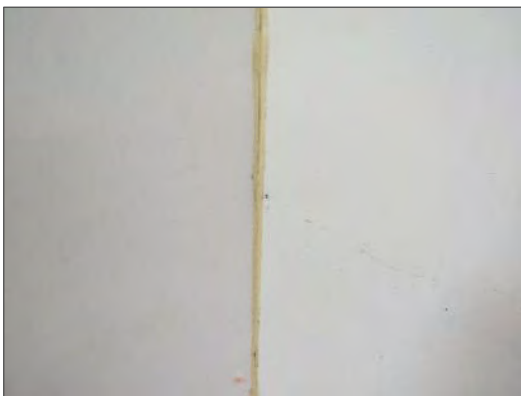


Photo 13: White interior caulking, does not contain PCBs.

3.5.2 Lighting Ballasts

The building has not been comprehensively re-lamped with new energy efficient light ballasts and lamps, and as such, a percentage of light ballasts will be pre-1980 and contain PCBs.

3.5.3 Transformers

Transformers were not found during the assessment.

3.6 Mould

Visible mould growth and water staining was observed on the OSB shelving in Location 3.



Photo 14: Water staining and mould growth on the OSB shelving in Location 3.

4.0 RECOMMENDATIONS

4.1 General

1. Prepare plans and performance specifications for hazardous material removal required for the planned work. The specifications should include the scope of work, safe work practices, personal protective equipment, respiratory protection, and disposal of waste materials;
2. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work; and
3. Retain a qualified consultant to specify, inspect and verify the successful removal of hazardous materials.

4.2 Building Demolition Work

The following recommendations are made regarding demolition involving the hazardous materials identified.

4.2.1 Asbestos

Remove all asbestos-containing materials (ACM) prior to demolition work.



If the identified ACM will not be removed prior to commencement of the work, disturbance of ACM must follow the appropriate asbestos precautions for the classification of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

4.2.2 *Lead*

For paints identified as having elevated levels of lead (i.e., greater than the EACO guideline of 0.1% for lead-containing paints), construction disturbance may result in over-exposure to lead dust or fumes. The need for work procedures, engineering controls and personal protective equipment should be assessed on a site specific basis to comply with provincial standards or guidelines. Performing an exposure assessment during work that disturbs lead in paints and coatings may be able to reduce the use of some of these precautions.

Well adhered paints containing elevated levels of lead on metal substrates do not require leachable lead analysis as the materials can be recycled with the paint intact.

Non-metallic items painted with paints containing elevated levels of lead may be a hazardous waste. Test lead-painted materials for leachable lead prior to disposal.

Lead-containing items (lead-acid batteries) should be recycled when taken out of service or prior to building demolition.

4.2.3 *Silica*

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with provincial standards or guidelines.

4.2.4 *Mercury*

Do not break lamps or separate liquid mercury from components. Recycle and reclaim mercury from fluorescent lamps and thermostats when taken out of service. Liquid mercury is classified as a hazardous waste and must be disposed of in accordance with local regulations.

4.2.5 *PCBs*

When light fixtures are removed, examine light ballasts for PCB content. If ballasts are not clearly labelled as "non-PCB", or are suspected to contain PCBs; package and ship ballasts for destruction at a federally permitted facility.



4.2.6 Mould

Mould growth was noted in areas affected by the planned work. Use appropriate precautions and protect workers during removal using methods that comply with provincial guidelines.

5.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

The work performed by Pinchin was conducted in accordance with generally accepted engineering or scientific practices current in this geographical area at the time the work was performed. No warranty is either expressed or implied by furnishing written reports or findings. The Client acknowledges that subsurface and concealed conditions may vary from those encountered or inspected. Pinchin can only comment on the environmental conditions observed on the date(s) the survey is performed. The work is limited to those materials or areas of concern identified by the Client or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this assignment.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issue, regulatory statutes are subject to interpretation and these interpretations may change over time. Pinchin accepts no responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

6.0 REFERENCES

The following legislation and documents were referenced in completing the assessment and this report:

1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.

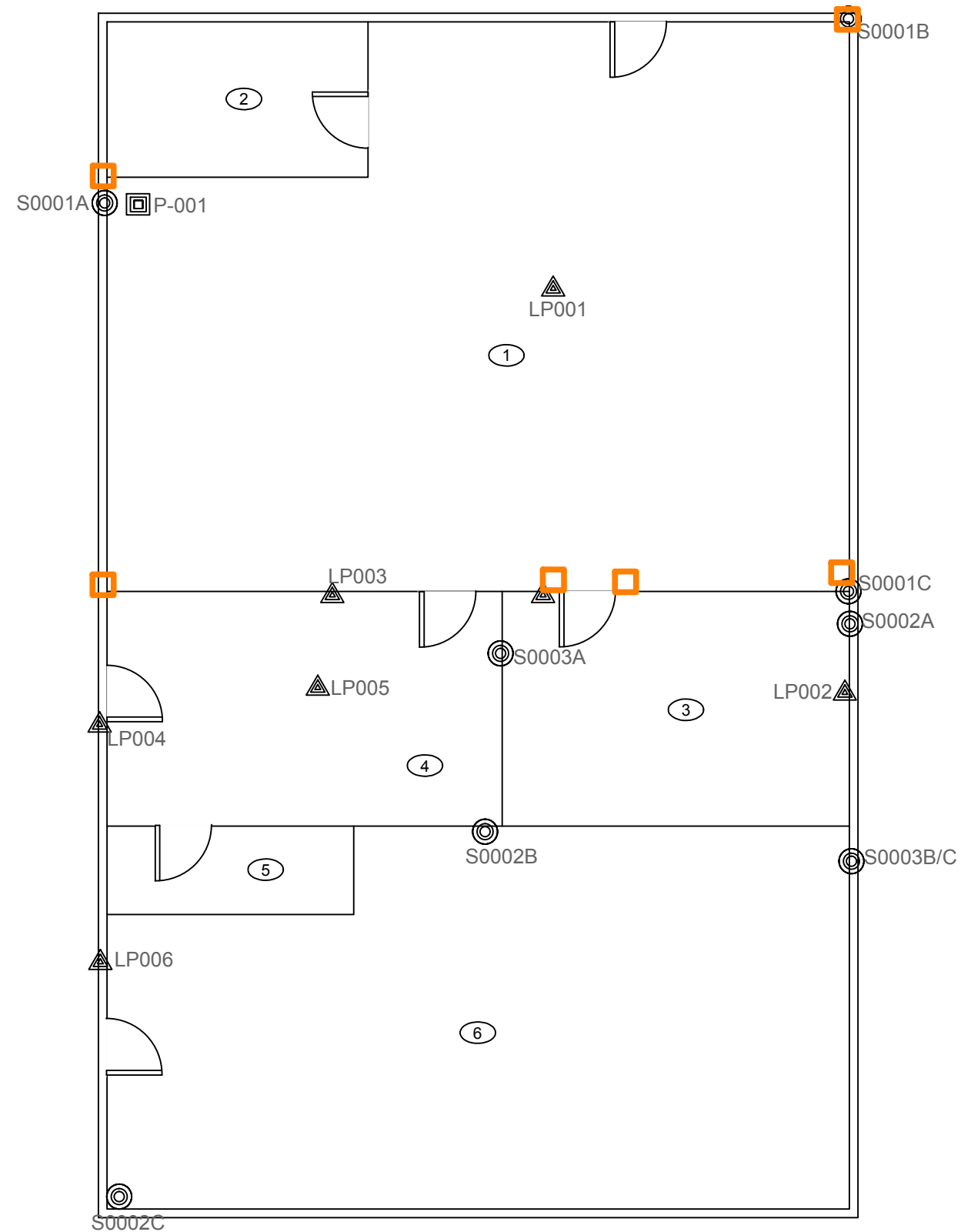


5. Surface Coating Materials Regulations, SOR/2005-109, Hazardous Products Act.
6. Silica on Construction Projects, Ministry of Labour Guidance Document.
7. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.






119273 Hazardous Building Materials Assessment 46°32'16.53N - 84°34'54.53W Gros Cap ON Canadian Coast Guard.docx

Template: Master Report for Hazardous Materials Assessment Report (Pre-Construction), Haz, September 23, 2016

APPENDIX I
Drawings



LEGEND:

-  PINCHIN LOCATION NUMBER
-  ASBESTOS BULK SAMPLE
-  LEAD BULK SAMPLE
-  PCB BULK SAMPLE
-  ASBESTOS CONTAINING CAULKING

CLIENT:

CANADIAN COAST GUARD

LOCATION:

COAST GUARD, GROS CAP,
SAULT STE MARIE, ONTARIO
MCTS SITE

TITLE:

HAZARDOUS MATERIALS
ASSESSMENT
MAIN FLOOR

DATE:

2016/10/24

PROJECT #:

119273

DRAWN BY:

C.L

DRAWING:

CHECKED BY:

J.S

1 OF 1

SCALE:

NTS

APPENDIX II-A
Asbestos Analytical Certificates



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name:	Canadian Coast Guard, Gros Cap Site		
Project No.:	119273		
Prepared For:	J. Sikorski	Date Received:	October 21, 2016
	R. MacLeod	Date Analyzed:	October 26, 2016
Lab Reference No.:	b134627	# Samples submitted:	9
Analyst(s):	S. Capsuyen	# Phases analyzed:	8

Method of Analysis:

EPA 600/R-93/116 - Method for the Determination of Asbestos in Bulk Building Materials dated July, 1993

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold (see chart below) indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

Provincial Jurisdiction	Regulatory Threshold	Provincial Jurisdiction	Regulatory Threshold
Ontario, British Columbia, Nova Scotia	0.5%	Manitoba	0.1% friable 1% non-friable
Quebec	0.1%	Saskatchewan	0.5% friable 1% non-friable
Alberta, NWT, Yukon, Nunavut	1%	Newfoundland and Labrador, PEI and New Brunswick	1%

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

Pinchin Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2005.

This report relates only to the items tested.

NOTE: *This test report may not be reproduced, except in full, without the written approval of the laboratory. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. This report is valid only when signed in blue ink by the analyst. Vinyl asbestos floor tiles contain very fine fibres of asbestos and may be missed by some laboratories using the PLM method. Internal verification studies performed by Pinchin indicate that the chance of missing asbestos in floor tiles is no higher than about 2%. The vinyl tile study and laboratory documentation on measurement uncertainty is available upon request. The analysis of dust samples by PLM cannot be used as an indicator of past or present airborne asbestos fibre levels.*



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Canadian Coast Guard, Gros Cap Site
Project No.: 119273
Prepared For: J. Sikorski
 R. MacLeod
Lab Reference No.: b134627
Date Analyzed: October 26, 2016

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0001A White caulking, southwest interior corner, location 1	Homogeneous, off-white, caulking material.	Chrysotile 0.5-5%	Non-Fibrous Material > 75%
Comments:	Cellulose is present on the surface of this sample.		
S0001B White caulking, southeast interior corner, location 2			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0001C White caulking, northeast interior corner, location 3			Not Analyzed
Comments:	Analysis was stopped due to a previous positive result.		
S0002A Drywall joint compound, east wall, location 3	2 Phases: a) Homogeneous, white, drywall joint compound. b) Homogeneous, white, drywall joint compound.	None Detected None Detected	Mica Other Non-Fibrous Non-Fibrous Material 0.5-5% > 75% > 75%
Comments:	Cellulose is present on the surface of phase a) and man-made vitreous fibres are present on the surface of phase b).		
S0002B Drywall joint compound, north wall, location 4	Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Man-made vitreous fibres are present on the surface of this sample.		



**Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis**

Project Name: Canadian Coast Guard, Gros Cap Site
Project No.: 119273
Prepared For: J. Sikorski
 R. MacLeod
Lab Reference No.: b134627
Date Analyzed: October 26, 2016

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0002C Drywall joint compound, east wall, location 6	Homogeneous, white, drywall joint compound.	None Detected	Mica 0.5-5% Other Non-Fibrous > 75%
S0003A Blockfill insulation, east wall, location 4	Non-homogeneous, beige and black, granular, cementitious material.	None Detected	Man-made Vitreous Fibres < 0.5% Hair < 0.5% Non-Fibrous Material > 75%
S0003B Blockfill insulation, east wall, location 6	Non-homogeneous, beige and black, granular, cementitious material.	None Detected	Synthetic Fibres 0.5-5% Man-made Vitreous Fibres < 0.5% Hair < 0.5% Non-Fibrous Material > 75%
S0003C Blockfill insulation, east wall, location 6	Non-homogeneous, beige and black, granular, cementitious material.	None Detected	Cellulose 0.5-5% Man-made Vitreous Fibres 0.5-5% Non-Fibrous Material > 75%

Reviewed by:

Reporting Analyst:

APPENDIX II-B
Lead Analytical Certificates



Analysis for Lead Concentration in Paint Chips

by Flame Atomic Absorption Spectroscopy
EPA SW-846 3050B/6010C/7420



Customer: Pinchin Ltd.
126 Queen Street East, Suite #3
Sault Ste. Marie, ON P6B 1Y5

Attn: Josh Sikorski

Lab Order ID: 1621112
Analysis ID: 1621112_PBP
Date Received: 10/24/2016
Date Reported: 10/27/2016

Project: Gros Cap Coast Guard

Sample ID	Description	Mass (g)	Concentration (ppm)	Concentration (% by weight)
Lab Sample ID	Lab Notes			
LP-001	Red concrete floor	0.0502	< 80.	< 0.008%
1621112PBP_1				
LP-002	White drywall wall	0.0820	< 49	< 0.005%
1621112PBP_2				
LP-003	Beige concrete block wall	0.0587	< 68	< 0.007%
1621112PBP_3				
LP-004	Red metal door	0.0731	41000	4.1%
1621112PBP_4				
LP-005	Grey concrete floor	0.1040	42	0.004%
1621112PBP_5				
LP-006	White exterior concrete block	0.0706	250	0.025%
1621112PBP_6				
LP-007	Grey wood door	0.0525	4900	0.49%
1621112PBP_7				

Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA ELPAT program. ELPAT Laboratory ID: 173190. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Analytical uncertainty available upon request. The quality control samples run with the samples in this report have passed all EPA required specifications unless otherwise noted. RL: (Report Limit for an undiluted 50ml sample is 4µg Total Pb).

Daniel Olson (7)

Analyst

Scientific Analytical Institute, Inc. 4604 Dundas Dr. Greensboro, NC 27407 (336) 292-3888

Laboratory Director



Scientific Analytical Institute
 4604 Dundas Dr. Greensboro, NC 27407
 Phone: 336.292.3888 Fax: 336.292.3313
 www.sailab.com lab@sailab.com

Lab Use Only
 Lab Order ID: 1021112
 Client Code: _____

Contact Information	
Company Name:	<u>Pinchin Ltd.</u>
Address:	<u>126 Queen St. East, Suite 3. Sault Ste. Marie, ON P6A 1Y5</u>
Contact:	<u>Josh Sikorski</u>
Phone <input checked="" type="checkbox"/> :	<u>705-575-9207</u>
Fax <input checked="" type="checkbox"/> :	<u>705-575-7968</u>
Email <input checked="" type="checkbox"/> :	<u>jsikorski@pinchin.com</u>
PO Number:	<u>119275</u>
Project Name/Number:	<u>Gros Cap Coast Guard</u>

Billing/Invoice Information	
Company:	
Address:	<u>SAME</u>
Contact:	
Phone <input type="checkbox"/> :	
Fax <input type="checkbox"/> :	
Email <input type="checkbox"/> :	

Lead Test Types		
Paint Chips by Flame AA (PBP) <input checked="" type="checkbox"/>	Soil by Flame AA (PBS) <input type="checkbox"/>	Other <input type="checkbox"/>
Wipe by Flame AA (PBW) <input type="checkbox"/>	Air by Flame AA (PBA) <input type="checkbox"/>	

Turn Around Times			
3 Hours	<input type="checkbox"/>	72 Hours	<input checked="" type="checkbox"/>
6 Hours	<input type="checkbox"/>	96 Hours	<input type="checkbox"/>
12 Hours	<input type="checkbox"/>	120 Hours	<input type="checkbox"/>
24 Hours	<input type="checkbox"/>	144+ Hours	<input type="checkbox"/>
48 Hours	<input type="checkbox"/>		

Sample ID #	Description/Location	Volume/Area	Comments
LP-001	Red at Concrete Floor		
LP-002	White Drywall wall		
LP-003	Beige Concrete Block wall		
LP-004	Red metal door		
LP-005	Grey concrete floor		
LP-006	White exterior concrete block		
LP-007	Grey wood door		

Accepted
 Rejected

Total Number of Samples 7

Relinquished by	Date/Time	Received by	Date/Time
<u>Josh Sikorski</u>	<u>Oct. 19/16</u>	<u>Reilly</u>	<u>10/27 9:30 A</u>

APPENDIX II-C
PCB Analytical Certificates

Certificate of Analysis

Josh Sikorski

Pinchin Ltd. (Sault Ste. Marie)
126 Queen Street East Suite 3, Sault Ste. Marie, ON, P6A 1Y5

Printed: Oct 27, 2016

Report Description: 1 solid sample was submitted for the following chemical analysis

Project Name: Gros Cap Station	Date Sampled: Oct 19, 2016
Project No.: 119273	Date Tested: Oct 27, 2016
Site Location: Unknown	Sampled by: Josh S.

Report Number: 16-1849

No.	Analyte	Result	Units	MDL	Comments	Technique / Test Method
1	Sample ID.: P-001 - Interior Caulking					
	PCBs in Solid	<0.5	mg/kg	0.5		LAB-M06 (EPA 3550C/8082A modified)
	Comment(s)	-	N/A	N/A	"mg/kg" is equivalent to "ppm"	N/A

Results relate only to the samples tested above, as received.

Approved By:

Son C.H. Le, B. Eng. (Chem.)

Lab Manager

Phone: (519) 740-1333 Ext.: 230

Fax: (519) 740-2320

Email: SonLe@aevitas.ca

The Analytical Chemistry Laboratory of Aevitas Inc. (Ayr) is accredited for specific tests in accordance with the recognised International Standard ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation (CALA) Inc. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009). The laboratory quality management system of Aevitas Inc. (Ayr) meets the principles of ISO 9001:2008.

All Analytical data is subject to uncertainty which, may vary with sample matrices, sample preparation techniques and instrumental parameters. As a general guideline, uncertainty may be expressed as approximately +/- 50% of the reported value at or near the Method Detection Limit (MDL) and +/-10% or less, of the reported result that is greater than 10 times the MDL. Method Detection Limits are defined as approximately 3 times the standard deviation value (at 99% confidence level), which is obtained from replicate analysis of a low-level standard as per the Ontario MOE - MISA Protocol for the Sampling and Analysis of Industrial / Municipal Wastewater (1999). MDL determination is based on undiluted samples with relatively low matrix interferences. Where dilutions are required, the reported MDL value will be scaled proportionally.

All testing procedures follow strict guidelines and quality assurance / quality control (QA/QC) protocols. QA/QC data is available for review at any time upon client's request.

APPENDIX III
Methodology



1.0 GENERAL

Pinchin conducts a room-by-room survey (rooms, corridors, service areas, exterior, etc.) to identify the hazardous building materials as defined by the scope of work. All work is conducted in accordance with our own internal Standard Operating Procedures.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities are recorded. The locations of any samples collected are recorded on small-scale plans.

As-built drawings and previous reports are referenced where provided.

1.1 Scope Limitations

The assessment excludes the following:

- Articles belonging to the owner, tenant or occupant (e.g. stored items, furniture, appliances, etc.);
- Underground materials or equipment (e.g. vessels, drums, underground storage tanks, pipes, etc.);
- Building envelope, structural components, inaccessible or concealed materials or other items where sampling may cause consequential damage to the property;
- Energized systems (e.g. internal boiler components, elevators, mechanical or electrical components);
- Controlled products (e.g. stored chemicals, operational or process-related substances); and
- Materials not typically associated with construction (e.g. settled dust, spills, residual contamination from prior spills, etc.).

The assessment includes limited demolition of wall and ceiling finishes (drywall or plaster) to view concealed conditions at representative areas as permitted by the current building use. Limited destructive testing of flooring is conducted where possible (under carpets or multiple layers of flooring). Demolition of masonry walls (chases, shafts etc.), structural items or exterior building finishes is not conducted.

1.2 Asbestos

Pinchin conducts an inspection for the presence of friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure.



A separate set of samples is collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials are determined by visual examination and available information on the phases of construction and prior renovations.

Pinchin collects samples at a rate that is in compliance with Table 1 of O.Reg. 278/05.

The sampling strategy is also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start/finish date of construction and associated usage of ACM.

In some cases, manufactured products such as asbestos cement pipe are visually identified without sample confirmation.

Pinchin conducts limited demolition of masonry block walls (core holes) to investigate for loose fill insulation. The core holes are temporarily patched with expanding foam.

Flooring mastic/adhesive and leveling compounds are only sampled and analyzed if present on the underside of flooring samples (vinyl floor tile and vinyl sheet flooring).

If present, the following materials are presumed to be asbestos-containing and are best sampled immediately prior to commencing renovation/disturbance:

- roofing, felts and tar;
- concrete floor levelling compound; and
- electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring.

Pinchin submits the bulk samples to a NVLAP accredited laboratory for analysis. The analysis is performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

In Ontario an ACM is defined as materials containing 0.5% or more asbestos by weight.

The asbestos analysis is completed using a stop positive approach. Only one result meeting the above regulated criteria is required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stops analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material are analyzed if no asbestos is detected. In some cases, all samples are analyzed in the sample set regardless of result.



Where building materials are described in the report as non-asbestos, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation.

Asbestos materials are evaluated in order to make recommendations regarding remedial work. The priority for remedial action is based on several factors:

- Friability (friable or non-friable);
- Condition (good, fair, poor, debris);
- Accessibility (ranking from accessible to all building users to inaccessible);
- Visibility (whether the material is obscured by other building components);
- Air movement or air erosion (present, not present). (BC and Alberta only); and
- Efficiency of the work (for example, if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition).

For a complete description of the Evaluation Criteria and Basis of Recommendations, refer to Annex A.

1.3 Lead

Pinchin collects samples of distinctive paint finishes and surface coatings present in more than a limited application, where removal of the paint is possible. Pinchin collects samples by scraping the painted finish to include base and covering applications. Drawings included show sample locations.

Analysis for lead in paints or surface coatings is performed at an accredited laboratory in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

The Ontario Ministry of Labour (MOL) has not established a lower limit for concentrations of lead in paint, below which precautions do not need to be considered during construction projects. Pinchin follows the recommendations of the Environmental Abatement Council of Ontario (EACO) Lead Guideline for Construction, Renovation, Maintenance or Repair. The Guideline suggests that 0.1% (1,000 ppm) lead in paint represents a de minimis concentration of lead in paint for construction hygiene purposes, that is a concentration below which the lead content is not the limiting hazard in any disturbance of leaded paint for non-aggressive disturbance of painted finishes, (hand powered demolition, chipping, scraping, light sanding, etc.). The use of aggressive methods such as power grinding, torching, welding, etc. may result in significant lead exposures even with low concentrations of lead in paints (below 0.1%). Paint and surface coatings are evaluated for condition such as flaking, chipping or spalling.

Other lead building products (e.g. batteries, lead sheeting, flashing) are identified by visual observation only.



1.4 Silica

Pinchin identifies building materials suspected of containing crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) by knowledge of current and historic applications and visual inspection only.

Pinchin does not perform sampling of these materials for laboratory analysis of crystalline silica content.

1.5 Mercury

Building materials/products/equipment (e.g. thermostats, barometers, pressure gauges, light tubes), suspected to contain mercury are identified by visual inspection only. Dismantling of equipment suspected of containing mercury is not performed. Sampling of these materials for laboratory analysis of mercury content is not performed.

Mercury spills or damaged mercury-containing equipment are recorded where observed.

1.6 Polychlorinated Biphenyls

Pinchin determines the potential for light ballasts to contain PCBs based on the age of the building, a review of maintenance records and examination of labels or nameplates on equipment, where present and accessible. The information is compared to known ban dates of PCBs and Environment Canada publications. Other than light ballasts and pole mounted transformers, all other liquid uses of PCBs should have been discontinued.

Pinchin records spills or leakage of suspect PCB-containing fluids where observed or identified in historical documents.

Pinchin samples exterior caulking or sealants for PCBs based on the date of construction or installation. Caulking installed after 1985 is presumed to be free of PCBs and hence not sampled. If sampled, analysis for PCBs is performed using an ASTM test method appropriate to the sample matrix at an accredited laboratory.

1.7 Visible Mould

Pinchin identifies the presence of mould if visibly present in a significant quantity on exposed building surfaces. If any mould growth is concealed within wall cavities it is not addressed in this assessment.

Master Template: Methodology Document for Hazardous Building Materials Pre-Construction, HAZ, May 5, 2016



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne



APPENDIX B5: GEOTECHNICAL INVESTIGATION REPORT

**Geotechnical Investigation Report
Proposed Replacement of Existing Equipment Building
Gros Cap MCTS Site, near Sault Ste Marie, Ontario**

Prepared for Fisheries and Oceans Canada



ENGINEERING SOLUTIONS

INSPEC-SOL INC., 651 Colby Drive, Waterloo (Ontario) N2V 1C2 ♦ Tel.: 519 725-9328 ♦ Fax: 519 725-1158 ♦ QMS ISO 9001 : 2008

Reference No. T050145-A1

March 20, 2012

Mr. Blair Young, P.Eng.
Project Engineer
Maritime and Civil Infrastructure
Central and Arctic Region Coast Guard
Fisheries and Oceans Canada
520 Exmouth Street
Sarnia, Ontario N7T 8B1

Re: Geotechnical Investigation Report
Proposed Replacement of Existing Equipment Building
Gros Cap MCTS Site, near Sault Ste Marie, Ontario

Dear Mr. Young;

In accordance with your request, Inspec-Sol has conducted a geotechnical investigation at the above-noted site and is pleased to present our report.

We trust that this information meets with your approval. Please do not hesitate to contact us, should any questions arise.

Yours very truly,

INSPEC-SOL INC.

A handwritten signature in black ink, appearing to read 'B. Polan', is written over a light blue horizontal line.

Bruce Polan, M.A.Sc., P. Eng.
Associate/ Branch Manager Waterloo

ak/BP/cr/1

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	PROJECT DESCRIPTION	1
3.0	FIELD AND LABORATORY WORK PROCEDURES	2
4.0	GEOLOGY AND SUBSURFACE CONDITIONS.....	3
5.0	DISCUSSION AND RECOMMENDATIONS	4
5.1	<i>General</i>.....	4
5.2	<i>Foundation Design Parameters</i>	5
5.2.1	<i>Concrete Foundation Slab</i>.....	5
5.3	<i>Seismic Site Class</i>.....	6
5.4	<i>Excavations and Groundwater Control</i>.....	6
5.5	<i>Trench Backfilling</i>.....	7
5.6	<i>Corrosion Potential</i>.....	8
6.0	LIMITATIONS OF THE INVESTIGATION	9

FIGURE

Figure 1	Site Plan
Figure 2	Test Pit Location Plan

APPENDICES

Appendix A	Test Pit Stratigraphy Log
Appendix B	Soil Analytical Laboratory Test Results

1.0 INTRODUCTION

Inspec-Sol Inc., (Inspec-Sol) has been retained by the Department of Fisheries and Oceans Canada (DFO) to conduct a geotechnical investigation for the Proposed Replacement of Existing Equipment Building located at Gros Cap MCTS Site (Site), near Sault Ste Marie, Ontario. A site plan provided by DFO is attached as Figure 1.

The authorization for the geotechnical investigation was provided through the DFO Purchase Order No. F2563-110097 dated February 13, 2012.

The purpose of the geotechnical investigation was to determine the subsurface soil and groundwater conditions in close proximity of the proposed replacement structure. This report contains a description and findings of our geotechnical investigation, as well as professional opinions and recommendations regarding subsurface conditions and the design and construction of the foundation for the new equipment building.

2.0 PROJECT DESCRIPTION

The Site is located in west of Sault Ste Marie, Ontario, and is accessible through a gravel road off North Gros Cap Road. At present the facility comprises an existing equipment building structure and a VHF steel truss tower. The Site is secured by a chain-link fence with a gated entrance at its northeastern limits through a gravel access road. The area surrounding the property is generally covered with bushes and small trees.

Based on the information provided by DFO and Canadian Coast Guard (CCG), Central and Arctic Region, it is understood that DFO/CCG is planning to replace the existing equipment building. Inspec-Sol has reviewed the following documents provided with the request for quotation (RFQ):

- Framing Plans, Sections and Details (Drawing 3046-S1, dated April 6, 2004); and
- General Notes and Structural Notes (Drawing 3046-S3), provided in Appendix C (Drawings *reference only*) of the RFQ information.

Based on review of the above drawings, it is our understanding that the proposed building replacement structure will comprise of a Telecommunications Trailer with dimensions of 12.9 metres (m) x 4.35 m, supported by C-channels (C200), on either conventional shallow footings, or a concrete slab. The replacement structure will be located to the northwest of the existing building.

3.0 FIELD AND LABORATORY WORK PROCEDURES

The scope of work (SOW) for the geotechnical investigation was described in our proposal #PW-439 dated February 8, 2012, and comprised of excavation of two test pits to a maximum depth of 3.0 m below the existing ground surface (bgs) or excavation refusal, whichever comes earlier, using a track-mount excavator.

Inspec-Sol obtained underground utility clearance in the general Site area through Ontario 1 Call (ONICALL). Lajoie Brothers, an excavating subcontractor advanced the two test pits TP-1 and TP-2 on March 2, 2012 to depths of 3.10 m and 2.44 m bgs, respectively using a track-mount excavator (CAT 307), under the full-time supervision of an Inspec-Sol representative. DFO also had their representative present at site at the time of the test pit excavations. The Test Pit stratigraphy logs are attached as Appendix A. The approximate test pit locations are shown on the Test Pit Location Plan provided as Figure 2.

Soil strata in each test pit location were observed in the field for type, texture, and colour. Soil samples of the strata encountered, were obtained at various depths. The samples were sealed in clean plastic containers and transferred to the Inspec-Sol laboratory at Waterloo, where they were re-examined to verify the accuracy of the initial soil descriptions. Both test pits were backfilled with the excavated on-site soils upon completion. Groundwater observations were made in the test pits as excavation proceeded, and no groundwater was observed. The existing ground surface elevations at the test pit locations were not measured.

The geotechnical laboratory work program consisted of moisture content analyses on all collected soil samples. The moisture content test results are provided on the respective test pit log at the corresponding sample depths. One soil sample was analyzed for chemical properties to determine the potential for corrosion of buried steel structures and potential of sulphate

attack on below-grade concrete structures. The soil sample was submitted under chain-of-custody to ALS, an accredited analytical laboratory. The analytical test results are discussed in Section 5.6 and the laboratory test result sheets are provided in Appendix B.

4.0 GEOLOGY AND SUBSURFACE CONDITIONS

The Site is located in the rugged high hills of the Gros Cap Batholith (Robertson and Card 1972). The Gros Cap Batholith is a large granitic highland. In the Township of Prince and the northern part of the City of Sault Ste Marie, the highland displays a distinctive escarpment that extends from Gros Cap across to the Garden River Indian Reservation. The quaternary geology of the Sault Ste Marie area (Ministry of Northern Development and Mines Map P.31-4) indicates that the Site geology consists of early to late Precambrian age comprising granite, volcanic, metasedimentary and metavolcanic rocks, which is identified as unsubdivided and includes a discontinuous thin drift cover.

According to the Quaternary Geology of Southern Ontario (Ministry of Northern Development and Mines Map 2556), the bedrock in the area is comprised of Precambrian, undifferentiated igneous and metamorphic rock, exposed at surface or covered by discontinuous thin layer of drift.

Details of the subsurface conditions encountered at the Site are summarized in this Section. It should be noted that the subsurface conditions are only confirmed at the test pit locations and may vary at other locations. The boundaries between the various strata, as shown on the Test Pit Stratigraphy Logs are based on our observation at the time of test pit excavation, and represent an inferred transition between the various strata, rather than a precise plane of geological change. Bedrock was not encountered within the excavation depths of TP-1 and TP-2, however, bedrock outcrops are located close to the site as shown on the Site Plan. For a detailed review of the soil stratigraphy, the reader should refer to the attached test pit logs.

At the ground surface of each test pit, sand and gravel topsoil mixed with organics and roots was encountered to a depth of 750 mm and 600 mm, respectively, in TP-1 and TP-2. The surficial topsoil in both test pit locations is underlain by native sand and gravel deposits, with

some roots, which extends to 1.2 m bgs. The upper sand and gravel layer is further underlain by a coarse-grained sand and gravel containing cobbles and boulders, which extends to the termination depths of about 3.1 m bgs and 2.44 m bgs in TP-1 and TP-2, respectively.

The laboratory moisture contents of the selected native sand and gravel soil samples range from 4 percent (%) to 15 %, which indicate moist conditions.

Groundwater observations were made as the test pit excavation proceeded. Both test pits TP-1 and TP-2 were found dry upon completion. The excavation side walls of both test pits were noted to be stable upon completion.

The excavated test pits were backfilled with the excavation spoil pile, and compacted with the excavator track. During test pit excavation operations, a copper grounding cable was encountered at about 0.6 m bgs in test pit TP-2. The cable was slightly damaged, and was replaced at its original location in the presence of the DFO site representative, subsequent to completion of test pit excavation and prior to proceeding backfilling operations. It is understood that repairs to the grounding cable will be carried out by DFO at a later date.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 *General*

The purpose of this geotechnical investigation was to determine the subsurface soil and groundwater conditions at the proposed equipment building replacement and to provide geotechnical design and construction recommendations for the proposed building structure, and associated underground utility trenches such as buried cable, if any.

DFO/CGC provided example structural drawings in Appendix C of the RFQ (Drawings 3046-S1 and 3046-S3) from 2004 of the Telecommunication Trailer, and it is understood that the proposed building will be similar to that shown on these drawings. Based on our understanding of the proposed structure and these drawings, the building will have dimensions of 12.9 metres (m) x 4.35 m, and will have a plywood subfloor and plywood exterior sheathing. The trailer will be supported on C-channels, placed on concrete pier footings or a concrete slab.

Based on our understanding of the project, discussed in Section 2.0, and the subsurface soil and groundwater conditions encountered at the test pit locations, the following geotechnical design and construction recommendations are provided for the proposed replacement structure. We would be pleased to review these recommendations once further details of the foundation design are available.

5.2 Foundation Design Parameters

Based on the 2004 drawings, it appears that the trailer will be supported on or above the existing ground surface, on concrete piers or a slab-on-grade. If support piers or footings are used, they should extend to 2.0 m below grade for proper frost cover. The foundation subgrade can be considered suitable for a nominal design bearing pressure at service limit states of 150 kPa, and ultimate limit states of 225 kPa.

5.2.1 Concrete Foundation Slab

If the c-channels are to be supported on a concrete slab, the slab should be designed for unheated conditions, and be reinforced to tolerate frost heave. The concrete slab should be supported on a minimum 300 mm thick layer of Granular 'A' base conforming to OPSS granular 'A' requirements compacted to at least 100 percent SPMDD. The slab should be slightly raised above existing grade to encourage drainage away from the slab. Consideration can also be given to providing insulation for frost protection, and we can assist with this issue if requested.

The upper 0.6 to 0.75 m of soil at the site consists of sand and gravel topsoil, and we recommend removal of this material from beneath the building footprint. The subgrade should be verified by the geotechnical engineer to determine its suitability. Once the subgrade has been approved, it should be compacted with a heavy smooth-drum roller compactor, to at least 98 percent of its standard Proctor maximum dry density (SPMDD). Grade adjustments, if required, should be made using on-site approved granular soils, or imported granular material such as OPSS granular 'B'. The engineered fill material used for preparation of foundation subgrade should be placed in thin lifts not exceeding 200 mm and thoroughly compacted using a heavy vibratory roller to a minimum of 98 percent SPMDD. The moisture contents of the fill material should be maintained within 2 percent of optimum.

5.3 *Seismic Site Class*

The 2006 Ontario Building Code (2006 OBC) requires the assignment of a Seismic Site Class for calculations of earthquake design forces and the structural design based on a two percent probability of exceedance in 50 years. According to the 2006 OBC, the Seismic Site Class is a function of soil profile, and is based on the average properties of the subsoil strata to a depth of 30 m below the ground surface. The 2006 OBC provides the following three methods to obtain the average properties for the top 30 m of the subsoil strata:

- Average shear wave velocity;
- Average Standard Penetration Test (SPT) values (uncorrected for overburden); or
- Average undrained shear strength.

Based on the results of this geotechnical investigation, the test pits extend to a maximum depth of 3.1 m bgs only and the subsurface profile below this depth is not known (shallow bedrock expected). For a preliminary design purposes, based on the criteria listed in Table 4.1.8.4.A. of the 2006 OBC and our knowledge of the regional geology, a Seismic Site Class 'D' can conservatively be used.

5.4 *Excavations and Groundwater Control*

Excavations must be carried out in accordance with the Occupational Health and Safety Act and Regulations for Construction Projects. These regulations designate four broad classifications of soils to stipulate appropriate measures for excavation safety. The undisturbed cohesive and cohesionless soil deposits found at this Site are considered generally as a Type 3 soil.

Where workmen must enter a trench or excavation carried deeper than 1.2 m, the trench or excavation must be suitably sloped and/or braced in accordance with the regulation requirements. The regulation stipulates maximum slopes of excavation by soil type as follows:

Maximum Slope Inclinations

<i>Soil Type</i>	<i>Base of Slope</i>	<i>Maximum Slope Inclination</i>
1	Within 1.2 metres of bottom of trench	1 horizontal to 1 vertical
2	Within 1.2 metres of bottom of trench	1 horizontal to 1 vertical
3	From bottom of trench	1 horizontal to 1 vertical
4	From bottom of trench	3 horizontal to 1 vertical

The native sand and gravel deposits encountered at the test pit locations can be classified as Type 3 when properly dewatered in their undisturbed state in accordance with the OHSAA regulations. Groundwater was not encountered in the test pits.

Minimum support system requirements for steeper excavations are stipulated in Sections 235 through 238 and 241 of the Act and Regulations and include provisions for timbering, shoring and moveable trench boxes.

Perched groundwater seepage, if encountered, should be controlled by conventional sump pump methods. Surface water should be directed away from open excavations. Spoil piles should be kept a minimum of 1.0 m away from the top of any excavation to prevent excess loading on excavation sidewalls.

5.5 Trench Backfilling

Backfilling of excavation trenches (subgrade for building foundation and/or utility trenches) can be accomplished by reusing the excavated soils or similar fill material provided the moisture content is maintained within 2 percent of optimum. Backfill materials used for site grading or backfilling purposes should be placed in thin lifts not exceeding 200 mm and thoroughly compacted using a heavy vibratory roller to a minimum of 95 percent SPMDD. Cobbles and boulders in excess of 150 mm diameter should be excluded from the soils used as backfill material.

5.6 Corrosion Potential

Analytical testing was carried out on one soil sample recovered from 1.8 m bgs in order to determine corrosion potential of the subsurface soils. The sand and gravel soil sample was tested for pH, resistivity, sulphides, sulphate, chloride and redox potential. The test results are summarized in the following table. The detailed laboratory analytical report is provided in Appendix C.

<i>Sample ID</i>	<i>TP-2 (S-3)'</i>
Depth (m bgs)	1.8
pH	5.91
Moisture (%)	6
Redox Potential (mV)	355
Resistivity (ohm-cm)	108000
Chloride (mg/kg)	<20 (detection limit)
Sulphide (mg/kg)	<0.20 (detection limit)
Sulphate (mg/kg)	<20 (detection limit)

Based on these results, the soil is considered to be non-corrosive. Note that the above value for resistivity was performed by the analytical lab and should not be used for design of grounding systems. Inspec-Sol can provide resistivity values using a 4-pin resistivity box if required.

Table 3 of the Canadian Standards Association (CSA) document A23.1-04/A23.2-04 'Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete' divides the degree of exposure into the following three classes:

<i>Degree (Class) of Exposure</i>	<i>Water Soluble (SO₄) in Soil Sample (%)</i>
Very Severe (S-1)	> 2.0
Severe (S-2)	0.20 – 2.0
Moderate (S-3)	0.10 – 0.20

A review of the analytical test results shows the sulfate content in the tested samples was found to be less than 0.00002 percent, which was the detection limit of the test. In view of the test results, the degree of exposure of the subsurface concrete structures to sulphate attack is low.

6.0 LIMITATIONS OF THE INVESTIGATION

This report is intended solely for Fisheries and Oceans Canada, Canadian Coast Guard and other party/parties explicitly identified in the report, and is prohibited for use by others without Inspec-Sol's prior written consent. This report is considered Inspec-Sol's professional work product and shall remain the sole property of Inspec-Sol. Any unauthorized reuse, redistribution of or reliance on the report shall be at the Client and recipient's sole risk, without liability to Inspec-Sol. Client shall defend, indemnify and hold Inspec-Sol harmless from any liability arising from or related to Client's unauthorized distribution of the report. No portion of this report may be used as a separate entity; it is to be read in its entirety and shall include all supporting drawings and appendices.

The recommendations made in this report are in accordance with our present understanding of the project, the current site use, ground surface elevations and conditions, and are based on the work scope approved by the Client and described in the report. The services were performed in a manner consistent with that level of care and skill ordinarily exercised by members of geotechnical engineering professions currently practicing under similar conditions in the same locality. No other representations, and no warranties or representations of any kind, either expressed or implied, are made. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

All details of design and construction are rarely known at the time of completion of a geotechnical study. The recommendations and comments made in the study report are based on our subsurface investigation and resulting understanding of the project, as defined at the time of the study. We should be retained to review our recommendations when the drawings and specifications are complete. Without this review, Inspec-Sol will not be liable for any misunderstanding of our recommendations or their application and adaptation into the final design.

By issuing this report, Inspec-Sol is the geotechnical engineer of record. It is recommended that Inspec-Sol be retained during construction of all foundations and during earthwork operations to confirm the conditions of the subsoil are actually similar to those observed during

our study. The intent of this requirement is to verify that conditions encountered during construction are consistent with the findings in the report and that inherent knowledge developed as part of our study is correctly carried forward to the construction phases.


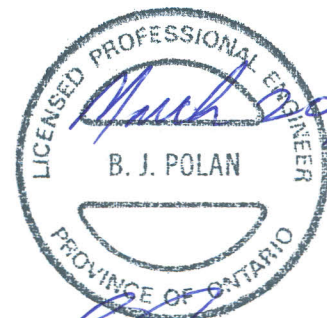
It is important to emphasize that a soil investigation is, in fact, a random sampling of a site and the comments included in this report are based on the results obtained at the test location only [Test Pits TP-1 and TP-2]. The subsurface conditions confirmed at the two (2) test pit locations may vary at other locations. The subsurface conditions can also be significantly modified by the construction activities on site (ex. excavation, dewatering and drainage, blasting, pile driving, etc.). These conditions can also be modified by exposure of soils or bedrock to humidity, dry periods or frost. Soil and groundwater conditions between and beyond the test locations may differ both horizontally and vertically from those encountered at the test locations and conditions may become apparent during construction which could not be detected or anticipated at the time of our investigation. Should any conditions at the site be encountered which differ from those found at the test locations, we request that we be notified immediately in order to permit a reassessment of our recommendations. If changed conditions are identified during construction, no matter how minor, the recommendations in this report shall be considered invalid until sufficient review and written assessment of said conditions by Inspec-Sol is completed.

We trust that this report meets with your present requirements. Please do not hesitate to contact us should any questions arise.

Yours truly,
INSPEC-SOL INC.



Abdul Hafeez Khan, P.Eng



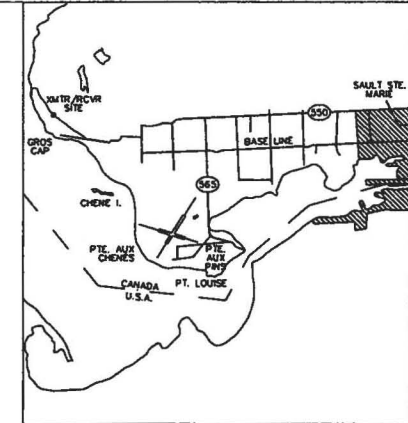
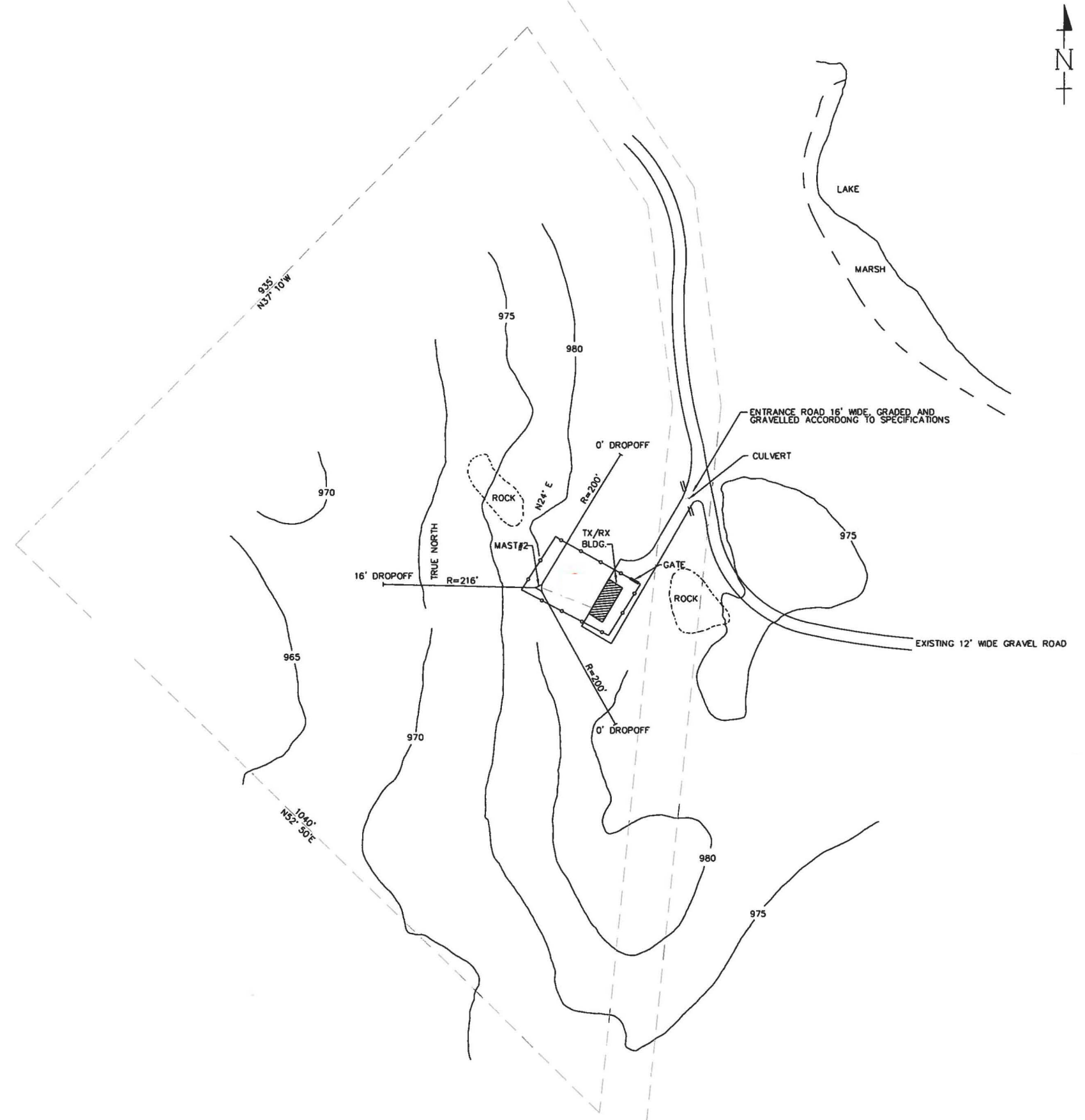
Bruce Polan, M.A.Sc., P.Eng.

FIGURE

I:\Technical\Drawings\Drawings\20-Gros Cap\2000\pppl.dwg, 1/2007 11:42:46 AM, SX223E_X3545C

CM120-001-PP AC

T050145-A1

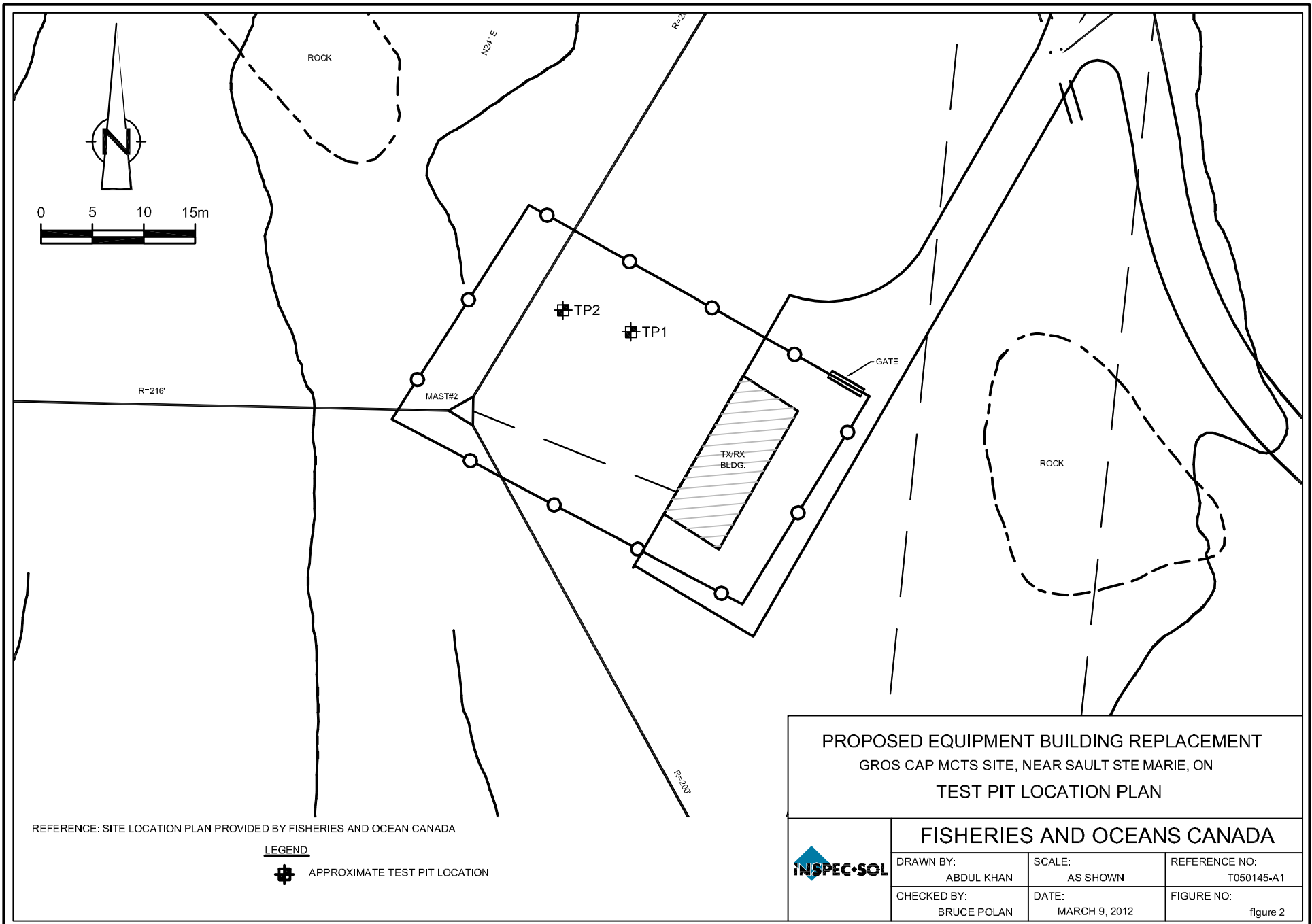


KEY PLAN
SCALE = 1:120,000

- NOTES:
1. ALL ANTENNA & POLE GUYS 120' A PART. SEE ADVANCED TOWER LTD. DWG. #22-883.
 2. FOR CONCRETE BASE & GUY ANCHORAGE DETAILS SEE ADVANCED TOWER LTD. INSTALLATION NOTES.
 3. SITE IS SITUATED IN THE WEST HALF OF THE SOUTHEAST QUARTER OF SECTION THIRTY TOWNSHIP OF PRINCE, DISTRICT OF ALDAMA, PROVINCE OF ONTARIO.
 4. ELEVATIONS ARE TRUE ELEVATIONS ABOVE SEA LEVEL.
 5. GEOGRAPHICAL COORDINATES:
LATITUDE: 46° 32' 10"
LONGITUDE: 84° 35' 00"
 6. ICE BRIDGE USED TO SUPPORT RF CABLES BETWEEN TX/RX BUILDINGS & MAST #2 TOWER.
 7. NEW FENCE AROUND COMPOUND ADDED FALL OF 2006.

DESIGNED BY	P. PONTICELLI	DATE	11-28-79
CHECKED BY	ML	DATE	11-27-79
APPROVED BY	ML	DATE	11-27-79
DRAWING NO.	CM120-001-PP	SCALE	1"=50'
DRAWING TITLE		GROS CAP MARINE PERIPHERAL PLOT PLAN	
DRAWING NO.		CM120-001-PP	
PART		1/1	


FIGURE : 1 SITE PLAN



REFERENCE: SITE LOCATION PLAN PROVIDED BY FISHERIES AND OCEAN CANADA

LEGEND

 APPROXIMATE TEST PIT LOCATION

PROPOSED EQUIPMENT BUILDING REPLACEMENT GROS CAP MCTS SITE, NEAR SAULT STE MARIE, ON TEST PIT LOCATION PLAN		
FISHERIES AND OCEANS CANADA		
	DRAWN BY: ABDUL KHAN	SCALE: AS SHOWN
	CHECKED BY: BRUCE POLAN	DATE: MARCH 9, 2012
		REFERENCE NO: T050145-A1
		FIGURE NO: figure 2

APPENDIX A

Test Pit Stratigraphy Log

TEST PIT STRATIGRAPHY LOG

Project Name: Geotechnical Investigation - Replacement of Existing Equipment Building		Test Pit Designation: TP-1	
Project Number: T050145-A1	Ground Surface Elevation (m): N/M	Date Started: 2-Mar-12	
Client: Fisheries and Oceans Canada	Test Pit Method: Open Excavation	Date Completed: 2-Mar-12	
Excavating Contractor: Lajoie Brothers	Operator: Jim Lajoie	Equipment: CAT 307 Tracked Excavator	
Location: Gros Cap MCTS Site near Sault Ste Marie, Ontario		Inspec-Sol Supervisor: Rob Fewchuk (CRA)	

Depth		Soil Symbol, Primary Component, Secondary Components, Relative Density/Consistency, Grain Size/Plasticity, Gradation/Structure, Colour, Moisture Content, Supplementary Descriptors	Sample No.	Sample Interval	Moisture Content (%)	Location: (refer to test pit location map)
From (m)	To (m)					Geologic Profile
0.00	0.75	TOPSOIL: dark brown, with sand and gravel, some roots, trace silt, moist	S-1	0.6	32	
0.75	1.20	SAND AND GRAVEL: Rust brown, coarse-grained, trace topsoil, trace roots, moist				
1.20	3.10	COARSE SAND AND GRAVEL: brown, trace silt, with cobbles and boulders, moist	S-2	1.2	15	
			S-3	1.8	4	
			S-4	2.4	6	
	3.10	End of Test Pit at 3.10 m below ground surface. Test pit dry upon completion. Excavation sides stable. Backfilled with excavation spoil pile.	S-5	3.1	7	





m - denotes "metres"

N/M - denotes "Not Measured"

TEST PIT STRATIGRAPHY LOG

Project Name: Geotechnical Investigation - Replacement of Existing Equipment Building		Test Pit Designation: TP-2	
Project Number: T050145-A1	Ground Surface Elevation (m): N/M	Date Started: 2-Mar-12	
Client: Fisheries and Oceans Canada	Test Pit Method: Open Excavation	Date Completed: 2-Mar-12	
Excavating Contractor: Lajoie Brothers	Operator: Jim Lajoie	Equipment: CAT 307 Tracked Excavator	
Location: Gros Cap MCTS Site near Sault Ste Marie, Ontario		Inspec-Sol Supervisor: Rob Fewchuk (CRA)	

Depth		Soil Symbol, Primary Component, Secondary Components, Relative Density/Consistency, Grain Size/Plasticity, Gradation/Structure, Colour, Moisture Content, Supplementary Descriptors	Sample No.	Sample Interval	Moisture Content (%)	Location: (refer to test pit location map) Geologic Profile
From (m)	To (m)					
0.00	0.60	TOPSOIL: dark brown, with sand and gravel, some roots, trace silt, moist				
0.60	1.20	encountered copper grounding wire at about 0.6 m bgs SAND AND GRAVEL: rust brown, trace topsoil, trace roots, moist	S-1	0.6	8	
1.20	2.44	COARSE SAND AND GRAVEL: brown, with cobbles and boulders, moist	S-2	1.2	13	
			S-3	1.8	7	
			S-4	2.4	7	
	2.44	End of Test Pit at 2.44 m below ground surface. Test pit dry upon completion. Excavation sides stable. The grounding wire was slightly damaged, and was replaced at its original location for later repair by DFO. Backfilled with				



m - denotes "metres"

N/M - denotes "Not Measured"

APPENDIX B

Soil Analytical Laboratory Test Results



INSPEC-SOL INC.
ATTN: ABDUL KHAN
651 COLBY DRIVE
WATERLOO ON N2V 1G2

Date Received: 09-MAR-12
Report Date: 16-MAR-12 13:14 (MT)
Version: FINAL

Client Phone: 519-725-9328

Certificate of Analysis

Lab Work Order #: L1122398
Project P.O. #: NOT SUBMITTED
Job Reference: T050145-A1
C of C Numbers: 118109
Legal Site Desc:

Wayne Smith, C.CHEM., C.E.T.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1122398-1 TP-2 (6 FEET BGS) Sampled By: CLIENT on 09-MAR-12 Matrix: SOIL							
Physical Tests							
% Moisture	6.49		0.10	%	09-MAR-12	09-MAR-12	R2335815
pH	5.91		0.10	pH units	12-MAR-12	12-MAR-12	R2336290
Redox Potential	355		-1000	mV	12-MAR-12	12-MAR-12	R2336305
Resistivity	108000		100	ohm cm	12-MAR-12	12-MAR-12	R2336302
Leachable Anions & Nutrients							
Chloride	<20		20	mg/kg	13-MAR-12	13-MAR-12	R2337492
Sulphide	<0.20		0.20	mg/kg	14-MAR-12	14-MAR-12	R2338286
Anions and Nutrients							
Sulphate	<20		20	mg/kg	13-MAR-12	13-MAR-12	R2337492

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-WT	Soil	Chloride in Soil	EPA 300.0
MOISTURE-WT	Soil	% Moisture	Gravimetric: Oven Dried
PH-WT	Soil	pH	MOEE E3137A
Soil samples are mixed in the deionized water and the supernatant is analyzed directly by the pH meter.			
REDOX-POTENTIAL-WT	Soil	Redox Potential	APHA 2580
RESISTIVITY-WT	Soil	Resistivity	MOEE E3137A
SO4-WT	Soil	Sulphate	EPA 300.0
SULPHIDE-WT	Soil	Sulphide	APHA 4500S2D

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

118109

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1122398

Report Date: 16-MAR-12

Page 1 of 3

Client: INSPEC-SOL INC.
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: ABDUL KHAN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-WT								
	Soil							
Batch	R2337492							
WG1440690-3	DUP	L1122398-1						
Chloride		<20	<20	RPD-NA	mg/kg	N/A	30	13-MAR-12
WG1440690-2	LCS							
Chloride			100.3		%		70-130	13-MAR-12
WG1440690-1	MB							
Chloride			<20		mg/kg		20	13-MAR-12
MOISTURE-WT								
	Soil							
Batch	R2335815							
WG1440645-3	DUP	L1122369-8						
% Moisture		19.5	20.2		%	3.6	30	09-MAR-12
WG1440645-2	LCS							
% Moisture			94.9		%		70-130	09-MAR-12
WG1440645-1	MB							
% Moisture			<0.10		%		0.1	09-MAR-12
PH-WT								
	Soil							
Batch	R2336290							
WG1441280-1	CVS							
pH			99.6		%		80-120	12-MAR-12
WG1440929-1	DUP	L1122398-1						
pH		5.91	5.99		pH units	1.96	20	12-MAR-12
REDOX-POTENTIAL-WT								
	Soil							
Batch	R2336305							
WG1440695-1	DUP	L1122398-1						
Redox Potential		355	352		mV	0.85	25	12-MAR-12
RESISTIVITY-WT								
	Soil							
Batch	R2336302							
WG1441264-1	CVS							
Resistivity			101.7		%		70-130	12-MAR-12
WG1441264-3	DUP	L1122492-1						
Resistivity		2880	3180		ohm cm	10	25	12-MAR-12
SO4-WT								
	Soil							
Batch	R2337492							
WG1440690-3	DUP	L1122398-1						
Sulphate		<20	<20	RPD-NA	mg/kg	N/A	30	13-MAR-12
WG1440690-2	LCS							
Sulphate			99.1		%		60-140	13-MAR-12



Quality Control Report

Workorder: L1122398

Report Date: 16-MAR-12

Page 2 of 3

Client: INSPEC-SOL INC.
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: ABDUL KHAN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-WT	Soil							
Batch	R2337492							
WG1440690-1	MB							
Sulphate			<20		mg/kg		20	13-MAR-12
SULPHIDE-WT	Soil							
Batch	R2338286							
WG1443714-1	CVS							
Sulphide			87.8		%		50-120	14-MAR-12
WG1443710-2	DUP	L1123195-2						
Sulphide		<0.20	<0.20	RPD-NA	mg/kg	N/A	20	14-MAR-12
WG1443710-1	MB							
Sulphide			<0.20		mg/kg		0.2	14-MAR-12

Quality Control Report

Workorder: L1122398

Report Date: 16-MAR-12

Client: INSPEC-SOL INC.
651 COLBY DRIVE
WATERLOO ON N2V 1C2
Contact: ABDUL KHAN

Page 3 of 3

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8

Phone: (519) 886-6910

Fax: (519) 886-9047

Toll Free: 1-800-668-9878



CHAIN OF CUSTODY / ANALYTICAL SERVICES REQUEST FORM Page 1 of 1

Note: all TAT Quoted material is in business days which exclude statutory holidays and weekends. TAT samples received past 3:00 pm or Saturday/Sunday begin the next day.

Specify date required	Service requested	2 day TAT (50%)
	5 day (regular)	<input checked="" type="checkbox"/> Next day TAT (100%)
	3-4 day (25%)	Same day TAT (200%)

COMPANY NAME Inspec-Sol
OFFICE Waterloo
PROJECT MANAGER Abdul Khan
PROJECT # T050145-A1

CRITERIA Criteria on report YES ___ NO ___
Reg 153/04 Reg 511/09
Table 1 2 3 4 5 6 7 8 9
TCLP ___ MISA ___ PWQO ___
ODWS ___ OTHER ___

ANALYSIS REQUEST									

PLEASE INDICATE FILTERED, PRESERVED OR BOTH
<---- (F, P, F/P)

PHONE _____ FAX _____
ACCOUNT # _____
QUOTATION # _____ PO # _____

REPORT FORMAT/DISTRIBUTION
EMAIL _____ FAX _____ BOTH _____
SELECT: PDF ___ DIGITAL ___ BOTH ___
EMAIL 1 _____
EMAIL 2 _____

NUMBER OF CONTAINERS
Chloride
Sulphate
Sulphide
Redox Potential
Resistivity

SUBMISSION # L112358
ENTERED BY: RH
DATE/TIME ENTERED: 9-MAR-12
BIN #: 713

SAMPLING INFORMATION

Date (dd-mm-yy)	Time (24hr) (hh:mm)	MATRIX					
		COMP	GRAB	WATER	SOIL	OTHER	
<u>—</u>	<u>—</u>		<u>X</u>		<u>X</u>		

SAMPLE DESCRIPTION TO APPEAR ON REPORT
TP-2 (6 feet bgs)

1	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
---	----------	----------	----------	----------	----------

COMMENTS	LAB ID
	<u>1</u>



SPECIAL INSTRUCTIONS/COMMENTS

THE QUESTIONS BELOW MUST BE ANSWERED FOR WATER SAMPLES (CHECK Yes OR No)

Are any samples taken from a regulated DW System? Yes No
If yes, an authorized drinking water COC MUST be used for this submission.
Is the water sampled intended to be potable for human consumption? Yes No

SAMPLE CONDITION

FROZEN MEAN
COLD TEMP
COOLING INITIATED 19.6
AMBIENT

SAMPLED BY: _____
RELINQUISHED BY: N. Krebs 3/9/12

RECEIVED BY: N. Krebs DATE & TIME: 3/8/12
RECEIVED AT LAB BY: Austin Paterson DATE & TIME: 03/12 13:37

OBSERVATIONS Yes No
If yes add SIF SIF INIT AP

Notes
1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.