

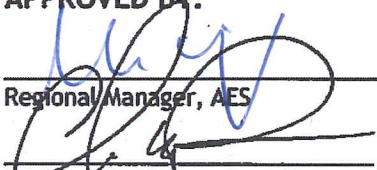


# Public Services and Procurement Canada

Requisition No. E2899-191283

**DRAWINGS & SPECIFICATIONS**  
For  
**Project No.: R.097977.001**  
**Mission Medium Institution**  
**Guard Tower T01, T02, T04**  
**Demolition**

**APPROVED BY:**


  
\_\_\_\_\_  
Regional Manager, AES

2018-07-31  
Date

  
\_\_\_\_\_  
Construction Safety Coordinator

2018 07/16  
Date

**TENDER:**

  
\_\_\_\_\_  
Project Manager

2018-08-10  
Date

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Appendix A – Hazardous Building Materials Assessment

Appendix B – Pre-construction Hazard Assessment Form

**List of Drawings (Bound Separately):**

A-01	Site plan
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**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 SUMMARY OF WORK**

- .1 Work covered by Contract Documents:
  - .1 This Contract covers the following work at the Mission Medium Institution, at 8751 Stave Lake Street, Mission BC V2V 4L8.
    - .1 Dismantle all existing electrical, mechanical aerial and underground services lines to the towers. Existing guy wire support to camera poles may need to be removed prior to lifting of towers. Re-install guy wire support immediately right after tower removal.
    - .2 Remove and dispose abandoned equipment, furniture and accessories.
    - .3 Dig out the existing sanitary tanks (one for each tower) and backfill the cavity with 75mm clean, hard, durable crushed gravel or stone, free from shale clay, friable materials, organic matter and other deleterious substances tested to ASTM C136 and ASTM C117. Septic tanks should be inspected for contents, flushed and sludge pumped out prior to demolition of tanks. Removed materials to be transported to designated waste facility. Contractor shall engage an in-ground penetration radar service to confirm the existing septic tanks and service lines locations as part of this contract.
    - .4 Handle and dispose hazardous materials according to Hazmat Report, Appendix A, and abatement specification within.
    - .5 Demolish the towers above footings and dispose debris according to local codes and regulations of local Authority Having Jurisdiction. Cut tower columns right above footings and transporting entire towers to the contractor staging area for detail demolition and disposal.
    - .6 Existing footings to remain.
    - .7 Install 100mm min. thickness top soil with hydro seeding over the demolished tower footprint, approximately 5M x 5M, including the previously removed tower T03.
    - .8 Refer to electrical specification section 26 05 00 for additional requirements. Temporary power is needed to provide un-interrupted power supply to keep perimeter fence cameras and other security electronic equipment running throughout the duration of project. If any temporary conductor crossing is required at perimeter road, the conductor must be protected properly from vehicle and other damages.
    - .9 Demolish existing timber structures for soil retaining under guard tower T02. Fill the tower base depression with 75mm clean, hard, durable crushed gravel or stone, free from shale clay, friable materials, organic matter and other deleterious substances tested to ASTM C136 and ASTM C117. Compact and slope the infilled area to match density and contours of adjacent ground.
  - .2 Work to be performed under this Contract includes, but not limited to, the following items covered further in the Contract documents:

- .1 Provide a detailed work plan including a project schedule and phasing. This detailed work plan shall be submitted to the Departmental Representative for review to verify that there will be no interruption of service.
- .2 Do not start work until all essential equipment is delivered to the site and the work can proceed without delays.
- .3 Provide as-built drawings and closeout submittals.
- .3 Contractor's Use of Premises:
  - .1 Contractor has limited use of site for work of this contract until Substantial Completion:
    - .1 Contractor use of premises for storage and access, as approved by the Departmental representative.
    - .2 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
  - .2 Vehicular access through the Sally Port will be restricted during the inmate "count" at breakfast, lunch and dinner hours. Confirm times with Departmental Representative. Delays may occur when entering and exiting the Institution with vehicles due to security situations and heavy traffic.

## **1.2 WORK RESTRICTIONS**

- .1 Notify Departmental Representative of intended interruption of power, communication and water services and provide schedule of interruption times.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of services throughout course of work. Keep duration of interruptions to a minimum. Coordinate interruptions with local authority having jurisdiction and local residences and businesses affected by the disruption.
- .3 Provide for access by pedestrian and vehicular traffic on and around site where work is in progress.
- .4 Construct barriers in accordance with Section Temporary Barriers and Enclosures.
- .5 Security Requirements: refer to Section 01 14 10 - Security Requirements.
- .6 Hours of work:
  - .1 Perform work during normal working hours of the Institution 0730 to 1600, Monday through Friday except holidays.
  - .2 When it is necessary, arrange in advance with Departmental Representative to work outside of normal working hours.

## **1.3 CONSTRUCTION WORK SCHEDULE**

- .1 Commence work immediately upon official notification of acceptance of offer and complete the work within 10 weeks from the date of such notification.
- .2 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Substantial Certificate and Final Certificate as defined times of completion are of essence of this contract.
- .3 Submittal:

- .1 Submit to Departmental Representative within 10 working days of Award of Contract, a Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of construction progress.
  - .2 Identify each trade or operation.
  - .3 Show dates for delivery of items requiring long lead time.
  - .4 Departmental Representative will review schedule and return one copy.
  - .5 Re-submit two (2) copies of finalized schedule to Departmental Representative within five (5) working days after return of reviewed preliminary copy.
- .4 Project Scheduling Reporting:
- .1 Update Project Schedule on bi-weekly basis reflecting activity changes and completions, as well as activities in progress.
  - .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- .5 Project Meetings:
- .1 Discuss Project Schedule at bi-weekly site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
  - .2 Weather related delays with their remedial measures will be contractor's responsibilities.
  - .3 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. After approval by Departmental Representative cost breakdown will be used as basis for progress payments. Only PSPC paper work is acceptable. The suggested breakdowns are listed as follows:
    - .1 General conditions
    - .2 Bond and insurance
    - .3 Hazardous materials and construction debris disposal
    - .4 Demolitions and site services
    - .5 Electrical requirements
    - .6 Close out submittals

#### **1.4 SUBMITTAL PROCEDURES**

- .1 Administrative:
  - .1 Submit to Departmental Representative submittal listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
  - .2 Work affected by submittal shall not proceed until review is complete.
  - .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittal prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittal not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittal.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- 10 Keep one reviewed copy of each submission on site.
- .2 Progress Photographs:
  - .1 Provide demolition photographs in accordance with procedures and submission requirements specified in this clause.
  - .2 Progress Photographs:
    - .1 Provide digital photographs with images of minimum 3.1 mega pixel resolution and stored in Jpeg format with minimal compression.
    - .2 Number of viewpoints: four (4), locations of viewpoints directed by Departmental Representative.
    - .3 Frequency: monthly, submitted on disk with monthly progress statement, sent via e-mail or as directed by Departmental Representative.
    - .4 Identify photos by location, date and sequential numbering system.
  - .3 Final Photographs:
    - .1 Provide digital photographs with images of minimum 3.1 mega pixel resolution and stored in Jpeg format with minimal compression. Where photos are e-mailed compression can be increased.
    - .2 Number of viewpoints:
      - .1 Each side of tower for a total of 4.
      - .2 Locations of viewpoints determined by Departmental Representative.
    - .3 Submit final photographs in digital format on CD, before final acceptance of building.
    - .4 Label disks and identify with name and project number of project. Indicate exposure dates and viewpoints of each photo and photo number.
- .3 Submission Requirements:

- .1 Schedule submissions at least ten days before dates reviewed submissions will be needed.
- .2 Accompany submissions with transmittal letter in duplicate.
- .4 Coordination of Submissions:
  - .1 Review as-built drawings prior to submission.
  - .2 Coordinate with field construction criteria.
  - .3 Verify catalogue numbers and similar data.
  - .4 Coordinate each submittal with requirements of the work of all trades and contract documents.
  - .5 Responsibility for errors and omissions in submittal is not relieved by Departmental Representative's review of submittal.
  - .6 Responsibility for deviations in submittal from requirements of Contract documents is not relieved by Departmental Representative's review of submittal, unless Departmental Representative gives written acceptance of specified deviations.
  - .7 Notify Departmental Representative, in writing at time of submission, of deviations in submittal from requirements of Contract documents.
  - .8 Make any changes in submissions which Departmental Representative may require consistent with Contract Documents and re-submit as directed by Departmental Representative.
  - .9 After Departmental Representative's review, distribute copies.

## **1.5 HEALTH AND SAFETY**

- .1 Specified in Section 01 35 33.

## **1.6 ENVIRONMENTAL PROCEDURES**

- .1 Fires and burning of rubbish on site not permitted.
- .2 Do not bury rubbish and waste materials on site unless approved by Departmental Representative.
- .3 Do not dispose of waste or volatile materials such as oil, paint thinner or mineral spirits into waterways, storm or sanitary systems.
- .4 Provide temporary drainage and pumping as necessary to keep site free from water during excavation and grading activities.
- .5 Control disposal of run-off of water containing suspended materials or other harmful substances in accordance with local authority requirements. Construct settlement ponds and silt fences as required by the Provincial Environmental authority.
- .6 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .7 Under no circumstances dispose of rubbish or waste materials on adjoining property.

## **1.7 REGULATORY REQUIREMENTS**

- .1 References and Codes:

- .1 Perform Work in accordance with National Building Code of Canada (NBCC2015) and where applicable British Columbia Building Code (BCBC2012) including all amendments up to bid closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
  - .1 Contract documents.
  - .2 Specified standards, codes and referenced documents.

## **1.8 QUALITY CONTROL**

- .1 Inspection:
  - .1 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
  - .2 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
  - .3 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.
- .2 Procedures:
  - .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
  - .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
  - .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.
- .3 Rejected Work:
  - .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
  - .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 Reports:
  - .1 Submit (4) four copies of inspection and test reports to Departmental Representative.

## **1.9 TEMPORARY UTILITIES**

- .1 Installation and Removal:



- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.
- .2 Dewatering:
  - .1 Provide temporary drainage and pumping facilities to keep site free from standing water.
- .3 Water Supply:
  - .1 Permanent water supply system may be used for construction requirements provided that guarantees are not affected thereby. Replace damaged components.
  - .2 Contractor shall get permission from Departmental Representative to use existing fire hydrant for water supply at contractor staging area. Provide connection fittings and hoses for water supply. Replace damaged components.
- .4 Temporary Power and Light:
  - .1 Existing electrical power and lighting may be used for construction purposes at no extra cost, provided that guarantees are not affected thereby and electrical components used for temporary power are replaced when damaged.
- .5 Temporary Communication Facilities:
  - .1 Provide and pay for temporary telephone and fax hook up, line(s) necessary for own use.
- .6 Fire Protection:
  - .1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

#### **1.10 CONSTRUCTION FACILITIES**

- .1 Installation and Removal:
  - .1 Provide construction facilities in order to execute work expeditiously.
  - .2 Remove from site all such work after use.
- .2 Scaffolding:
  - .1 Design, construct and maintain scaffolding in rigid, secure and safe manner, in accordance with WorkSafeBC regulations and Section 01 35 33.
  - .2 Erect scaffolding independent of walls. Remove promptly when no longer required.
- .3 Hoisting:
  - .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.
  - .2 Hoists to be operated by qualified operator.
- .4 Site Storage/Loading:
  - .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with demolition debris.
  - .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

- .5 Construction Parking:
  - .1 Make good damage to existing roads used for access to project site.
  - .2 Build and maintain temporary access where required and provide snow removal during period of Work.
  - .3 Park vehicles outside perimeter fence in designated parking areas.
- .6 Contractor's Site Office and enclosure:
  - .1 Provide a clearly marked and fully stocked first-aid case in a readily available location.
  - .2 Provide temporary fenced area to enclose site and operations.
- .7 Equipment, Tools and Material Storage:
  - .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
  - .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.
- .8 Sanitary Facilities:
  - .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
  - .2 Permanent facilities may be used on approval of Departmental Representative.

#### **1.11 TEMPORARY BARRIERS AND ENCLOSURES**

- .1 Hoarding:
  - .1 Erect temporary site enclosure using new 1.8 m high temporary construction fencing. Provide lockable truck gate. Maintain fence in good repair.
- .2 Guardrails:
  - .1 Provide secure, rigid guard rails and barricades around open edges of floors and roofs etc.
  - .2 Provide as required by governing authorities.
- .3 Access to Site:
  - .1 Maintain immediate local access roads in clean condition used during work of this contract.
- .4 Protection for Off-Site and CSC Property:
  - .1 Protect surrounding CSC property from damage during performance of Work.
  - .2 Be responsible for damage incurred.

#### **1.12 COMMON PRODUCT REQUIREMENTS**

- .1 Reference Standards:
  - .1 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

- .2 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .2 Quality:
  - .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
  - .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
  - .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
  - .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
  - .5 The use of asbestos containing materials is prohibited in this project. Contractor shall provide a letter to the Departmental Representative prior to Substantial Completion confirming that asbestos containing materials are not used in this project.
- .3 Storage, Handling and Protection:
  - .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .4 Transportation:
  - .1 Pay costs of transportation of products and equipment required in performance of Work.
- .5 Manufacturer's Instructions:
  - .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
  - .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
  - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.
- .6 Quality of Work:
  - .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.
- .7 Co-ordination:
  - .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- 8 Concealment:
  - .1 Before construction, inform Departmental Representative if there is interference. Install as directed by Departmental Representative.
- .9 Remedial Work:
  - .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
  - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner neither to damage nor to put at risk any portion of Work.
- .10 Location of Fixtures:
  - .1 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.
- .11 Fastenings:
  - .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
  - .2 Prevent electrolytic action between dissimilar metals and materials.
  - .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
  - .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
  - .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
  - .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.
- .12 Fastenings - Equipment:
  - .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
  - .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
  - .3 Bolts may not project more than one diameter beyond nuts.
  - .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

- .13 Protection of Work in Progress:
  - .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative.
- .14 Existing Utilities:
  - .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian and vehicular traffic.
  - .2 Before commencing work, establish location and extent of service lines in areas of work and notify Departmental Representative of findings.
  - .3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
  - .4 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
  - .5 Record locations of maintained, capped and re-routed services lines.
- .15 Contractors Options for Selection of Products:
  - .1 Products specified by "**Prescriptive**" specifications: select any product meeting or exceeding specifications.
  - .2 Products specified under "**Acceptable Products**": select any one of the indicated manufacturers, or any other manufacturer meeting or exceeding the Prescriptive specifications and indicated Products.
  - .3 Products specified by performance and referenced standard: select any product meeting or exceeding the referenced standard.
  - .4 Products specified to meet particular design requirements or to match existing materials: use only material specified Approved Product. Alternative products may be considered provided full technical data is received in writing by Departmental Representative in accordance with "Instructions to Bidders".
  - .5 When products are specified by a referenced standard or by Performance specifications, upon request of Departmental Representative, obtain from manufacturer an independent laboratory report showing that the product meets or exceeds the specified requirements.
- .16 Substitution after award of Contract:
  - .1 No substitutions are permitted without prior written approval of the Departmental Representative.
  - .2 Proposals for substitution may only be submitted after Contract award. Such request must include statements of respective costs of items originally specified and the proposed substitution.
  - .3 Proposals will be considered by the Departmental Representative if:
    - .1 products selected by tenderer from those specified are not available;
    - .2 delivery date of products selected from those specified would unduly delay completion of Contract, or

- .3 alternative product to that specified, which is brought to the attention of and considered by Departmental Representative as equivalent to the product specified, and will result in a credit to the Contract amount.
- .4 Should the proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on the project. Pay for design or drawing changes required as result of substitution.
- .5 Amounts of all credits arising from approval of the substitutions will be determined by the Departmental Representative, and the Contract price will be reduced accordingly.

### **1.13 EXAMINATION AND PREPARATION**

- .1 Existing Services:
  - .1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
  - .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.
- .2 Location of Equipment and Fixtures:
  - .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
  - .2 Inform Departmental Representative of impending installation and obtain approval for actual location.
  - .3 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

### **1.14 EXECUTION REQUIREMENTS**

- .1 Preparation:
  - .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
  - .2 After uncovering, inspect conditions affecting performance of Work.
  - .3 Beginning of cutting or patching means acceptance of existing conditions.
  - .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
  - .5 Provide protection from elements for areas which may be exposed by uncovering work.
- .2 Execution:
  - .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
  - .2 Fit several parts together, to integrate with other Work.
  - .3 Uncover Work to install ill-timed Work.
  - .4 Remove and replace defective and non-conforming Work.
  - .5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

- .6 Cut rigid materials using purpose made saw or core drill. Pneumatic or impact tools not allowed on brittle materials without prior approval.
- .7 Restore work with new products in accordance with requirements of Contract Documents.

### **1.15 CLEANING**

- .1 Project Cleanliness:
  - .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
  - .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
  - .3 Clear snow and ice from access to building.
  - .4 Provide on-site containers for collection of waste materials and debris.
  - .5 Provide separate containers for re-usable and/or recyclable materials of the following and record quantity / weight of each type containers for the duration of the project.
    - .1 Gypsum board.
    - .2 Metals.
    - .3 Wood.
    - .4 Plastics.
    - .5 Other materials not listed above.
  - .6 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
  - .7 Provide adequate ventilation during use of volatile or noxious substances.
- .2 Final Cleaning:
  - .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
  - .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
  - .3 Prior to final review, remove surplus products, tools, construction machinery and equipment.
  - .4 Sweep and wash clean paved areas.
  - .5 Remove snow and ice from access to building.

### **1.16 DEMOLITION WASTE MANAGEMENT AND DISPOSAL**

- .1 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and/or recyclable materials and waste.
  - .1 Separate non-salvageable materials from salvaged items.

- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.
- .3 Transport and deliver non-salvageable items to licensed disposal facility.
- .2 Provide containers to deposit reusable and/or recyclable materials. Locate containers in locations, to facilitate deposit of materials without hindering daily operations. Provide containers to deposit reusable and/or recyclable materials.
- .3 Collect, handle, store on-site and transport off-site, salvaged materials in separate condition. Transport to approved and authorized recycling facility and/or users of material for recycling.
- .4 Locate waste and salvage bins on site as directed by Departmental Representative.

### **1.17 CLOSEOUT PROCEDURES**

- .1 Inspection and Declaration:
  - .1 Contractor's Inspection: Conduct an inspection of Work with all subcontractors, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .2 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .3 Request Departmental Representative's Inspection.
- .2 Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Substantial Completion: submit written certificate that following have been performed:
  - .1 Work has been completed and inspected for compliance with Contract Documents.
  - .2 Defects have been corrected and deficiencies have been completed.
  - .3 Work is complete and ready for Final Inspection.
  - .4 Asbestos containing materials are not used in this project.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

### **1.18 CLOSEOUT SUBMITTAL**

- .1 Record Drawings:
  - .1 As work progresses, maintain accurate records to show all deviations from the Contract Drawings. Note on as-built drawings as changes occur. At completion supply:
    - .1 Four (4) sets of CD's in AutoCad file format (version: 2010) and PDF format with all as-built information on the diskettes.
    - .2 Four (4) sets of printed as-built drawings with existing underground service information discovered during the demolition.
    - .3 Departmental Representative will supply copies of the original AutoCad files.



- .4 Retain original logo and title block on the as-built drawings. Contractor may place on the upper right-hand title block area a small company logo, the text "AS-BUILT" and the date.
- .2 Costs for transferring as-built information from marked up working set of drawings to electronic format using ACAD and plotting service is included in the Contract.

**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 Purpose**

- .1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

### **1.2 Purpose**

- .1 "Contraband" means:
  - .1 an intoxicant, including alcoholic beverages, drugs and narcotics
  - .2 a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,
  - .3 an explosive or a bomb or a component thereof,
  - .4 currency over any applicable prescribed limit, \$25.00, and
  - .5 any item not described in paragraphs (a) to (d) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.
- .2 Unauthorized smoking and related article 1.15 herein the section means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing tobacco, cigarette making machines, matches and lighters.
- .3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.
- .4 "CSC" means Correctional Service Canada.
- .5 "Director" means Director or Warden of the Institution as applicable or their representative.
- .6 "Construction employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.
- .7 "Departmental Representative" means the Public Works and Government Services Canada representative defined in General Conditions.
- .8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.
- .9 "Construction zone" means the area, as indicated in the contract documents, that the contractor will be allowed to work". This area may or may not be isolated from the security area of the institution. Limits to be confirmed at construction start-up meeting.

### **1.3 Preliminary Proceedings**

- .1 At construction start-up meeting:
  - .1 Discuss the nature and extent of all activities involved in the Project.

- .2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.
- .2 The Contractors' responsibilities:
  - .1 Ensure that all construction employees are aware of the CSC security requirements.
  - .2 Ensure that a copy of the CSC security requirements is always prominently on display at the job site.
  - .3 Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.

#### **1.4 Construction Employees**

- .1 Submit CPIC form and scanned copy of government issued ID for each employee to the Departmental Representative.
- .2 Allow 10 working days for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at this institution except as approved otherwise.
- .3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the institution or in an electronic database for identification purposes. The Director may require that Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked upon arrival at the institution and shall be displayed prominently on the construction employees clothing at all time while employees are at the institution.
- .4 Entry to Institutional Property will be refused to any person there may be reason to believe may be a security risk.
- .5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:
  - .1 appear to be under the influence of alcohol, drugs or narcotics.
  - .2 behave in an unusual or disorderly manner.
  - .3 are in possession of contraband.

#### **1.5 Vehicles**

- .1 All unattended vehicles on CSC property must have windows closed; fuel caps locked, doors and trunks locked and keys removed. The keys must be securely in the possession of the owner or an employee of the company that owns the vehicle.
- .2 The director may limit at any time the number and type of vehicles allowed within the Institution.
- .3 Drivers of delivery vehicles for material required by the project will require security clearances and must remain with their vehicle the entire time that the vehicle is in the Institution. The director may require that these vehicles be escorted by Institutional staff or PSPC Construction Escorts while in the Institution.
- .4 If the Director permits trailers to be left inside the secure perimeter of the Institution, the trailer doors must be locked at all times. All windows must be securely locked bars when left unoccupied. Cover all windows with expanded metal mesh. When not in use lock

all storage trailers located inside and outside the perimeter. All storage trailers inside and outside the perimeter must be locked when not in use.

#### **1.6 Parking**

- .1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.

#### **1.7 Shipments**

- .1 To avoid confusion with the institution's own shipments, address all shipments of project material, equipment and tools in the Contractor's name and have a representative on site to receive any deliveries or shipments. CSC or PSPC staff will **NOT** accept receipt of deliveries or shipments of any material equipment or tools for the contractor.

#### **1.8 Telephones**

- .1 The installation of telephones, facsimile machines and computers with Internet connections is not permitted within the Institution perimeter unless prior approved by the Director.
- .2 The Director will ensure that approved telephones, facsimile machine and computers with Internet connections are located where they are not accessible to inmates. All computers will have an approved password protection that will stop an Internet connection to unauthorized personnel.
- .3 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, Blackberries, PDAs, telephone used as 2-way radios are not permitted within the Institution unless approved by the Director. If wireless cellular telephones are permitted, the user will not permit their use by any inmate.
- .4 The Director may approve but limit the use of 2-way radios.

#### **1.9 Work Hours**

- .1 Work hours within the Institution are: conform to General Instructions Section 01 01 50.
- .2 Work is not permitted during weekends and statutory holidays without the permission of the Director. A minimum of seven days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be waved by the Director.

#### **1.10 Overtime Work**

- .1 Conform to Section 01 01 50.
- .2 Provide 48 hours advance notice to Director for all work to be performed after normal working hours of the Institution. Notify Director immediately if emergency work is required, such as to complete a concrete pour or make the construction site safe and secure.

#### **1.11 Tools and Equipment**

- .1 Maintain a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required by the Institution.

- .2 Throughout the construction project maintain up-to-date the list of tools and equipment specified above.
- .3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of jacking device.
- .4 Store all tools and equipment in approved secure locations.
- .5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor. Secure and lock scaffolding when not erected and when erected Secure in a manner agreed upon with the Institution designate.
- .6 Report all missing or lost tools or equipment immediately to the Departmental Representative/Director.
- .7 The Director will ensure that the security staff members carry out checks of the Contractor's tools and equipment against the list provided by the Contractor. These checks may be carried out at the following intervals:
  - .1 At the beginning and conclusion of every work day or shift upon entering and exiting the Institution.
  - .2 At any time when contractor is on Institution property.
- .8 Certain tools/equipment such as cartridges and hacksaw blades are highly controlled items. The contractor will be given at the beginning of the day, a quantity that will permit one day's work. Used blades/cartridges will be returned to the Director's representative at the end of each day. Maintain up to date inventory of all used blades/cartridges.
- .9 If propane or natural gas is used for heating the construction, the institution will require that the contractor supervise the construction site during non-working hours.

#### **1.12 Keys**

- .1 Security Hardware Keys.
  - .1 Arrange with the security hardware supplier/installer to have the keys for the security hardware to be delivered directly to Institution, specifically the Security Maintenance Officer (SMO).
  - .2 The SMO will provide a receipt to the Contractor for security hardware keys.
  - .3 Provide a copy of the receipt to the Departmental Representative.
- .2 Other Keys
  - .1 Use standard construction cylinders for locks for his use during the construction period.
  - .2 Issue instructions to employees and sub-trades, as necessary, to ensure safe custody of the construction set of keys.
- .3 Upon completion of each phase of the construction, the CSC representative will, in conjunction with the lock manufacturer:
  - .1 Prepare an operational keying schedule
  - .2 Accept the operational keys and cylinders directly from the lock manufacturer.

- .3 Arrange for removal and return of the construction cores and install the operational core in all locks.
- .4 Upon putting operational security keys into use, the PSPC construction escort will obtain these keys as they are required from the SMO and open doors as required by the Contractor. The Contractor shall issue instructions to his employees advising them that all security keys shall always remain with the PSPC construction escort.

### **1.13 Security Hardware**

- .1 Turn over all removed security hardware to the Director of the Institution for disposal or for safekeeping until required for re-installation.

### **1.14 Prescription Drugs**

- .1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.

### **1.15 Smoking Restrictions**

- .1 Smoking is not permitted inside correctional facilities or outdoors within the perimeter of a correctional facility and persons must not possess unauthorized smoking items within the perimeter of a correctional facility.
- .2 Persons in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist will be directed to leave the Institution.
- .3 Smoking is permitted outside the perimeter of a correctional facility in an area designated by the Director.

### **1.16 Contraband**

- .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.
- .2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.
- .3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction.
- .4 Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

### **1.17 Searches**

- .1 All vehicles and persons entering institutional property may be subject to search.
- .2 When the Director suspects, on reasonable grounds, that an employee of the Contractor is in possession of contraband, he may order that person to be searched.
- .3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

### **1.18 Access and Removal from Institution Property**

- .1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

### **1.19 Movement Vehicles**

- .1 Construction vehicles are not to leave the Institution until an inmate count is completed. Escorted commercial vehicles will be allowed to enter or leave the institution through the vehicle access gate during the following hours:
  - .1 AM: 0745 hrs. to 1100 hrs.
  - .2 PM: 1300hrs. to 1530 hrs.
- .2 The contractor will advise the Director twenty four (24) hours in advance to the arrival on the site of heavy equipment such as concrete trucks, cranes, etc.
- .3 Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or PSPC construction escorts working under the authority of the Director.
- .4 Commercial vehicles will only be allowed access to institutional property when their contents are certified by the Contractor or his representative as being strictly necessary to the execution of the construction project.
- .5 Vehicles will be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the institution. Arrange with Director for parking of contractor's vehicles at minimum security Institutions.
- .6 Private vehicles of construction employees will not be allowed within the security wall or fence of medium or maximum security institutions without the authorization of the Director.
- .7 With the approval of the Director, certain equipment may be permitted to remain on the construction site overnight or over the weekend. This equipment must be securely locked, with the battery removed. The Director may require that the equipment be secured with a chain and padlock to another solid object.

### **1.20 Movement of Construction Employees on Institutional Property**

- .1 Subject to the requirements of good security, the Director will permit the Contractor and his employees as much freedom of action and movement as is possible.
- .2 However, notwithstanding paragraph above, the Director may:
  - .1 Prohibit or restrict access to any part of the institution.
  - .2 Require that in certain areas of the institution, either during the entire construction project or at certain intervals, construction employees only be allowed access when accompanied by a member of the CSC security staff or PSPC Construction Escort Officer.
- .3 During the lunch and coffee/health breaks, all construction employees will remain within the construction site. Construction employees are not permitted to eat in the Institution cafeteria and dining room.

### **1.21 Surveillance and Inspection**

- .1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.
- .2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.

#### **1.22 Stoppage of Work**

- .1 The director may request at any time that the contractor, his employees, sub-contractors and their employees not enter or leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor will note the name of the staff member giving the instruction, the time of the request and obey the order as quickly as possible.
- .2 The contractor shall advise the Departmental Representative of this interruption of the work within 24 hours.

#### **1.23 Contact with Inmates**

- .1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any employee doing any of the above will be removed from the site and his security clearance revoked.
- .2 Digital cameras (or any other type) are not allowed on CSC property.
- .3 Notwithstanding the above paragraph, if the director approves of the use of cameras, it is strictly forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

#### **1.24 Completion of Construction Project**

- .1 Upon completion of the construction project or, when applicable, the takeover of a facility, the Contractor shall remove all remaining construction material, tools and equipment that are not specified to remain in the Institution as part of the construction contract.

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.1 References**

- .1 Government of Canada.
  - .1 Canada Labour Code - Part II
  - .2 Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC 2015):
  - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 The Canadian Electric Code (as amended)
- .4 Canadian Standards Association (CSA) as amended:
  - .1 CSA Z797-2009 Code of Practice for Access Scaffold
  - .2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes
  - .3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures
  - .4 CSA Z1006-10 Management of Work in Confined Spaces.
  - .5 CSA Z462- Workplace Electrical Safety Standard
- .5 National Fire Code of Canada 2015 (as amended)
  - .1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
- .6 American National Standards Institute (ANSI):
  - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- .7 Province of British Columbia:
  - .1 Workers Compensation Act Part 3-Occupational Health and Safety.
  - .2 Occupational Health and Safety Regulation

### **1.2 Related Sections**

- .1 Refer to the following current NMS sections as required:
  - .1 Section 01 01 50 General Instructions

### **1.3 Workers' Compensation Board Coverage**

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

### **1.4 Compliance with Regulations**

- .1 PSPC may terminate the Contract without liability to PSPC where the Contractor, in the opinion of PSPC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

### **1.5 Submittals**

- .1 Submit to Departmental Representative submittals listed for review in accordance with Section 01 01 50.
- .2 Work effected by submittal shall not proceed until review is complete.
- .3 Submit the following:
  - .1 Health and Safety Plan.
  - .2 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.
  - .3 Copies of incident and accident reports.
  - .4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
  - .5 Emergency Procedures.
- .4 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 10 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .5 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.
- .6 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
  - .1 Be construed to imply approval by the Departmental Representative.
  - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
  - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

### **1.6 Responsibility**

- .1 Assume responsibility as the Prime Contractor for work under this contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial, Territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

### **1.7 Health and Safety Coordinator**

- .1 The Health and Safety Coordinator (Registered Occupational Hygienist, Certified Industrial Specified Hygienist) must:
  - .1 Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.
  - .2 Be responsible for implementing, daily enforcing, and monitoring the site specific Health and Safety Plan.
  - .3 Be on site during execution of work.

### **1.8 General Conditions**

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
  - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
  - .2 Secure site at night time or provide security guard as deemed necessary to protect site against entry.

### **1.9 Project/Site Conditions**

- .1 Work at site will involve contact with:
  - .1 Multi-employer work site.
  - .2 Federal employees and general public.
  - .3 Energized electrical services.
  - .4 Working from heights
  - .5 Persons incarcerated in the federal institutional system
  - .6 Appendix A – Stantec Hazard Assessment Reports (T01,T02, and T04) Dated May, 2017, and.
  - .7 PSPC Pre-Construction Hazard Assessment Form – Appendix B.

### **1.10 Utility Clearances**

- .1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work.
- .2 The Contractor will not rely solely upon the Reference Drawings or other information provided for utility locations.

### **1.11 Regulatory Requirements**

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. When a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

### **1.12 Work Permits**

- .1 Obtain specialty permit related to project before start of work.

### **1.13 Filing of Notice**

- .1 The General Contractor is to complete and submit a Notice of Project as required by Provincial authorities.
- .2 Provide copies of all notices to the Departmental Representative.

### **1.14 Site Specific Health and Safety Plan**

- .1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.
- .2 Prepare and comply with a Site-Specific Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
  - .1 Primary requirements:
    - .1 Contractor's safety policy.
    - .2 Identification of applicable compliance obligations.
    - .3 Definition of responsibilities for project safety/organization chart for project.
    - .4 General safety rules for project.
    - .5 Job-specific safe work, procedures.
    - .6 Inspection policy and procedures.
    - .7 Incident reporting and investigation policy and procedures.
    - .8 Occupational Health and Safety Committee/Representative procedures.
    - .9 Occupational Health and Safety meetings.
    - .10 Occupational Health and Safety communications and record keeping procedures.
  - .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
  - .3 List hazardous materials to be brought on site as required by work.
  - .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
  - .5 Identify personal protective equipment (PPE) to be used by workers.

- .6 Identify personnel and alternates responsible for site safety and health.
- .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
- .4 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
- .5 Departmental Representative's review: the review of Health and Safety Plan by Public Services and Procurement Government (PSPC) shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

### **1.15 Emergency Procedures**

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
  - .1 Designated personnel from own company.
  - .2 Regulatory agencies applicable to work and as per legislated regulations.
  - .3 Local emergency resources.
  - .4 Departmental Representative.
- .2 Include the following provisions in the emergency procedures:
  - .1 Notify workers and the first-aid attendant, of the nature and location of the emergency.
  - .2 Evacuate all workers safely.
  - .3 Check and confirm the safe evacuation of all workers.
  - .4 Notify the fire department or other emergency responders.
  - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
  - .6 Notify Departmental Representative.
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:
  - .1 Work at high angles.
  - .2 Work in confined spaces or where there is a risk of entrapment.
  - .3 Work with hazardous substances.
  - .4 Underground work.
  - .5 Work on, over, under and adjacent to water.
  - .6 Workplaces where there are persons who require physical assistance to be moved.
- .4 Design and mark emergency exit routes to provide quick and unimpeded exit.
- .5 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

### **1.16 Hazardous Products**

- .1 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 (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .2 Where use of hazardous and toxic products cannot be avoided:
  - .1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as per Section 01 01 50.
  - .2 In conjunction with Departmental Representative, schedule to carry out work during "off hours" when tenants have left the building.
  - .3 Provide adequate means of ventilation in accordance with Section 01 51 00.
  - .4 The contractor shall ensure that the product is applied as per manufacturers recommendations.
  - .5 The contractor shall ensure that only pre-approved products are brought onto the work site in an adequate quantity to complete the work.

### **1.17 Asbestos Hazard**

- .1 Carry out any activities involving asbestos in accordance with applicable Provincial Regulations.
- .2 Removal and handling of asbestos will be performed as indicated in Division 2 specifications.

### **1.18 PCB Removals**

- .1 Mercury-containing fluorescent tubes and ballasts which contain polychlorinated biphenyls (PCBs) are classified as hazardous waste.
- .2 Remove, handle, transport and dispose of as indicated in Division 2 specifications.

### **1.19 Removal of Lead-Containing Paint**

- .1 All paints containing TCLP lead concentrations above 5 ppm are classified as hazardous.
- .2 Carry out demolition activities involving lead-containing paints in accordance with applicable provincial regulations.
- .3 Work with lead containing paints shall be completed as per provincial and federal regulations.

### **1.20 Electrical Safety Requirements**

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
  - .1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.
  - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

### **1.21 Electrical Lockout**

- .1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.
- .3 Keep the documents and lockout tags at the site and list in a log book for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

### **1.22 Overloading**

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

### **1.23 Falsework**

- .1 Design and construct falsework in accordance with CSA S269.1-1975 (R2003).

### **1.24 Scaffolding**

- .1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA Z797-2009 Code of Practice for Access Scaffold and BC Occupational Health and Safety Regulations.

### **1.25 Confined Spaces**

- .1 Carry out work in confined spaces in compliance with Provincial regulations.

### **1.26 Power-Actuated Devices**

- .1 Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative.

### **1.27 Fire Safety and Hot Work**

- .1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

### **1.28 Fire Safety Requirements**

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.
- .3 Portable gas and diesel fuel tanks are not permitted on most federal work sites. Approval from the Departmental Representative is required prior to any gas or diesel tank being brought onto the work site.

### **1.29 Fire Protection and Alarm System**

- .1 Fire protection and alarm systems shall not be:
  - .1 Obstructed.
  - .2 Shut off.
  - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

### **1.30 Unforeseen Hazards**

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

### **1.31 Posted Documents**

- .1 Post legible versions of the following documents on site:
  - .1 Health and Safety Plan.
  - .2 Sequence of work.
  - .3 Emergency procedures.
  - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
  - .5 Notice of Project.
  - .6 Floor plans or site plans. Must be posted in a non-inmate access area and locked up when not being used.
  - .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
  - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
  - .9 Material Safety Data Sheets (MSDS).
  - .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.
- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

### **1.32 Meetings**

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.



**1.33 Correction of Non-Compliance**

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

**PART 2 - PRODUCTS**

**2.1 Not Used**

**PART 3 - EXECUTION**

**3.1 Not Used**

**END OF SECTION**

## **PART 1 GENERAL**

### **1.1 Related Sections**

- .1 Section 01 01 50 General Instructions
- .2 Section 01 35 33 Health and Safety Requirements

### **1.2 References**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.
- .2 WorksafeBC
  - .1 Safe Handling of Asbestos, A Manual of Standard Practices.

### **1.3 Health and Safety**

- .1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

### **1.4 Waste Management and Disposal**

- .1 Separate waste materials for reuse and recycling in accordance with 01 01 50 – General Instructions.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Place materials defined as hazardous or toxic in designated containers.
- .4 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.
- .5 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan
- .6 Fold up metal banding, flatten and place in designated area for recycling.
- .7 Do not dispose of waste or volatile materials such as mineral spirits, oil petroleum based lubricant, or toxic cleaning solutions into storm or sanitary sewers. Ensure proper disposal procedures are maintained throughout project.

### **1.5 Environmental Protection**

- .1 Do not dispose of waste or volatile materials into watercourses, storm or sanitary sewers.
- .2 Prevent extraneous materials from contaminating air beyond deconstruction area, by providing temporary enclosures during Work.
- .3 Employ reasonable means necessary to protect salvaged materials from vandalism, theft, adverse weather, or inadvertent damage.
- .4 Organize site and workers in matter which promotes efficient flow of materials through disassembly, processing, stockpiling, and removal.
- .5 Remove and transport toxic or dangerous materials from site in accordance with authority having jurisdiction.

### **1.5 Site Condition**

- .1 The existing site and buildings will be in use by Institution during work of this Contract. Maintain building access at all doorways and corridors.
- .2 Investigate site and building to determine dismantling, processing and storage logistics required prior to beginning of Work.
- .3 Develop strategy for deconstruction to facilitate optimum salvage of reusable and recyclable materials.
- .4 Notify Departmental Representative before disrupting building access or services.
- .5 Locate any existing conduit, rebar, etc. within floor or walls prior to drilling and/or coring. Contractor is responsible for repairing any such conduit, rebar, etc. that is damaged in the course of construction.
- .6 Take preventative measures during demolition process and do not disturb pipe elbow insulation, duct mastic or other suspicious substance which may contain hazardous materials. Exercise caution when cutting existing duct insulation.
- .7 Comply with CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.
- .8 Demolition with explosives is not permitted.

### **1.6 Hazardous Materials**

- .1 Contractors shall expect to encounter Asbestos Containing Materials (ACM) and other hazardous building materials throughout the course of work. Appendix A contains Hazmat Reports relevant to this site and these reports identify ACM and hazardous materials that the Contractors will encounter. If even one surveyed sample of a material at a particular location is identified to be ACM and/or hazardous material, Contractors shall treat this material throughout the rest of the site as “identified” ACM and/or hazardous material. Removal of these identified ACM and hazardous materials that the Contractors will encounter shall be the responsibility of the Contractors.
- .2 Contractor shall prepare and submit a Site Specific Asbestos and Lead Exposure Control Plan to Departmental Representative within ten (10) working days of Award of Contract for review and approval, prior to start of construction. The Site Specific Asbestos and Lead Exposure Control Plan (ECP) shall be prepared by a specialist or a third party company with experience in preparing ECP’s, and the Contractors shall implement the approved Site Specific Asbestos and Lead Exposure ECP.
- .3 Submit “Contractor Notification and Acknowledgement” for hazardous materials on site.
- .4 Should other suspected hazardous building substances not identified in the Contract Document be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
  - .1 Do not proceed until written instructions have been received from Departmental Representative.
  - .2 Removal of ACM and hazardous materials not identified in the Contract Document and Hazmat Reports will be under the control of the Departmental Representative and may be a change order to the contract price in accordance with General Conditions, or removed under a separate contract by the Departmental Representative.

**PART 2 PRODUCTS**

**2.1 Not Used**

- .1 Not used.

**PART 3 EXECUTION**

**3.1 Preparation**

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

**3.2 Protection**

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities and parts of building to remain in place. Provide bracing and shoring required.
- .2 Keep noise, dust, and inconvenience to occupants to minimum.
- .3 Protect building systems, services and equipment.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .5 Do Work in accordance with Section 01 35 33 - Health and Safety Requirements.
- .6 Prevent debris from blocking drainage which must remain in operation.
- .7 Take precaution during demolition to protect all adjacent finished surfaces. Make good any damage to adjacent surfaces.

**3.3 Salvage**

- .1 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .2 Remove items to be reused and protect items from damage.

**3.4 Disposal**

- .1 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.
- .2 The Owner reserves the option to request some or all existing equipment being removed and not required to be relocated to remain the property of the Owner. When directed by the Departmental Representative, remove such equipment and turn over to the Owner. Provide receipt verifying disposition of such equipment.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Reports:
  - .1 Stantec Consulting Ltd. May 16, 2017 report for Stantec Project No. 123220769“Hazardous Building Materials Assessments – 31 Buildings at Medium Institution, Mission, BC”.
    - .1 Applicable excerpts (further referred to herein as the “Assessment Reports”) for Guard Towers T01, T02 and T04 are attached Appendix A of the Project Specifications.
- .2 Definitions:
  - .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
  - .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
  - .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
  - .4 Hazardous Building Material: component of a building or structure that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when altered, disturbed or removed during maintenance, renovation or demolition.
- .3 Reference Standards:
  - .1 Canadian Environmental Protection Act,1999 (CEPA 1999)
    - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
  - .2 Department of Justice Canada
    - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).
    - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
    - .3 Canada Labour Code Part II – Canada Occupational Health and Safety Regulations (COHSR)
  - .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
    - .1 Material Safety Data Sheets (MSDS).
  - .4 National Research Council Canada Institute for Research in Construction (NRC-IRC)
    - .1 National Fire Code of Canada (2015).
  - .5 WorkSafe BC
    - .1 British Columbia’s Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)

- .2 “Safe Work Practices for Handling Asbestos” (2017)
- .3 “Lead-Containing Paints and Coatings; Preventing Exposure in the Construction Industry” (2011)
- .4 “Safe Work Practices for Handling Lead” (2017)
- .6 British Columbia Hazardous Waste Regulation (BC Reg. 63/88)
- .7 The Federal PCB Regulations (SOR/2008-273).

## **1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Product Data for hazardous materials to be used by the Contractor to complete the Work:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets, and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS MSDS Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
  - .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.
  - .4 Low-Emitting Materials: submit listing of adhesives and sealants used in building, comply with VOC and chemical component limits or restrictions requirements.

## **1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle hazardous materials to be used by the Contractor to complete the Work in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver hazardous materials to be used by the Contractor to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:
  - .1 Co-ordinate storage of hazardous materials to be used by the Contractor to complete the Work with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
  - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
  - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
  - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
    - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.

- .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
- .5 Transfer of flammable and combustible liquids is prohibited within buildings.
- .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
- .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
- .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
- .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
  - .1 Store hazardous materials and wastes in closed and sealed containers.
  - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
  - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
  - .4 Segregate incompatible materials and wastes.
  - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
  - .6 Store hazardous materials and wastes in secure storage area with controlled access.
  - .7 Maintain clear egress from storage area.
  - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
  - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
  - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
  - .11 When hazardous waste is generated on site:
    - .1 Co-ordinate transportation and disposal with Departmental Representative.
    - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
    - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
    - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
    - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
    - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.

- .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
- .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Description:
  - .1 Bring on site only quantities hazardous material required to perform Work.
  - .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

## **Part 3 Execution**

### **3.1 HAZARDOUS MATERIALS ABATEMENT**

- .1 Scope of abatement activities for hazardous building materials other than asbestos, which is specified in Section 02 82 00.01 Asbestos Abatement Minimum Precautions and Section 02 82 00.03 Asbestos Abatement Maximum Precautions.
  - .1 Abatement shall be conducted to handle, alter, remove and/or dispose of hazardous building materials as identified in the Assessment Report in accordance with applicable regulations, guidelines, standards and/or best practices for such work.
  - .2 Contractor is responsible for reviewing plans, specifications and reports such that they understand the locations and amounts of hazardous materials that will be impacted by the Work of this contract, and such that appropriate plans and budgets can be included in their overall bids.
  - .3 The listing below is a summary of the identified hazardous building material categories and associated removal and disposal regulations, guidelines and/or standards.
    - .1 Lead and Lead-Containing Paints (LCPs)
      - .1 Refer to the Assessment Report for identities and locations of lead-containing materials (including LCPs) that may require disturbance during the Work.



- .2 Actions that will disturb lead-containing materials (including paints and materials coated with LCPs) are to be conducted in accordance with the requirements of the 2017 WorkSafe BC publication “Safe Work Practices for Handling Lead”, keeping airborne exposure to lead dust to less than the 8-hour Occupational Exposure Limit (OEL) for lead of 0.05 milligram per cubic metre (mg/m<sup>3</sup>) – referenced by both the COHSR and BC Reg. 296/97.
  - .1 Actual methods to maintain exposures within applicable limits are to be determined by the contractor through their own risk assessment, which will take into account the lead content of the paints as indicated in the Assessment Reports, along with their planned disturbance methods (and associated dust control), tools, PPE and the overall duration of the work.
- .3 Although LCPs and items coated with LCPs may be disturbed and/or removed for disposal during the Work, unless deemed necessary through risk assessment or cost analysis conducted by the Contractor, comprehensive removal of LCPs from items or surfaces is not expected to be required during the Work.
  - .1 Refer to the provisions of the 2017 WorkSafeBC document “Safe Work Practices for Handling Lead” for removal of LCPs from surfaces before any welding and torch-cutting, should the Contractor plan to use such methods to complete the Work.
    - .1 Contractor will be responsible for verification testing of surfaces where LCPs have been removed. Confirmation of acceptable results is to be provided to the Departmental Representative for review before proceeding with any welding or torch-cutting on surfaces where LCPs were present.
- .4 Waste transportation to be conducted in accordance with BC Reg. 63/88 and the Federal Transportation of Dangerous Goods Regulation.
- .5 Waste disposal to be conducted in accordance with BC Reg. 63/88.
  - .1 Waste associated with building material coated with LCP that is destined for landfill disposal is to be presumed to be “non-leachable” for lead (i.e. presumed to meet applicable acceptance criteria for construction and demolition waste, and to NOT contain lead in a dispersible form such that its leachate contains >5 mg/L lead)
    - .1 Contractor will conduct confirmatory testing to determine lead leachability of various waste streams expected to be disposed of via landfill. If “lead leachable” wastes are identified,

additional costs will be addressed through  
Change Order.

- .2 Polychlorinated Biphenyls (PCBs)
  - .1 Removal, alteration and/or disposal of PCB-containing equipment is not anticipated to be required during the Work.
  - .2 Although they may also be present in other items in limited amounts (e.g., plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets) as indicated in the Assessment Reports, PCBs are not expected to be present in those materials in concentrations that would necessitate the requirement for PCB-specific handling procedures, separate removal and/or disposal considerations for demolition.
- .3 Mould
  - .1 Although mould contamination was not identified in the Assessment Reports, when demolition work proceeds, due to the actual or potential presence of mould on moisture-impacted building materials (flooring in Guard Tower T01), and if those impacted materials are to be removed by hand, demolition workers should be notified of the potential presence of mould and be provided with respiratory protection and/or other personal protective equipment as deemed necessary for the work that they will be conducting.
    - .1 Provisions for asbestos abatement (Section 02 82 00.01 Asbestos Abatement Minimum Precautions and Section 02 82 00.03 Asbestos Abatement Maximum Precautions) will be sufficient to protect workers from exposure to mould, if impacted materials are also asbestos-containing.
- .4 Mercury
  - .1 Removal, alteration and/or disposal of mercury-containing equipment is not anticipated to be required during the Work.
  - .2 Although limited amounts of mercury may be present in paints and adhesives as indicated in the Assessment Reports, mercury is not expected to be present in those materials in concentrations that would necessitate the requirement for mercury-specific handling procedures, separate removal and/or disposal considerations for demolition.
- .5 Ozone-Depleting Substances (ODSs)
  - .1 Removal, alteration and/or disposal of ODSs is not anticipated to be required during the Work.
- .6 Silica
  - .1 When silica-containing materials (e.g. concrete) are to be disturbed and/or removed, ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by the COHSR and BC

Reg. 296/97 (Cristobalite and Quartz – each 0.025 mg/m<sup>3</sup>). This would include, but not be limited to, the following:

- .1 Providing workers with respiratory protection
- .2 Wetting the surface of the materials, use of water or dust suppressing agents to prevent dust emissions
- .3 Providing workers with facilities to properly wash prior to exiting the work area.

### **3.2 CLEANING**

- .1 Progress Cleaning: Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .3 Waste Management: separate waste materials for reuse and recycling.
  - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
  - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
  - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
  - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
  - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
  - .6 Dispose of hazardous wastes in timely fashion in accordance with applicable federal and provincial regulations.
  - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
  - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
    - .1 Hazardous wastes recycled in manner constituting disposal.
    - .2 Hazardous waste burned for energy recovery.
    - .3 Lead-acid battery recycling.
    - .4 Hazardous wastes with economically recoverable precious metals.

**END OF SECTION**

## **Part 1 General**

### **1.1 SUMMARY**

- .1 Refer to the following reports (further referred to herein as the “ Assessment Reports”), attached in Appendix A of the Project Specifications, for information pertaining to asbestos-containing materials (ACMs) that have been identified and will require disturbance during the Work.
  - .1 Stantec Consulting Ltd. May 16, 2017 report for Stantec Project No. 123220769“Hazardous Building Materials Assessments – 31 Buildings at Medium Institution, Mission, BC”.
    - .1 Applicable excerpts for Guard Towers T01, T02 and T04 are attached Appendix A of the Project Specifications.
  - .2 Abatement shall be conducted to handle, alter, remove and/or dispose of all ACMs as identified in the Assessment Reports in accordance with applicable regulations, guidelines, standards and/or best practices for such work.
  - .3 Contractor is responsible for reviewing plans, specifications and reports such that they understand the locations and amounts of ACMs that will be impacted by the Work of this contract, and such that appropriate plans and budgets can be included in their overall bids
  - .4 Unless otherwise determined through risk assessment conducted by the Contractor’s qualified person (as defined by BC Reg. 296/97), at a minimum, the Contractor is to comply with requirements of this Section when performing work that is considered Moderate Risk work, as outlined in the 2017 WorkSafeBC publication “Safe Work Practices for Handling Asbestos”. This is anticipated to involve removal and disposal of the following identified ACMs (note – if there are discrepancies between the list indicated below and the Assessment Reports, the information in the Assessment Reports will prevail) and other materials:
    - .1 Guard Towers T01, T02, T04
      - .1 Vinyl sheet flooring, if removal is conducted with the flooring still adhered to sub-floor (approximately 10 m<sup>2</sup> in each tower)
      - .2 Guard Tower T02
        - .1 Brown seam sealant applied to exterior of building (approximately 30 linear metres)
  - .5 Deviation from the procedures outlined in this specification must be approved by the Departmental Representative prior to implementation.

### **1.2 SECTION INCLUDES**

- .1 Requirements, applicable procedures and personal protective equipment to be utilized during asbestos abatement activities as outlined herein.

### **1.3 REFERENCES**

- .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)

- .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
- .2 Department of Justice Canada (Jus)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).
  - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 National Research Council Canada Institute for Research in Construction (NRC-IRC)
  - .1 National Fire Code of Canada (2015).
- .5 WorkSafeBC
  - .1 British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)
  - .2 "Safe Work Practices for Handling Asbestos" (2017)
- .6 Government of Canada
  - .1 The Canada Labour Code, Part II, Canada Occupational Health and Safety Regulations (COHSR)

#### **1.4 DEFINITIONS**

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.
- .3 Asbestos Containing Materials (ACMs): materials that contain any amount of asbestos by dry weight and are identified under existing conditions including fallen materials and settled dust.
- .4 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.
- .5 Authorized Visitors: Departmental Representative and representatives of regulatory agencies.
- .6 Competent worker: in relation to specific work, means a worker who:
  - .1 Is qualified because of knowledge, training and experience to perform the work.
  - .2 Is familiar with the territorial and federal laws and with the provisions of the regulations that apply to the work.
  - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .7 Friable material: means material that:
  - .1 When dry, can be crumbled, pulverized or powdered by hand pressure, or
  - .2 is crumbled, pulverized or powdered.

- .8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .9 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.
- .10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

## **1.5 SUBMITTALS**

- .1 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.
- .2 Submit Territorial and/or local requirements for Notice of Project Form.
- .3 Submit proof of Contractor's Asbestos Liability Insurance.
- .4 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.
- .5 Submit proof that all asbestos workers and/or supervisor have received appropriate training from a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Instruction and training related to respirators includes, at minimum:
  - .1 Fitting of equipment.
  - .2 Inspection and maintenance of equipment.
  - .3 Disinfecting of equipment.
  - .4 Limitations of equipment.
- .6 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested respirator that is personally issued.

## **1.6 QUALITY ASSURANCE**

- .1 Regulatory Requirements: comply with Federal, 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.
- .2 Health and Safety:
  - .1 Perform construction occupational health and safety in accordance with applicable federal and provincial regulations.
  - .2 Safety Requirements: worker protection.

- .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:
  - .1 Air purifying half-mask respirator with P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Territorial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.
  - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.
- .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
- .3 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.
- .4 Facilities for washing hands and face shall be provided within or close to the Asbestos Work Area.
- .5 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are to be supplied by the Contractor.
- .6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials in accordance with Section 02 81 01 – Hazardous Materials.

- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .6 Fold up metal banding, flatten and place in designated area for recycling.
- .7 Disposal of asbestos waste generated by removal activities must comply with Federal, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.
- .8 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

## **1.8 EXISTING CONDITIONS**

- .1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A**.
- .2 Notify Departmental Representative of suspected ACM discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

## **1.9 SCHEDULING**

- .1 Hours of Work: perform work during normal working hours as indicated in Contract Documents.

## **Part 2 Products**

### **2.1 MATERIALS**

- .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 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.
- .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 asbestos fibres.
- .4 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

### **Part 3 Execution**

#### **3.1 PROCEDURES**

- .1 Do construction occupational health and safety in accordance applicable federal and provincial regulations.
- .2 Before beginning Work, isolate Asbestos Work Area using, minimum, preprinted cautionary asbestos warning signs in both official languages that are visible at access routes to Asbestos Work Area.
  - .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.
- .3 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.
- .4 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.
  - .1 Use garden reservoir type low - velocity fine - mist sprayer.
  - .2 Perform Work to reduce dust creation to lowest levels practicable.
  - .3 Work will be subject to visual inspection and air monitoring.
  - .4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
- .5 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.
- .6 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 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.
- .4 Perform final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.

### **3.2 AIR MONITORING**

- .1 From beginning of Work until completion of cleaning operations, Departmental Representative will collect air samples inside and outside of Asbestos Work Areas in accordance with the most stringent of the recommendations set forth in the Canada Labour Code Part II, Occupational Health and Safety Regulations, BC Reg. 296/97 and the 2017 WorkSafeBC Manual "Safe Work Practices for Handling Asbestos".
  - .1 Air samples will be collected and analyzed in accordance with NIOSH method 7400.
  - .2 Air sample results will be provided to the Contractor within 24-hours of sample collection.
  - .3 Analysis will be conducted by qualified persons or laboratories that take part in a documented QA/QC program for such analysis.
- .2 Contractor to stop Work when airborne fibre measurements exceed 0.05 fiber/cubic centimetre (f/cc), when PPE and protection factors are considered, and to correct procedures.
- .3 Additional monitoring will be conducted, where possible, to verify procedural corrections were effective.
- .4 If air monitoring shows that areas outside Asbestos Work Area are contaminated as determined by the Departmental Representative, Contractor will be notified to maintain and clean these areas in same manner as that applicable to Asbestos Work Area, at no additional cost to the Contract.
- .5 When asbestos leakage from Asbestos Work Area has occurred, or is likely to occur Departmental Representative may order Work shutdown and correction of deficiencies.
- .6 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

### **3.3 INSPECTION**

- .1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviations from these requirements that have not been

approved in writing by Departmental Representative may result in Work stoppage, at no cost to Owner.

- .2 Departmental Representative may inspect Work for:
  - .1 Adherence to specific procedures and materials.
  - .2 Final cleanliness and completion.
  - .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

**END OF SECTION**

## **Part 1 General**

### **1.1 SUMMARY**

- .1 Refer to the following report (further referred to herein as the “Assessment Reports”), attached in Appendix A of the Project Specifications, for information pertaining to asbestos-containing materials (ACMs) that have been identified and will require disturbance during the Work.
  - .1 Stantec Consulting Ltd. May 16, 2017 report for Stantec Project No. 123220769 “Hazardous Building Materials Assessments – 31 Buildings at Medium Institution, Mission, BC”.
    - .1 Applicable excerpts for Guard Towers T01, T02 and T04 are attached Appendix A of the Project Specifications..
  - .2 Abatement shall be conducted to handle, alter, remove and/or dispose of all ACMs as identified in the Assessment Reports in accordance with applicable regulations, guidelines, standards and/or best practices for such work, where such identified ACMs will be impacted (handled, altered, damaged, removed) by the Work.
  - .3 Contractor is responsible for reviewing plans, specifications and reports such that they understand the locations and amounts of ACMs that will be impacted by the Work of this contract, and such that appropriate plans and budgets can be included in their overall bids
  - .4 Unless otherwise determined through risk assessment conducted by the Contractor’s competent person (certified in asbestos control procedures, per the requirements of the BC Reg. 296/97.), at a minimum, the Contractor is to comply with requirements of this Section when performing work that is considered High Risk work, as outlined in the 2017 WorkSafeBC publication “Safe Work Practices for Handling Asbestos”. This is anticipated to involve removal and disposal of the following identified ACMs (note – if there are discrepancies between the list indicated below and the Assessment Reports, the information in the Assessment Reports will prevail):
    - .1 Guard Towers T01, T02, T04
      - .1 ACM Vinyl sheet flooring, if removal is conducted by separating the flooring from the subfloor (approximately 10 m<sup>2</sup> in each tower)
  - .5 Deviation from the procedures outlined in this specification must be approved by the Departmental Representative prior to implementation.

### **1.2 SECTION INCLUDES**

- .1 Requirements, applicable procedures and personal protective equipment to be utilized during asbestos abatement activities as outlined herein.

### **1.3 REFERENCES**

- .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
  - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).

- .2 Department of Justice Canada (Jus)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).
  - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 National Research Council Canada Institute for Research in Construction (NRC-IRC).
  - .1 National Fire Code of Canada (2015).
- .5 WorkSafeBC
  - .1 British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)
  - .2 "Safe Work Practices for Handling Asbestos" (2017)
- .6 Government of Canada
  - .1 The Canada Labour Code, Part II, Canada Occupational Health and Safety Regulations (COHSR)

#### **1.4 DEFINITIONS**

- .1 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.
- .2 Amended Water: water with a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.
- .3 Asbestos Containing Materials (ACMs): materials that contain any asbestos and are identified under Existing Conditions including fallen materials and settled dust.
- .4 Asbestos Work Areas: area where work takes place which will, or may disturb ACMs.
- .5 Authorized Visitors: Departmental Representative and representatives of regulatory agencies.
- .6 Competent worker: in relation to specific work, means a worker who:
  - .1 Is qualified because of knowledge, training and experience to perform the work.
  - .2 Is familiar with the Territorial and Federal laws and with the provisions of the regulations that apply to the work.
  - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .7 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:
  - .1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet

- along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.
- .2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.
  - .3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.
- .8 DOP Test: testing method used to determine integrity of Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.
  - .9 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
  - .10 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
  - .11 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.
    - .1 System to maintain minimum pressure differential of 5 Pa relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.
  - .12 Non-Friable Materials: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
  - .13 Occupied Areas: any area of building or work site that is outside Asbestos Work Area.
  - .14 Polyethylene sheeting sealed with tape: polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean area.
  - .15 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

## **1.5 SUBMITTALS**

- .1 Before beginning work:
  - .1 Obtain from appropriate agency and submit to Departmental Representative necessary permits for transportation and disposal of asbestos waste. Ensure that dump operator is fully aware of hazardous nature of material being dumped, and proper methods of disposal. Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to receive and properly dispose of asbestos waste.
  - .2 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested with respirator that is personally issued. Submit proof that all asbestos workers and/or supervisor have

received appropriate training from a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Instruction and training related to respirators includes, at minimum:

- .1 Fitting of equipment.
- .2 Inspection and maintenance of equipment.
- .3 Disinfecting of equipment.
- .4 Limitations of equipment.
- .3 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration. Submit proof of attendance in form of certificate.
- .4 Submit layout of proposed enclosures and decontamination facilities to Departmental Representative for review.
- .5 Submit Provincial and/or local requirements for Notice of Project form.
- .6 Submit proof of Contractor's Asbestos Liability Insurance.
- .7 Submit Worker's Compensation Board status and transcription of insurance.
- .8 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including but not limited to following:
  - .1 Encapsulants.
  - .2 Amended water.
  - .3 Slow drying sealer.

## **1.6 QUALITY ASSURANCE**

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with applicable federal and provincial regulations.
  - .2 Safety Requirements: worker and visitor protection.
    - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area includes:
      - .1 Full-facepiece powered air purifying respirator (PAPR) with P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Territorial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean

and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

- .2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.

Requirements for each worker:

- .1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.
- .2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated work suits in receptacles for disposal with other asbestos - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator proceed naked to showers. Using soap and water wash body and hair thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.
- .3 After showering and drying off, proceed to clean change room and dress in street clothes at end of each day's work, or in clean coveralls before eating, smoking, or drinking. If re-entering work area, follow procedures outlined in paragraphs above.
- .4 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment



Decontamination Enclosure system. Workers must not use this system as means to leave or enter work area.

- .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
- .3 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.
- .4 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.
- .5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.
- .6 Visitor Protection:
  - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
  - .2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.
  - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials in accordance Section 02 81 01 - Hazardous Materials.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.
- .4 Separate for reuse and recycling and place in designated containers steel, metal, and plastic waste.
- .5 Place materials defined as hazardous or toxic in designated containers.
- .6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .7 Fold up metal banding, flatten and place in designated area for recycling.
- .8 Disposal of asbestos waste generated by removal activities must comply with Federal, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6mil bags or leak proof drums. Label containers with appropriate warning labels.
- .9 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

## **1.8 EXISTING CONDITIONS**

- .1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A**.

- .2 Notify Departmental Representative of suspected ACM discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

## **1.9 SCHEDULING**

- .1 Hours of Work: perform work during normal working hours as indicated in Contract Documents.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.
- .2 FR polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.
- .4 Waste Containers: contain waste in two separate containers.
  - .1 Inner container: 0.15 mm thick sealable polyethylene 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 preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site. Label containers in accordance with Asbestos Regulations 29 CFR 1910.1001. Label in both official languages.
- .5 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .6 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.
- .7 Sealer: flame spread and smoke developed rating less than 50.
- .8 Encapsulants: Type 1 penetrating type Class A water based conforming to CAN/CGSB-1.205 and approved by the Fire Commissioner of Canada having following characteristics:
- .9 Sprayed fireproofing: ULC labelled and listed asbestos-free to provide degree of fire or thermal protection required.

**Part 3 Execution**

**3.1 PREPARATION**

- .1 Do construction occupational health and safety in accordance with applicable federal and provincial regulations.
- .2 Work Areas:
  - .1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.
  - .2 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.
  - .3 The spread of dust from the work area to be prevented by:
    - .1 Using enclosures of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure material is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.
    - .2 Using curtains of polyethylene sheeting or other suitable material that is impervious to asbestos, fitted on each side of each entrance or exit from the work area.
  - .4 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. The system to maintain a negative air pressure, relative to the area outside the enclosed area. The system to be inspected and maintained by a competent person prior each use to ensure that there is no air leakage, and if the filter is found to be damaged or defective, it to be replaced before the ventilation system is used.
    - .1 Negative air units are to be dioctyl phthalate (DOP) tested on-site, prior to installation/use, with test results provided to Departmental Representative for review.
  - .5 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.
  - .6 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.
  - .7 Build airlocks at entrances to and exits from work areas so that work areas are always closed off by one curtained doorway when workers enter or exit.
  - .8 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used: "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

- .9 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Fire Commissioner of Canada and Territorial Fire Marshall Authority having jurisdiction.
  - .10 Where application of water is required for wetting asbestos containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.
  - .11 After preparation of work areas and Decontamination Enclosure Systems, for the removal of all other asbestos containing materials, remove within work area and dispose of as contaminated waste in specified containers. Spray asbestos debris and immediate work area with amended water to reduce dust, as work progresses.
- .3 Worker Decontamination Enclosure System:
- .1 Worker Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:
    - .1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work area[s], with two curtained doorways, one to Shower Room and one to work area[s]. Install waste receptor, and storage facilities for workers' shoes and protective clothing to be reworn in work area[s]. Build Equipment and Access Room large enough to accommodate specified facilities, other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.
    - .2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and one to Equipment and Access Room. Provide one shower for every five workers. Provide constant supply of hot and cold or warm water. Provide piping and connect to water sources and drains. Pump waste water through 5 micrometre filter system before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.
    - .3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.
- .4 Container and Equipment Decontamination Enclosure System:
- .1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination Enclosure System is not suitable.
    - .1 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of waste containers, and temporary storage pending removal to Washroom. Equip Staging Area with curtained doorway to Washroom.

- .2 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding Room. Provide high - pressure low - volume sprays for washing of waste containers and equipment. Pump waste water through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.
  - .3 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.
  - .4 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.
- .5 Construction of Decontamination Enclosures:
- .1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape.
  - .2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.
- .6 Maintenance of Enclosures:
- .1 Maintain enclosures in tidy condition.
  - .2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
  - .3 Visually inspect enclosures at beginning of each working period.
  - .4 Use smoke methods to test effectiveness of barriers when directed by Departmental Representative.
- .7 Do not begin Asbestos Abatement work until:
- .1 Arrangements have been made for disposal of waste.
  - .2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.
  - .3 Work area[s] and decontamination enclosures are effectively segregated.
  - .4 Tools, equipment, and materials waste containers are on hand.
  - .5 Arrangements have been made for building security.
  - .6 Warning signs are displayed where access to contaminated areas is possible.
  - .7 Notifications have been completed and other preparatory steps have been taken.

### **3.2 SUPERVISION**

- .1 Minimum of one Supervisor for every ten workers is required.
- .2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos containing materials.

### 3.3 ASBESTOS REMOVAL

- .1 Before removing asbestos:
  - .1 Prepare site.
  - .2 Spray asbestos material with water containing specified wetting agent, using airless spray equipment capable of providing "mist" application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.
- .2 Remove saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.
- .3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .4 After completion of removal work, wire brush, HEPA vacuum and/or wet-sponge surfaces from which asbestos has been removed to remove visible material.
- .5 Where Departmental Representative decides complete removal of asbestos containing material is impossible due to obstructions such as structural members or major service elements, and provides written direction, encapsulate material as follows:
  - .1 Apply penetrating type sealer to penetrate existing sprayed asbestos surfaces uniformly to substrate.
- .6 After removal of visible asbestos, and after encapsulating asbestos containing material impossible to remove, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After second 24 hour period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Departmental Representative apply continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.
- .7 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
- .8 Cleanup:
  - .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
  - .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

- .3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
- .4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of 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 guidelines and regulations for asbestos disposal are followed.
- .5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

### **3.4 FINAL CLEANUP**

- .1 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible asbestos containing particles observed during cleanup, immediately, using HEPA vacuum equipment.
- .2 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.
- .3 Include in clean-up Work areas, Equipment and Access Room, Washroom, Shower Room, and other contaminated enclosures.
- .4 Include in clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.
- .5 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations and carry out air monitoring again to ensure that asbestos levels in building do not exceed 0.01 fibres/cc. Repeat cleaning using HEPA vacuum equipment, or wet cleaning methods where feasible, in conjunction with sampling until levels meet this criterion.
- .6 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative to ensure that dumping is done in accordance with governing regulations.

### **3.5 AIR MONITORING**

- .1 From beginning of Work until completion of cleaning operations, Departmental Representative will collect air samples inside and outside of Asbestos Work Areas in accordance with the most stringent of the recommendations set forth in the Canada Labour Code Part II, Occupational Health and Safety Regulations, BC Reg. 296/97 and the 2017 WorkSafeBC Manual "Safe Work Practices for Handling Asbestos".
  - .1 Air samples will be collected and analyzed in accordance with NIOSH method 7400.
  - .2 Air sample results will be provided to the Contractor within 24-hours of sample collection.

- .3 Analysis will be conducted by qualified persons or laboratories that take part in a documented QA/QC program for such analysis.
- .2 Contractor to stop Work when airborne fibre measurements exceed 0.05 fiber/cubic centimetre (f/cc), when PPE and protection factors are considered, and to correct procedures.
- .3 Additional monitoring will be conducted, where possible, to verify procedural corrections were effective.
- .4 If air monitoring shows that areas outside Asbestos Work Area are contaminated as determined by the Departmental Representative, Contractor will be notified to maintain and clean these areas in same manner as that applicable to Asbestos Work Area, at no additional cost to the Contract.
- .5 When asbestos leakage from Asbestos Work Area has occurred, or is likely to occur Departmental Representative may order Work shutdown and correction of deficiencies.
- .6 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.
- .7 In instances where enclosures are used, post-abatement testing will be completed by the Departmental Representative.
  - .1 After Asbestos Work Area has passed visual inspection by Departmental Representative and acceptable coat of lock-down agent has been applied to surfaces within enclosure by the Contractor, and appropriate setting period has passed, Departmental Representative will perform air monitoring within Asbestos Work Area.
    - .1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.
    - .2 If air monitoring results show fibre levels in excess of 0.01 f/cc, Contractor will re-clean work area and apply another acceptable coat of lock-down agent to surfaces, at no additional cost to Contract.
    - .3 Repeat as necessary until fibre levels are less than 0.01 f/cc, at no additional cost to Contract.
  - .2 Contractor will be provided with authorization to remove enclosure structures upon receipt of acceptable air sample results.

### **3.6 INSPECTION**

- .1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviations from these requirements that have not been approved in writing by Departmental Representative may result in Work stoppage, at no cost to Owner.
- .2 Departmental Representative may inspect Work for:
  - .1 Adherence to specific procedures and materials.
  - .2 Final cleanliness and completion.
  - .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.



Project No.: R.097977.001  
Mission Medium Institution  
Guard Tower T01, T02, T04  
Demolition

Section 02 82 00.03  
ASBESTOS ABATEMENT  
MAXIMUM PRECAUTIONS  
Page 14

**END OF SECTION**

## **1 GENERAL**

### **1.01 RELATED REQUIREMENTS**

- .1 This section covers items common to all Electrical sections and is intended to supplement the requirements of Division 01. Electrical material specifications are included in this Section.
- .2 Reference to "Electrical Divisions" shall mean all related Electrical Sections and components including Divisions 26, 27, and 28.
- .3 The word "Provide" shall mean "Supply and Install" the products and services specified. "As Indicated" means that the item(s) specified are shown on the drawings.
- .4 Provide materials, equipment and plant, of specified design, performance and quality; and, current models with published certified ratings for which replacement parts are readily available. Provide project management and on-site supervision to undertake administration, meet schedules, ensure timely performance, ensure coordination, establishing orderly completion and the delivery of a fully commissioned installation.
- .5 The most stringent requirements of this, other electrical Sections and Division 01 shall govern.
- .6 All work shall be in accordance with the Project Drawings and Specifications and their intents, complete with all necessary components, including those not normally shown or specified, but required for a complete installation.
- .7 Connect to equipment specified in other Sections and to equipment supplied and installed by other Contractors or by the Departmental Representative. Uncrate equipment, move in place and install complete; start-up, test and commission. Include all field assembly of loosely/separately packaged accessories.
- .8 Obtain and pay for an electrical permit. Submit electronic copy of permit and final acceptance to Departmental Representative.

## **1.02 PHASING OF ELECTRICAL WORK**

- .1 Phase 1: electrical preparation work for the demolition of the Guard Towers. Remove all electrical equipment from the Guard Towers and provide temporary power. Once the electrical demolition preparation work is completed, wait until the buildings are removed, then start Phase 2.
- .2 Phase 2: the installation of the kiosks.

## **1.03 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA C22.1-2015 Canadian Electrical Code, Part 1

## **1.04 DEFINITIONS**

- .1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

## **1.05 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals: in accordance with Section 01 01 50 – General Instructions.
- .2 Shop drawings:
  - .1 Submit drawings as specified in other Sections.
- .3 Quality Control:
  - .1 Provide CSA certified equipment and material.
  - .2 Where CSA certified equipment and material is not available, submit such equipment and material to authority having jurisdiction for special approval before delivery to site.
  - .3 Submit test results of installed electrical systems and instrumentation.
  - .4 Permits and fees: in accordance with General Conditions of contract.
  - .5 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.

## **1.06 QUALITY ASSURANCE**

- .1 Quality Assurance: in accordance with Section 01 01 50 – General Instructions.
- .2 Qualifications: electrical Work to be carried out by qualified, licensed

---

electricians or apprentices.

- .3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

## **1.07 SHOP DRAWING SUBMITTALS**

- .1 Kiosk and layout
- .2 Transformer
- .3 Loadcentre panel
- .4 Disconnect switch
- .5 Temporary power plan
- .6 Enclosed breakers

## **2 PRODUCTS**

### **2.01 MATERIALS AND EQUIPMENT**

- .1 Provide material and equipment in accordance with Section 01 01 50 – General Instructions.
- .2 Material and equipment to be CSA certified. Where CSA certified material and equipment is not available, obtain special approval from authority having jurisdiction before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.
- .3 Wiring – RW90 copper, minimum size #12.

### **2.02 WIRING TERMINATIONS**

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

### **2.03 EQUIPMENT IDENTIFICATION**

- .1 Identify equipment with nameplates.
- .2 Lamicoid Labels
  - .1 White core, black face.

- .3 Panel directory – typewritten.

## **2.04 WIRING IDENTIFICATION**

- .1 Identify cabling with permanent indelible identifying labels.

## **2.05 KIOSK**

- .1 Freestanding outdoor marine grade aluminum kiosk with legs. Note requirement to provide extended legs for kiosk at Guard Tower 2, to accommodate backfilled concrete footing.
- .2 CSA certified label.
- .3 Provide label indicating manufacturer's name, date of manufacture and product ID.
- .4 Sloped roof. Do not route any conduits or fasteners through the roof.
- .5 Powder coated paint, electrical grey, recoatable.
- .6 Padlockable handle.
- .7 Rated for CSA Type 3R enclosure, built to CSA Type 4 enclosure.
- .8 Ventilation louvres.
- .9 Insulated with 25mm insulation.
- .10 Drain holes in bottom, two sides.
- .11 Insect screens on all openings, fiberglass filter, rubber sealing gasket, easily replaceable, readily available.
- .12 Hinged door, three point latch.
- .13 Stainless steel fasteners and hardware.
- .14 All equipment mounted on galvanized steel back panel.
- .15 Laser engraved label on exterior door, mechanically fastened to door, "POWER KIOSK".
- .16 Custom size to accommodate equipment. Provide layout drawing. Note requirement to mount heavy transformer within kiosk.
- .17 Note there is more equipment in the kiosks for Guard Tower 1 and Guard Tower 2 locations compared to the kiosk for Guard Tower 4 location.
- .18 Deadfront.

## **3 EXECUTION**

### **3.01 INSTALLATION**

- .1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.
- .2 Do overhead and underground systems in accordance with CSA C22.3 No.1 except where specified otherwise.

**3.02 KIOSK**

- .1 Existing Guard Towers 1, 2 & 4 will be demolished as part of this Contract. The Guard Towers are shown on the site plan.
- .2 Provide new kiosks on the existing concrete bases of existing Guard Towers 1, 2 & 4.
- .3 An existing kiosk is located at the old Guard Tower location 3 and is an example of the type of configuration required.
- .4 The existing feeder to each guard tower is routed up through the concrete slab and consists of an approximately 53mm conduit with 2 x #2 conductors, at 600 volts, single phase. The feeder is routed up the guard tower structural support column to a splitter box, then to a 40A enclosed breaker, a 10kVA transformer and then to a panelboard. Refer to the single line diagram for details. The splitter box in Guard Tower 4 doesn't contain terminal blocks and is used as a pullbox. In Guard Towers 1 and 2 the other feed from the splitter is routed to Guard Towers 4 and 3 respectively. Remove all electrical equipment within the Guard Towers.
- .5 At the base of the tower is a Power Distribution Enclosure (no circuit breakers or fuses) with circuits fed down from the Guard Tower panelboard. Remove the Power Distribution Enclosure and reroute the single CCTV conduit with the live circuit to the new kiosk. The live circuit and three abandoned circuits are routed out the bottom of the Power Distribution Enclosure.
- .6 Remove the empty telecom enclosure mounted adjacent to the Power Distribution Enclosure.
- .7 Remove the supports associated with the Power Distribution Enclosure and the telecom enclosure.
- .8 Mount free-standing kiosk on existing concrete pad and connect to the existing main 600V feeder conduits.
- .9 Within Guard Towers 1 & 2, there is an existing splitter as shown on the single line diagram. Provide splitters within the new kiosks at Guard Tower 1 & 2 locations. On the downstream side of each splitter, provide two separate 15A 2P enclosed breakers – one to feed the transformer in the kiosk and one to feed the other remote kiosk formerly fed via the splitter.
- .10 Within the kiosk for Guard Tower 4 location, do not provide a splitter. Provide a non-fused disconnect switch to feed the transformer.
- .11 Within the existing kiosk for Guard Tower 3 location, change the existing 30A fused disconnect switch to a 30A non-fused disconnect switch.
- .12 Provide the following electrical distribution equipment mounted within the kiosks:
  - .1 Primary transformer protective device: Enclosed breaker, 15A, 2P, 600V, 14,000 AIC, Eaton FDB or equivalent (two breakers each at Guard Tower 1 & 2 locations).

- .2 Primary non-fused disconnect switch: 30A, 2P, 600V (one switch each at Guard Tower 3 & 4 locations).
- .3 Transformer: 3 kVA, 600V to 120/240V single phase, epoxy encapsulated, copper windings, 3R rated. (one transformer each at Guard Tower 1, 2 & 4 locations)
- .4 Secondary Panelboard: 100A, single phase, 120/240V, main 15A 2P breaker, copper bus, 12 full-sized circuits, 3 x 15A breakers (one panelboard each at Guard Tower 1, 2 & 4 locations)
- .5 Spec grade receptacle on a dedicated 15A circuit in a utility box. (one receptacle each at Guard Tower 1, 2 & 4 locations)
- .6 Splitter, 125A, 600V, single phase (One splitter each at Guard Tower 1 & 2 locations)
- .7 Primary non-fused disconnect switch for the splitter: 100A, 2P, 600V (one switch each at Guard Tower 1 & 2 locations).
- .13 Provide a buried copper ground plate and copper conductors as a system ground at each new kiosk.
- .14 Use rigid galvanized steel conduit for all work exterior of the kiosk, use EMT inside the kiosk.
- .15 Provide temporary power for the kiosks at Guard Tower 1, 2, 4 and old tower 3 kiosk locations.
- .16 CCTV cameras for a security system are fed from a panel inside the existing Guard Towers 1, 2 & 4. CCTV cameras for a security system are fed from the kiosk at the old Guard Tower 3 location. Minimize downtime of the power circuits to the CCTV cameras. A maximum of 20-minutes downtime is permitted. If longer than 20 minutes, provide temporary power, estimated to be approximately 500W via cab tire cables. Provide mechanical protection for the cables where they are subject to potential damage.
- .17 Provide a minimum 48 hours advance written notice of all power outages, regardless of the duration of the outage.
- .18 There are approximately 4 single-pole 120V, 15 or 20 amp circuits at each Guard Tower routed out from the Power Distribution Enclosure. One of the circuits feeds the existing CCTV enclosure located at the front of each Guard Tower. The other circuits are abandoned. Re-fed the CCTV circuit from the new panelboard in the new kiosk. Connect the CCTV conduit to the new kiosk.
- .19 At Guard Tower 4, there is a Teck cable used for a temporary guard shack connected to the existing panelboard within the Guard Tower. Remove the cable completely from the site. The cable is routed on the ground approximately 150 metres.
- .20 Ensure loads in each panelboard are evenly divided between the two poles.
- .21 Provide typewritten panelboard directory.
- .22 Provide a green insulated ground conductor within all conduits.

- .23 At Guard Tower 2, provide extended legs for the new kiosk to accommodate backfill to be added. The concrete footing will be buried below grade. Legs to have a lifetime of at least 25 years. Ensure high corrosion area of legs - 300mm above and below grade will have substantial anti-corrosive treatment and/or the legs are constructed of substantially thick material. Submit shop drawings.
- .24 At Guard Tower 3 existing kiosk, change breaker for remote CCTV cabinet from 15A GFCI type to 15A regular breaker.
- .25 At Guard Tower 3 existing kiosk, test to determine if there is a ground fault condition for the circuit to the remote CCTV cabinet when the camera heaters are turned on. Others will assist in turning the camera heaters on.

### **3.03 NAMEPLATES AND LABELS**

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

### **3.04 CONDUIT AND CABLE INSTALLATION**

- .1 Install conduit and sleeves prior to pouring of concrete.
  - .1 Sleeves through concrete: plastic, sized for free passage of conduit, and protruding 50 mm.

### **3.05 FIELD QUALITY CONTROL**

- .1 Conduct following tests in accordance with Section 01 01 50 – General Instructions
  - .1
- .2 Carry out tests in presence of Departmental Representative.
- .3 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

### **3.06 CLEANING**

- .1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- .2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.
- .3 Remove debris off site.

**END OF SECTION**



**APPENDIX A**  
**HAZARDOUS BUILDING MATERIALS ASSESSMENT**

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building T01—Tower 01 (849-03-RP)  
May 2017

### Appendix 5.26 FINDINGS AND RECOMMENDATIONS— BUILDING T01—TOWER 01 (849-03-RP)

Building T01—Tower 01 (subject building) was reportedly constructed in 1976 and has been assigned Real Property ID #1611. The typical structural components and finishes associated with this building consist of wooden exterior, interior and ceiling, vinyl sheet flooring, steel structure and concrete foundation. The building is reportedly no longer in use, and is planned for demolition in the near future (within the next two years). The interior of the building is generally in disrepair, with debris, dust and dirt on surfaces throughout.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

Note—no hazardous building materials were previously identified within the subject building based on Stantec's review of the Previous Reports.

#### 5.26-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5-26-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5-26-1 Suspected ACM Sample Collection and Analysis Summary  
Building T01—Tower 01**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
<b>T01-SF-01</b>	<b>Tan vinyl sheet flooring</b>	<b>Interior floor</b>	<b>0.79% Chrysotile</b>
T01-RM-01A	Black roof membrane	West side of roof	None Detected
T01-RM-01B	Black roof membrane	West side of roof	None Detected
T01-RM-01C	Black roof membrane	West side of roof	None Detected
T01-CS-01A	Brown sealant	North side of roof around camera base	None Detected
T01-CS-01B	Brown sealant	North side of roof around camera base	None Detected

## HAZARDOUS BUILDING MATERIALS ASSESSMENT


Appendix 5.26 Findings and Recommendations—Building T01—Tower 01 (849-03-RP)  
May 2017

**Table 5-26-1 Suspected ACM Sample Collection and Analysis Summary  
Building T01—Tower 01**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
T01-CS-01C	Brown sealant	North side of roof around camera base	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of the results of suspected ACM samples analyzed through the current assessment along with our review of the information provided in the Previous Reports, the material presented in Table 5-26-2, below was identified as an ACM.

**Table 5-26-2 Summary of Identified ACMs  
Building T01—Tower 01**

Identified ACM Description and Condition Information		Photo
<b>Tan vinyl sheet flooring throughout interior.</b>		
Friability	Non-friable	
Condition	Poor	
Total Quantity	Approximately 10 m <sup>2</sup>	
Content	0.79% Chrysotile	

### 5.26-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building T01—Tower 01 (849-03-RP)  
May 2017

### 5.26-2 LEAD

Lead is expected to be present in the following:

- Solder used on domestic water lines


With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5-26-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5-26-3 Suspected LCP Sample Collection and Analysis Summary  
Building T01—Tower 01**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
<b>T01-P-01</b>	<b>Brown on wood</b>	<b>Exterior door and frame</b>	<b>46,000</b>
T01-P-02	Grey on wood	Exterior east wall	<90
<b>T01-P-03</b>	<b>Orange on steel</b>	<b>Exterior stairwell</b>	<b>69,000</b>
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5-26-4, below were identified as LCPs:


**Table 5-26-4 Summary of Identified LCPs  
Building T01—Tower 01**

Identified LCP Description		Photo
Paint colour	Brown	
Substrate	Wood	
Location/approx. extent	Exterior door and frame	
Lead content	46,000 ppm	
Condition	Generally good condition with localized areas where paint has worn from surface.	

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building T01—Tower 01 (849-03-RP)  
May 2017

**Table 5-26-4 Summary of Identified LCPs  
Building T01—Tower 01**

Identified LCP Description		Photo
Paint colour	Orange	
Substrate	Metal	
Location/approx. extent	Exterior stairwell and railings	
Lead content	69,000 ppm	
Condition	Generally good condition with localized areas where paint has worn from surface.	

### 5.26-3 POLYCHLORINATED BIPHENYLS

No suspected PCB-containing equipment was observed.

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

### 5.26-4 MERCURY

Equipment and/or items that contain mercury were not observed.

Mercury may be present in paints and adhesives.


### 5.26-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building T01—Tower 01 (849-03-RP)  
May 2017

**Table 5-26-5 Mould/Moisture Observations Summary—January 9, 2017  
Building T01—Tower 01**

Building Area	Observation	Suspected Source of Moisture	Photo
Tower 01, interior	Moisture damaged ACM flooring	Roof leaks	

### 5.26-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

### 5.26-7 SILICA

Silica is expected to be present in concrete observed at the base of the tower.

### 5.26-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

#### 5.26-8.1 Asbestos

Stantec understands that the subject building is not currently in use, and will remain unused and un-occupied until it is demolished (planned within approximately the next year). Due to the presence of damaged asbestos-containing sheet flooring, warning signs should be posted to ban entry into the tower. Abatement of identified ACMs will be required as part of demolition, and the project specification should include appropriate instructions for such.

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

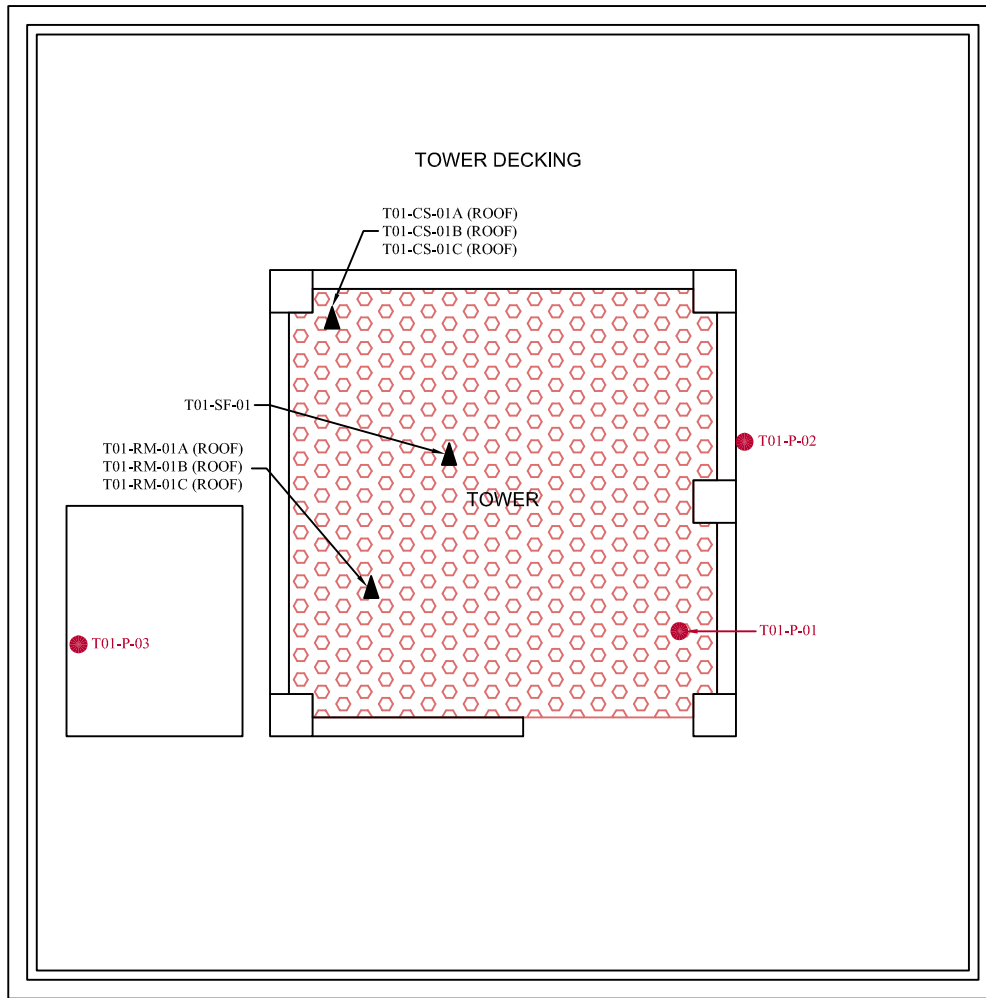
Appendix 5.26 Findings and Recommendations—Building T01—Tower 01 (849-03-RP)  
May 2017

Work procedures and PPE utilized during abatement of identified asbestos-containing sheet flooring as part of the planned demolition project will be sufficient to protect workers from mould.

If the current plan for demolition changes, and if the building is to be re-occupied, abatement of the asbestos-containing sheet flooring will be required prior to re-occupation.

### 5.26-8.2 Mould

Flooring material impacted by suspect mould is a confirmed ACM. As the current plan for the building is demolition (without prior re-occupation), the issues associated with mould contamination will be addressed through the pre-demolition asbestos abatement that will be required.



**FIRST FLOOR  
TOWER 01 BUILDING**

**LEGEND**

- ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ASBESTOS-CONTAINING VINYL SHEET FLOORING

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p><b>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS</b></p> <p>CSC MISSION MEDIUM INSTITUTION 8751 STAVE LAKE STREET, MISSION, BC</p>	Project No.: 123220769	26.1	Stantec
	Scale: N.T.S.		
	Date: 17/03/29		
	Dwn. By: CD <small>SL2017030289</small> DMPK		
Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	App'd By: TW		



Unit T01		
Tower - First Floor		
Rm. #	Name	Area m <sup>2</sup>
01	Tower	6.71

## FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

### GENERAL ROOM INFORMATION

CSC MISSION MEDIUM INSTITUTION  
8751 STAVE LAKE STREET, MISSION, BC

**Client:** PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

<b>Project No.:</b> 123220769
<b>Scale:</b> N.T.S.
<b>Date:</b> 17/03/29
<b>Dwn. By:</b> CD <sub>DM</sub> <sup>SL2017030338</sup>
<b>App'd By:</b> TW

**Dwg. No.:**  
**26.2**





# EMSL Canada Inc.

4506 Dawson Street Burnaby, BC V5C 4C1  
 Phone/Fax: 604-757-3158 / (604) 757-4731  
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EMSL Canada Order 691700069  
 Customer ID: 55JACQ30L  
 Customer PO: 123220769  
 Project ID:

**Attn:** Kim Wiese Phone: (604) 412-3004  
 Stantec Consulting, Ltd. Fax:  
 500 - 4730 Kingsway Collected:  
 Burnaby, BC V5H 0C6 Received: 1/17/2017  
 Analyzed: 1/23/2017

**Proj:** 123220769 / TOWER 01

## Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

**Client Sample ID:** T01-SF-01 **Lab Sample ID:** 691700069-0001

**Sample Description:** INTERIOR FLOOR/TAN SHEET FLOORING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Tan	0.0%	99.2%	0.79% Chrysotile	

**Client Sample ID:** T01-RM-01A **Lab Sample ID:** 691700069-0002

**Sample Description:** WEST SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T01-RM-01B **Lab Sample ID:** 691700069-0003

**Sample Description:** WEST SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T01-RM-01C **Lab Sample ID:** 691700069-0004

**Sample Description:** WEST SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T01-CS-01A **Lab Sample ID:** 691700069-0005

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T01-CS-01B **Lab Sample ID:** 691700069-0006

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T01-CS-01C **Lab Sample ID:** 691700069-0007

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	



**EMSL Canada Inc.**

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EMSL Canada Order 691700069  
Customer ID: 55JACQ30L  
Customer PO: 123220769  
Project ID:

**Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method**

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**Analyst(s):**

Nicole Yeo PLM Grav. Reduction (7)

**Reviewed and approved by:**

Nicole Yeo, Laboratory Manager  
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency of the U.S. Government.

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 01/24/2017 09:39:18



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EMSL Canada Or	551700393
CustomerID:	55JACQ30L
CustomerPO:	123220769
ProjectID:	

Attn: **Kim Wiese**  
**Stantec Consulting, Ltd.**  
**500 - 4730 Kingsway**  
**Burnaby, BC V5H 0C6**

Phone: (604) 412-3004  
 Fax:  
 Received: 01/13/17 10:27 AM  
 Collected:

Project: 123220769 TO1

**Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
T01-P-01 Site: Exterior door and frame Desc: Brown	551700393-0001	1/18/2017		46000 ppm
T01-P-02 Site: Exterior east wall Desc: Grey	551700393-0002	1/18/2017		<90 ppm
T01-P-03 Site: Exterior stairwell Desc: Orange	551700393-0003	1/18/2017		69000 ppm

Rowena Fanto, Lead Supervisor  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 01/20/2017 08:51:45

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building T02—Tower 02 (849-03-RP)  
May 2017

### Appendix 5.27 FINDINGS AND RECOMMENDATIONS— BUILDING T02—TOWER 02 (849-03-RP)

Building T02—Tower 02 (subject building) was reportedly constructed in 1976 and has been assigned Real Property ID #1612. The typical structural components and finishes associated with this building consist of wooden exterior, interior and ceiling, vinyl sheet flooring, steel structure and concrete foundation. The building is reportedly no longer in use, and is planned for demolition in the near future (within the next two years). The interior of the building is generally in disrepair, with debris, dust and dirt on surfaces throughout.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

Note—no hazardous building materials were previously identified within the subject building based on Stantec's review of the Previous Reports.

#### 5.27-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.27-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.27-1 Suspected ACM Sample Collection and Analysis Summary  
Building T02—Tower 02**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
<b>T02-SF-01</b>	<b>Tan vinyl sheet flooring</b>	<b>Interior floor</b>	<b>1.5% Chrysotile</b>
T02-RM-01A	Black roof membrane	North side of roof	None Detected
T02-RM-01B	Black roof membrane	North side of roof	None Detected
T02-RM-01C	Black roof membrane	North side of roof	None Detected
T02-CS-01A	Brown sealant	East side of roof around camera base	None Detected
T02-CS-01B	Brown sealant	East side of roof around camera base	None Detected

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building T02—Tower 02 (849-03-RP)  
May 2017


**Table 5.27-1 Suspected ACM Sample Collection and Analysis Summary  
Building T02—Tower 02**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
T02-CS-01C	Brown sealant	East side of roof around camera base	None Detected
<b>T02-ES-01A</b>	<b>Brown seam sealant</b>	<b>Exterior south side of building</b>	<b>0.81% Chrysotile</b>
<b>T02-ES-01B</b>	<b>Brown seam sealant</b>	<b>Exterior northeast side of building</b>	<b>Positive Stop (Not Analyzed)</b>
<b>T02-ES-01C</b>	<b>Brown seam sealant</b>	<b>Exterior north side of building</b>	<b>Positive Stop (Not Analyzed)</b>

NOTE:  
Bold, highlighted text indicates confirmed ACM

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of the results of suspected ACM samples analyzed through the current assessment along with our review of the information provided in the Previous Reports, the materials presented in Table 5.27-2, below were identified as ACMs.


**Table 5.27-2 Summary of Identified ACMs  
Building T02—Tower 02**

Identified ACM Description and Condition Information		Photo
<b>Tan vinyl sheet flooring throughout interior.</b>		
Friability	Non-friable	
Condition	Good	
Total Quantity	Approximately 10 m <sup>2</sup>	
Content	1.5% Chrysotile	

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building T02—Tower 02 (849-03-RP)  
May 2017

**Table 5.27-2 Summary of Identified ACMs  
Building T02—Tower 02**

Identified ACM Description and Condition Information		Photo
Brown seam sealant applied to exterior of building		
Friability	Non-friable	
Condition	Good	
Total Quantity	Approximately 30 linear metres	
Content	0.81% Chrysotile	

### 5.27-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

### 5.27-2 LEAD

Lead is expected to be present in the following:

- Solder used on domestic water lines

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.27-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

## HAZARDOUS BUILDING MATERIALS ASSESSMENT



Appendix 5.27 Findings and Recommendations—Building T02—Tower 02 (849-03-RP)  
May 2017

**Table 5.27-3 Suspected LCP Sample Collection and Analysis Summary  
Building T02—Tower 02**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
<b>T02-P-01</b>	<b>Brown on wood</b>	<b>Exterior door and frame</b>	<b>35,000</b>
<b>T02-P-02</b>	<b>Orange on steel</b>	<b>Exterior stairwell</b>	<b>99,000</b>
T02-P-03	Grey on wood	Exterior southwest side	100
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5.27-4, below were identified as LCPs:

**Table 5.27-4 Summary of Identified LCPs  
Building T02—Tower 02**

Identified LCP Description		Photo
Paint colour	Brown	
Substrate	Wood	
Location/approx. extent	Exterior door and frame	
Lead content	35,000 ppm	
Condition	Poor	
Paint colour	Orange	
Substrate	Metal	
Location/approx. extent	Exterior stairwell and railings	
Lead content	99,000 ppm	
Condition	Generally good condition with localized areas where paint has worn from surface.	



## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building T02—Tower 02 (849-03-RP)  
May 2017

### 5.27-3 POLYCHLORINATED BIPHENYLS

No suspected PCB-containing equipment was observed.

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

### 5.27-4 MERCURY

Equipment and/or items that contain mercury were not observed.

Mercury may be present in paints and adhesives.

### 5.27-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

### 5.27-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

### 5.27-7 SILICA

Silica is expected to be present in concrete observed at the base of the tower.

### 5.27-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations. Additional building-specific recommendations to be considered are provided below.

#### 5.27-8.1 Lead

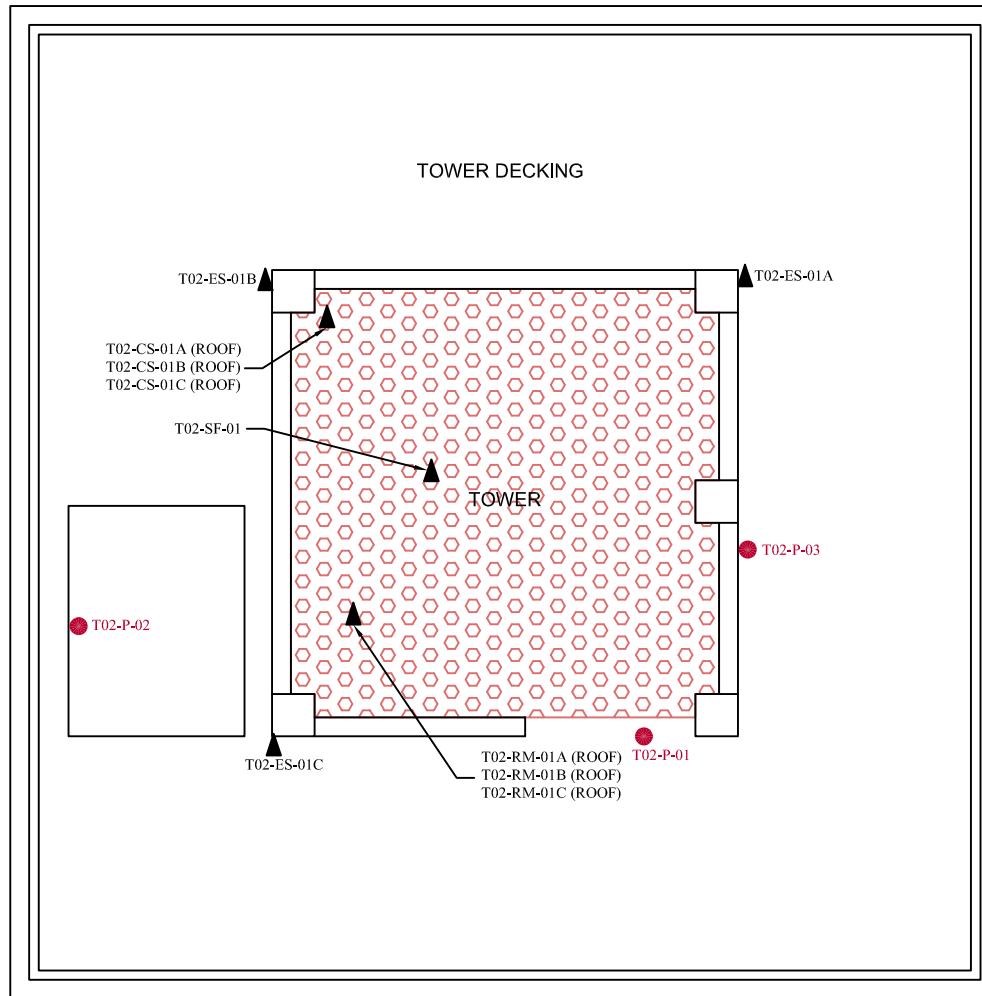
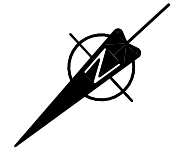
Lead-containing paint observed in poor condition within the building should be cleaned-up and/or addressed to mitigate potential for additional deterioration and dispersal of lead-containing paint chips/dust. Consideration should be given to re-painting surfaces to mitigate the potential for additional deterioration and hazards associated with the lead-containing paint chips/dust that may be created. If re-painting is completed, appropriate precautions to protect

## **HAZARDOUS BUILDING MATERIALS ASSESSMENT**

Appendix 5.27 Findings and Recommendations—Building T02—Tower 02 (849-03-RP)  
May 2017

workers and work areas from exposure to lead will be required during painting preparation activities.

Provisions for worker protection and waste disposal related to the above are included in Section 5.2 of the main body of this report.



### FIRST FLOOR TOWER 02 BUILDING

**LEGEND**

- ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ASBESTOS-CONTAINING VINYL SHEET FLOORING

**NOTES:** 1. BROWN SEAM SEALANT APPLIED TO EXTERIOR SIDING IS ASBESTOS-CONTAINING.  
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p><b>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS</b></p> <p>CSC MISSION MEDIUM INSTITUTION 8751 STAVE LAKE STREET, MISSION, BC</p>	Project No.: 123220769	27.1		
	Scale: N.T.S.			
Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	Date: 17/03/29			
	Dwn. By: CD <small>SL2017030290</small> DMPK			
		App'd By: TW		

Unit T02		
Tower - First Floor		
Rm. #	Name	Area m <sup>2</sup>
01	Tower	6.71

## FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

### GENERAL ROOM INFORMATION

CSC MISSION MEDIUM INSTITUTION  
8751 STAVE LAKE STREET, MISSION, BC

**Client:** PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

<b>Project No.:</b> 123220769
<b>Scale:</b> N.T.S.
<b>Date:</b> 17/03/29
<b>Dwn. By:</b> CD <sub>DM</sub> <sup>SL2017030296</sup>
<b>App'd By:</b> TW

**Dwg. No.:**  
**27.2**





# EMSL Canada Inc.

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EMSL Canada Order 691700070  
 Customer ID: 55JACQ30L  
 Customer PO: 123220769  
 Project ID:

**Attn:** Kim Wiese Phone: (604) 412-3004  
 Stantec Consulting, Ltd. Fax:  
 500 - 4730 Kingsway Collected:  
 Burnaby, BC V5H 0C6 Received: 1/17/2017  
 Analyzed: 1/23/2017

**Proj:** 123220769 / TOWER 02

## Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

**Client Sample ID:** T02-SF-01 **Lab Sample ID:** 691700070-0001

**Sample Description:** INTERIOR FLOOR/TAN SHEET FLOORING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Tan	0.0%	98.5%	1.5% Chrysotile	

**Client Sample ID:** T02-RM-01A **Lab Sample ID:** 691700070-0002

**Sample Description:** SOUTH SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T02-RM-01B **Lab Sample ID:** 691700070-0003

**Sample Description:** SOUTH SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T02-RM-01C **Lab Sample ID:** 691700070-0004

**Sample Description:** SOUTH SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T02-CS-01A **Lab Sample ID:** 691700070-0005

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T02-CS-01B **Lab Sample ID:** 691700070-0006

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T02-CS-01C **Lab Sample ID:** 691700070-0007

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700070  
Customer ID: 55JACQ30L  
Customer PO: 123220769  
Project ID:

## Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

**Client Sample ID:** T02-ES-01A **Lab Sample ID:** 691700070-0008

**Sample Description:** EXTERIOR SOUTH SIDE OF BUILDING/BROWN SEAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Gray	0.0%	99.2%	0.81% Chrysotile	

**Client Sample ID:** T02-ES-01B **Lab Sample ID:** 691700070-0009

**Sample Description:** EXTERIOR NORTHEAST SIDE OF BUILDING/BROWN SEAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017				Positive Stop (Not Analyzed)	

**Client Sample ID:** T02-ES-01C **Lab Sample ID:** 691700070-0010

**Sample Description:** EXTERIOR NORTH SIDE OF BUILDING/BROWN SEAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017				Positive Stop (Not Analyzed)	

**Analyst(s):** \_\_\_\_\_

Nicole Yeo PLM Grav. Reduction (8)

**Reviewed and approved by:**

Nicole Yeo, Laboratory Manager  
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency of the U.S. Government.

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 01/24/2017 09:38:19



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[torontolab@emsl.com](mailto:torontolab@emsl.com)

EMSL Canada Or	551700394
CustomerID:	55JACQ30L
CustomerPO:	123220769
ProjectID:	

Attn: <b>Kim Wiese</b> <b>Stantec Consulting, Ltd.</b> <b>500 - 4730 Kingsway</b> <b>Burnaby, BC V5H 0C6</b>	Phone: (604) 412-3004 Fax: Received: 01/13/17 10:27 AM Collected:
Project: 123220769 T02	

**Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
T02-P-01 Site: Exterior door and frame Desc: Brown	551700394-0001	1/18/2017		35000 ppm
T02-P-02 Site: Exterior stairwell Desc: Orange	551700394-0002	1/18/2017		99000 ppm
T02-P-03 Site: Exterior north wall Desc: Grey	551700394-0003	1/18/2017		100 ppm

Rowena Fanto, Lead Supervisor  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 01/20/2017 08:47:38

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.29 Findings and Recommendations—Building T04—Tower 04 (849-03-RP)  
May 2017

### Appendix 5.29 FINDINGS AND RECOMMENDATIONS— BUILDING T04—TOWER 04 (849-03-RP)

Building T04—Tower 04 (subject building) was reportedly constructed in 1976, and has been assigned Real Property ID #1614. The typical structural components and finishes associated with this building consist of wooden exterior, interior and ceiling, vinyl sheet flooring, steel structure and concrete foundation. The building is reportedly no longer in use, and is planned for demolition in the near future (within the next two years). The interior of the building is generally in disrepair, with debris, dust and dirt on surfaces throughout.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

Note—no hazardous building materials were previously identified within the subject building based on Stantec's review of the Previous Reports.

#### 5.29-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.29-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.29-1 Suspected ACM Sample Collection and Analysis Summary  
Building T04—Tower 04**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
<b>T04-SF-01</b>	<b>Tan vinyl sheet flooring</b>	<b>Interior floor</b>	<b>0.74% Chrysotile</b>
T04-RM-01A	Black roof membrane	Central west roof	None Detected
T04-RM-01B	Black roof membrane	Central west roof	None Detected
T04-RM-01C	Black roof membrane	Central west roof	None Detected
T04-CS-01A	Brown sealant	North side of roof around camera base	None Detected
T04-CS-01B	Brown sealant	North side of roof around camera base	None Detected



## HAZARDOUS BUILDING MATERIALS ASSESSMENT

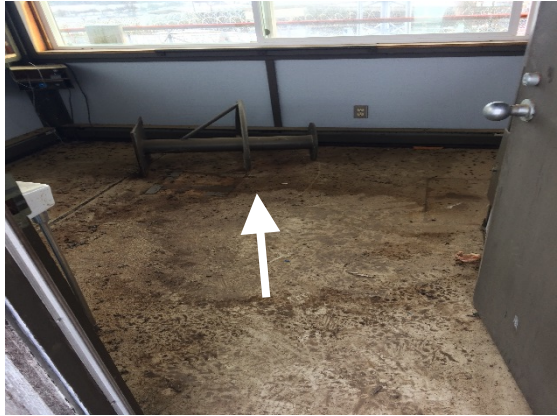
Appendix 5.29 Findings and Recommendations—Building T04—Tower 04 (849-03-RP)  
May 2017

**Table 5.29-1 Suspected ACM Sample Collection and Analysis Summary  
Building T04—Tower 04**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
T04-CS-01C	Brown sealant	North side of roof around camera base	None Detected
T04-ES-01A	White seam sealant	Exterior southeast side of building	None Detected
T04-ES-01B	White seam sealant	Exterior south corner side of building	<0.25% Chrysotile See 5.29-1.1
T04-ES-01C	White seam sealant	Exterior base of building	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of the results of suspected ACM samples analyzed through the current assessment along with our review of the information provided in the Previous Reports, the material presented in Table 5.29-2, below was identified as an ACM.

**Table 5.29-2 Summary of Identified ACMs  
Building T04—Tower 04**

Identified ACM Description and Condition Information		Photo
<b>Tan vinyl sheet flooring throughout interior.</b>		
Friability	Non-friable	
Condition	Good	
Total Quantity	Approximately 10 m <sup>2</sup>	
Content	0.74% Chrysotile	

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.29 Findings and Recommendations—Building T04—Tower 04 (849-03-RP)  
May 2017

### 5.29-1.1 Materials with less than 0.5% Asbestos

The following samples collected from non-friable suspected ACMs within subject building were found to contain less than 0.5% asbestos:

- One sample of white seam sealant applied to the building exterior (less than 0.25% chrysotile)

The number of samples collected for the above-noted material would be adequate to appropriately characterize its asbestos contents based on its extent and published standards for sampling of homogenous applications of suspected ACMs (e.g., the Asbestos Guide). Given these analytical results, the limited amount of asbestos detected and the non-friable nature of this material, it would not be considered an ACM.

### 5.29-1.2 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

## 5.29-2 LEAD

Lead is expected to be present in the following:

- Solder used on domestic water lines

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.29-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.29-3 Suspected LCP Sample Collection and Analysis Summary  
Building T04—Tower 04**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
<b>T04-P-01</b>	<b>Orange on steel</b>	<b>Exterior stairwell</b>	<b>48,000</b>
<b>T04-P-02</b>	<b>Brown on wood</b>	<b>Exterior door and frame</b>	<b>39,000</b>
T04-P-03	Grey on wood	Exterior northwest wall	<90



NOTE:  
Bold, highlighted text indicates confirmed LCP

## HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.29 Findings and Recommendations—Building T04—Tower 04 (849-03-RP)  
May 2017

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5.29-4, below were identified as LCPs:

**Table 5.29-4 Summary of Identified LCPs  
Building T04—Tower 04**

Identified LCP Description		Photo
Paint colour	Orange	
Substrate	Metal	
Location/approx. extent	Exterior stairwell and railings	
Lead content	48,000 ppm	
Condition	Good	
Paint colour	Brown	
Substrate	Wood	
Location/approx. extent	Exterior door and frame	
Lead content	39,000 ppm	
Condition	Good	

### 5.29-3 POLYCHLORINATED BIPHENYLS

No suspected PCB-containing equipment was observed.

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

## **HAZARDOUS BUILDING MATERIALS ASSESSMENT**

Appendix 5.29 Findings and Recommendations—Building T04—Tower 04 (849-03-RP)  
May 2017

### **5.29-4 MERCURY**

Equipment and/or items that contain mercury were not observed.

Mercury may be present in paints and adhesives.

### **5.29-5 MOULD**

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

### **5.29-6 OZONE-DEPLETING SUBSTANCES**

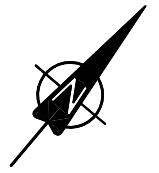
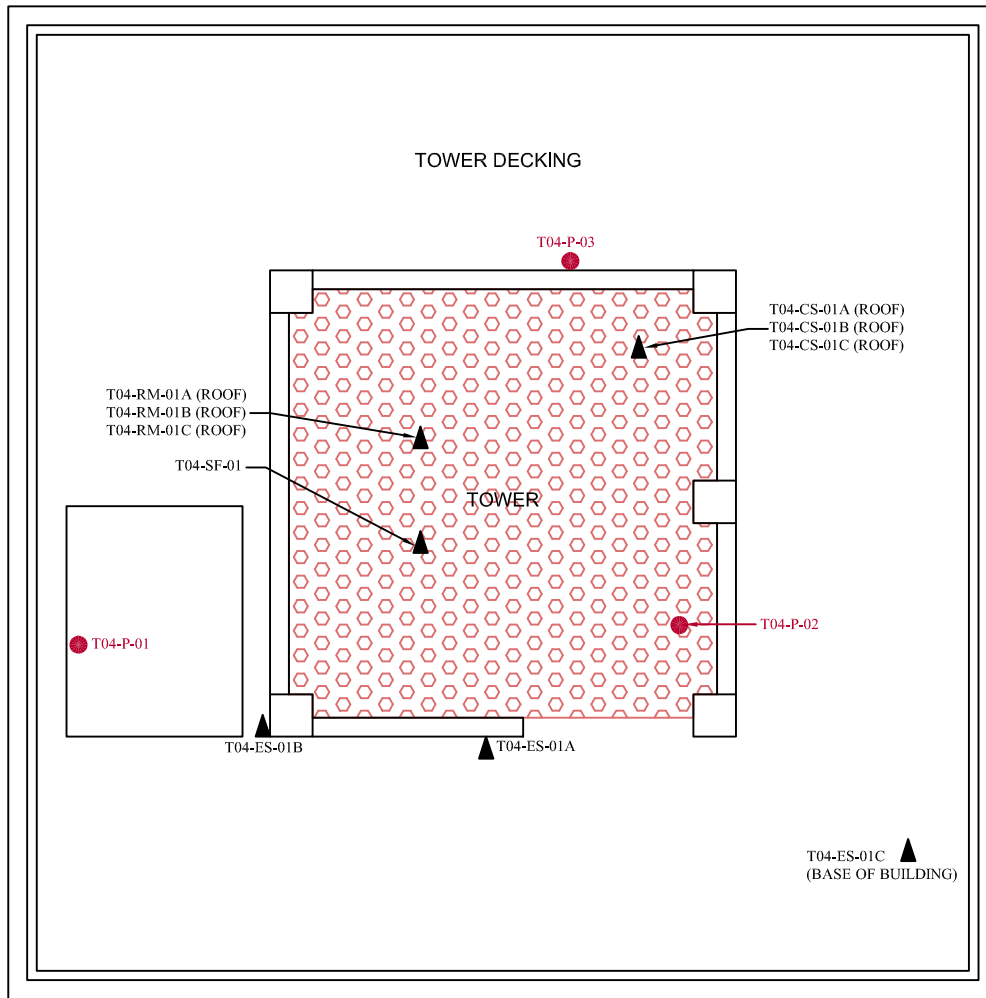
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

### **5.29-7 SILICA**

Silica is expected to be present in concrete observed at the base of the tower.

### **5.29-8 RECOMMENDATIONS**

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



### FIRST FLOOR TOWER 04 BUILDING

**LEGEND**

- ▲ BULK SAMPLE LOCATION
- PAINT CHIP SAMPLE LOCATION
- ASBESTOS-CONTAINING VINYL SHEET FLOORING

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p><b>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS</b></p> <p>CSC MISSION MEDIUM INSTITUTION 8751 STAVE LAKE STREET, MISSION, BC</p>	Project No.: 123220769	29.1	
	Scale: N.T.S.		
	Date: 17/05/12		
	Dwn. By: CD <small>SL2017050210</small> PK/DM		
Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	App'd By: TW		

Unit T04		
Tower - First Floor		
Rm. #	Name	Area m <sup>2</sup>
01	Tower	6.71

## FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

### GENERAL ROOM INFORMATION

CSC MISSION MEDIUM INSTITUTION  
8751 STAVE LAKE STREET, MISSION, BC

**Client:** PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

**Project No.:** 123220769

**Scale:** N.T.S.

**Date:** 17/03/29

**Dwn. By:** CD SL2017030301  
CS/DM

**App'd By:** TW

**Dwg. No.:**

29.2





# EMSL Canada Inc.

4506 Dawson Street Burnaby, BC V5C 4C1  
 Phone/Fax: 604-757-3158 / (604) 757-4731  
<http://www.EMSL.com> / [vancouverlab@EMSL.com](mailto:vancouverlab@EMSL.com)

EMSL Canada Order 691700072  
 Customer ID: 55JACQ30L  
 Customer PO: 123220769  
 Project ID:

**Attn:** Kim Wiese Phone: (604) 412-3004  
 Stantec Consulting, Ltd. Fax:  
 500 - 4730 Kingsway Collected:  
 Burnaby, BC V5H 0C6 Received: 1/17/2017  
 Analyzed: 1/23/2017

**Proj:** 123220769 / TOWER 04

## Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

**Client Sample ID:** T04-SF-01 **Lab Sample ID:** 691700072-0001

**Sample Description:** INTERIOR FLOOR/TAN SHEET FLOORING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Tan	0.0%	99.3%	0.74% Chrysotile	

**Client Sample ID:** T04-RM-01A **Lab Sample ID:** 691700072-0002

**Sample Description:** SOUTH SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T04-RM-01B **Lab Sample ID:** 691700072-0003

**Sample Description:** SOUTH SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T04-RM-01C **Lab Sample ID:** 691700072-0004

**Sample Description:** SOUTH SIDE OF ROOF/BLACK ROOF MEMBRANE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T04-CS-01A **Lab Sample ID:** 691700072-0005

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T04-CS-01B **Lab Sample ID:** 691700072-0006

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	

**Client Sample ID:** T04-CS-01C **Lab Sample ID:** 691700072-0007

**Sample Description:** NORTH SIDE OF ROOF AROUND CAMERA BASE/BROWN SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700072  
Customer ID: 55JACQ30L  
Customer PO: 123220769  
Project ID:

## Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

**Client Sample ID:** T04-ES-01A **Lab Sample ID:** 691700072-0008  
**Sample Description:** EXTERIOR WEST SIDE OF BUILDING/WHITE SEAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	White	0.0%	100%	None Detected	

**Client Sample ID:** T04-ES-01B **Lab Sample ID:** 691700072-0009  
**Sample Description:** EXTERIOR NORTH SIDE OF BUILDING/WHITE SEAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	White	0.0%	100%	<0.25% Chrysotile	

**Client Sample ID:** T04-ES-01C **Lab Sample ID:** 691700072-0010  
**Sample Description:** EXTERIOR BASE OF BUILDING/WHITE SEAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	1/23/2017	White	0.0%	100%	None Detected	

**Analyst(s):**  
Nicole Yeo PLM Grav. Reduction (10)

**Reviewed and approved by:**   
Nicole Yeo, Laboratory Manager  
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency of the U.S. Government.





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[torontolab@emsl.com](mailto:torontolab@emsl.com)

EMSL Canada Or	551700397
CustomerID:	55JACQ30L
CustomerPO:	123220769
ProjectID:	

Attn: **Kim Wiese**  
**Stantec Consulting, Ltd.**  
**500 - 4730 Kingsway**  
**Burnaby, BC V5H 0C6**

Phone: (604) 412-3004  
 Fax:  
 Received: 01/13/17 10:27 AM  
 Collected:

Project: 123220769 T04

**Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
T04-P-01 Site: Exterior stairwell Desc: Orange	551700397-0001	1/18/2017		48000 ppm
T04-P-02 Site: Exterior door and frame Desc: Brown	551700397-0002	1/18/2017		39000 ppm
T04-P-03 Site: Exterior east wall Desc: Grey	551700397-0003	1/18/2017		<90 ppm

Rowena Fanto, Lead Supervisor  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 01/20/2017 08:43:09

**APPENDIX B**  
**PRE-CONSTRUCTION HAZARD ASSESSMENT FORM**



### PSPC PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	R.097977.001
Location:	Mission, British Columbia
Date:	16-07-2018
Work Place:	Mission Medium Institution

Site Specific Orientation Provided at Project Location  Yes

Notice of Project Required  Yes

**NOTE:**

**PWGSC REQUIRES A Notice of Project FOR ALL CONSTRUCTION WORK RELATED ACTIVITIES**

**NOTE:**

OHS law is made up of many municipal, provincial, and federal acts, regulations, bylaws and codes. There are also many other pieces of legislation in British Columbia that impose OHS obligations.

**Important Notice: This hazard assessment has been prepared by PSPC for its own project planning process, and to inform the service provider of actual and potential hazards that may be encountered in performance of the work. PSPC does not warrant the completeness or adequacy of this hazard assessment for the project and the paramount responsibility for project hazard assessment rests with the service provider.**

TYPES OF HAZARDS TO CONSIDER	Potential Risk for:				COMMENTS
	PSPC, OGD's, or tenants		General Public or other contractors		
	Yes	No	Yes	No	
Examples: Chemical, Biological, Natural, Physical, and Ergonomic  Listed below are common construction related hazards. Your project may include pre-existing hazards that are not listed. Contact the Regional Construction Safety Coordinator for assistance should this issue arise.					Note: When thinking about this pre-construction hazard assessment, remember a <b>hazard</b> is anything that may cause harm, such as chemicals, electricity, working from heights, etc; the <b>risk</b> is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.

Typical Construction Hazards					
Hazard	Yes	No	Yes	No	
Concealed/Buried Services (electrical, gas, water, sewer etc)	yes				
Slip Hazards or Unsound Footing	yes				
Working at Heights	yes				
Working Over or Around Water		no			
Heavy overhead lifting operations, mobile cranes etc.	yes				
Marine and/or Vehicular Traffic (site vehicles, public vehicles, etc.	yes				
Fire and Explosion Hazards		no			
High Noise Levels	yes				
Excavations		no			
Blasting		no			



Construction Equipment	yes				
Pedestrian Traffic (site personnel, tenants, visitors, public)	yes				
Multiple Employer Worksite	YES				Contractor working in an occupied Federal Employee work place.

<b>Electrical Hazards</b>					<b>Comments</b>
Contact With Overhead Wires		no			
Live Electrical Systems or Equipment	yes				
<b>Other:</b>					
<b>Physical Hazards</b>					
Equipment Slippage Due To Slopes/Ground Conditions		no			
Earthquake	yes				
Tsunami		no			
Avalanche		no			
Forest Fires	yes				
Fire and Explosion Hazards		no			
Working in Isolation		no			
Working Alone		no			
Violence in the Workplace	yes				
High Noise Levels	yes				
Inclement weather	yes				
High Pressure Systems		no			
<b>Other:</b>					
<b>Hazardous Work Environments</b>					
Confined Spaces / Restricted Spaces PSPC employees do not enter confined space.	n/a	n/a			If available, provide the contractor with the existing confined space assessment(s) for information only. Contractor must perform their own confined space assessment as per provincial regulations.
Suspended / Mobile Work Platforms		no			
<b>Other:</b>					
<b>Biological Hazards</b>					
Mould Proliferations		no			
Accumulation of Bird or Bat Guano	TBD				
Bacteria / Legionella in Cooling Towers / Process Water		no			
Rodent / Insect Infestation	TBD				
Poisonous Plants		no			
Sharp or Potentially Infectious Objects in Wastes	yes				
Wildlife	yes				
<b>Chemical Hazards</b>					
Asbestos Materials on Site	yes				See Appendix A
Designated Substance Present		no			
Chemicals Used in work		no			



Lead in paint	yes				See Appendix A
Mercury in Thermostats or Switches	n/a	n/a			
Application of Chemicals or Pesticides		no			
PCB Liquids in Electrical Equipment		no			
Radioactive Materials in Equipment		no			
<b>Other:</b>					
<b>Contaminated Sites Hazards</b>					
Hazardous Waste		no			
Hydrocarbons		no			
Metals		no			
Other:		no			

<b>Security Hazards</b>					<b>Comments</b>
Risk of Assault	yes				None reported
<b>Other:</b>					
<b>Other Hazards</b>					

<b>Other Compliance and Permit Requirements<sup>1</sup></b>	<b>YES</b>	<b>NO</b>	<b>Notes / Comments<sup>2</sup></b>
Is a Building Permit required?			
Is an Electrical permit required?			
Is a Plumbing Permit required?			
Is a Sewage Permit required?			
Is a Dumping Permit required?			
Is a Hot Work Permit required?			
Is a Permit to Work required?			Mandatory for ALL AFD managed work sites.
Is a Confined Space Entry Permit required?			Mandatory
Is a Confined Space Entry Log required			Mandatory
Discharge Approval for treated water required			

**Notes:**

- (1) Does not relieve Service Provider from complying with all applicable federal, provincial, and municipal laws and regulations.
- (2) TBD means To Be Determined by Service Provider.

<b>Service Provider Acknowledgement: We confirm receipt and review of this Pre-Project Hazard Assessment and acknowledge our responsibility for conducting our own assessment of project hazards, and taking all necessary protective measures (which may exceed those cited herein) for performance of the work.</b>			
<b>Service Provider Name</b>			
<b>Signatory for Service Provider</b>		<b>Date Signed</b>	
<b>RETURN EXECUTED DOCUMENT TO PSPC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING</b>			