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Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises lead based paint (LBP) abatement and soil remediation at the Camp Robin Hood (CRH) Facility Rouge National Urban Park near Toronto, Ontario, Canada.

1.2 PROJECT DESCRIPTION

.1 SITE DESCRIPTION

- .1 The project site is CRH at the Rouge National Urban Park, owned by Parks Canada Agency (PCA), near Toronto, Ontario. The property is occupied with approximately 30 buildings used for the summer day camp (including two that are listed on the City of Markham's Register of Property of Cultural Heritage Value or Interest), a barn, a main office building and approximately fifty day-use huts and structures used for various purposes.
 - .1 The two heritage houses are the Baseball Office and the Owner's Residence.
- .2 Recreational facilities on the property include three pools varying in size from 400 square meters to 100 square meters, four baseball diamonds, three basketball courts and three tennis courts. A pond, approximately 2,000 square meters in size, is present in south west corner of CRH. The CRH property is bisected by an access road leading from Reesor Road leading to a small forest present near the back of the property. CRH also uses a forest located to the east for overnight camping.
- .3 Lead based paint (LBP) has been identified on 10 structures and requires abatement.
- .4 Lead impacted soil has been identified around four buildings and requires remediation. The locations of the lead impacted soil are:
 - .1 Baseball Office
 - .2 Program Building
 - .3 Owner's Residence
 - .4 Photography Centre /Coach's Corner

.2 REMEDIATION

- .1 LBP Abatement:
 - .1 One of the four identified remediation processes listed below will be applied to the 1,525 square meters of LBP surface areas on the identified structures.
 - .1 The complete removal/disposal and replacement (in kind) of all LBP covered substrates.
 - .2 The complete removal/disposal of LBP from the substrates, typically accomplished by hand scraping, wet sanding and/or application of paint removers and the supply and install of new paint.

- .1 The heritage houses shall be abated using a peel-away lead paint removal system (application of an “eco-friendly” chemical gel/paste). Refer to the Statement of Cultural Resource Impact Analysis.
 - .3 The supply and mechanical attachment of a rigid, durable barrier to the building components having LBP. Typical materials used are vinyl or aluminum siding, fibreboard, wood products and cementitious materials.
 - .4 The supply and application of a durable liquid coating or reinforced coating (lead barrier compound (LBC)) to prevent contact of LBP dust/chips with the environment.
- .2 Soil Remediation:
 - .1 The calculated volume of impacted soil to be excavated is approximately 20.1 m³. Additional soil may need to be removed incidental to performing the remedial work or based on sampling results after the target excavation depths have been reached.
 - .2 The applicable remediation targets is 140 ug/g for lead in soil, based on dry weight.
 - .3 The reinstatement of the excavations with topsoil and sod is to be completed by others.
- .3 SITE ACCESS
 - .1 Access to the site is provided by municipal roads.
- .4 WORKING AREAS / VEGETATION CLEARANCE
 - .1 Limit working areas to those identified.
 - .2 No clearing of vegetation will be permitted.
- .5 ENVIRONMENTAL MONITORING
 - .1 Departmental Representative will collect soil samples from the extents of the excavation once the target excavation depths and lateral limits have been reached. Additional excavation may be required if the soil concentrations are measured above established thresholds.

1.3 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site until Substantial Performance, subject to applicable protocols and regulations.
 - .1 Site operations may be present during work. Site operations take precedence over work in this Contract; however, all reasonable allowances will be made for work in this Contract to be completed without interference from site operations.
- .2 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .3 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

- .4 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, to approval of Departmental Representative.
 - .1 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.4 EXISTING SERVICES

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, provide Departmental Representative 48 hours' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and other affected parties.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .4 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including access, power and communications services minimum of 5 days prior to shut-down or closure. Adhere to approved schedule and provide notice to affected parties.
- .5 Provide temporary services to maintain critical systems.
- .6 Provide adequate bridging over trenches to permit vehicular traffic.
- .7 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .8 Protect, relocate and/or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .9 Record locations of maintained, re-routed and abandoned service lines.
- .10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy of each document as follows:
 - .1 Latest Revision of Remedial Action Plan (RAP)
 - .2 Contract Drawings.
 - .3 Specifications.
 - .4 Addenda.
 - .5 Reviewed Shop Drawings.
 - .6 List of Outstanding Shop Drawings.
 - .7 Change Orders.

- .8 Other Modifications to Contract.
- .9 Field Test Reports.
- .10 Copy of Approved Work Schedule.
- .11 Health and Safety Plan and Other Safety Related Documents.
- .12 Ministry of Labour Notice/Permit and Registration of Contractors/Employers on-site.
- .13 Other documents as specified.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Maintain access to adjacent properties.
- .3 Comply with posted restrictions. Acquire and submit to Departmental Representative copies of all necessary permits.

1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Carry out noise generating work Monday to Friday from 7 am to 6 pm.
- .3 Maintain existing services to provide for personnel and vehicle access.
- .4 Submit traffic control plan within 5 days after award of Contract.
 - .1 Traffic control as per Ontario Traffic Manual, Book 7, January 2014.
- .5 Where security is reduced by work provide temporary means to maintain security.
 - .1 Submit security plan within 5 days after award of Contract.
- .6 Contractor will provide sanitary facilities for use by Contractor's personnel and Departmental Representative and will be required to keep facilities clean.
- .7 Closures: protect work temporarily until permanent enclosures are completed.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS

- .1 Execute work with least possible interference or disturbance to public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.
- .2 Any work on the heritage buildings (siding repair, paint removal, repainting, etc.) shall be performed in accordance with the Standards and Guidelines for the Conservation of Historic Places in Canada.
 - .1 In particular, care shall be taken to not damage the wood siding of the heritage buildings during the paint removal process.
 - .2 If any portion of the heritage buildings requires replacement, stop work immediately on that portion of the work. Notify Departmental Representative.
 - .1 Siding replacement shall be limited to wood elements that are in poor condition and too deteriorated to withstand paint removal.
 - .1 Retain heritage Departmental Representative for directions on replacement.

- .1 These elements are to be replaced in kind as per the Statement of Cultural Resource Impact Analysis.

1.4 EXISTING SERVICES

- .1 Coordinate with the operators of CRH to obtain underground utility clearances in all soil remediation work areas.
- .2 Notify, Departmental Representative and utility companies of any intended interruption of services and obtain required permission.
- .3 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .4 Provide for personnel, pedestrian and vehicular traffic.
- .5 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 SPECIAL REQUIREMENTS

- .1 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules – Bar (GANTT) Chart.
- .2 Ensure that Contractor personnel employed on-site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.
- .4 Protect on-site pond from siltation while working in proximity.
- .5 Follow half-load restrictions on public roads.

1.6 SECURITY CLEARANCES

- .1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.
- .2 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

1.7 SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. Smoking is allowed only in designated areas.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 02 61 00.01 – Soil Remediation.
- .2 Section 02 83 10 – Lead - Base Paint Abatement - Minimum Precautions.

1.2 Mobilization

- .1 Mobilization will be measured for payment as lump sum.
 - .1 Payment will be made after all equipment necessary to complete the work is located on site.

1.3 LBP ABATEMENT

- .1 LBP abatement will be measured for payment by Departmental Representative in square metres in their original location.

1.4 SOIL REMEDIATION

- .1 Excavated soil will be measured for payment by Departmental Representative in cubic metres in their original location as defined on drawings.
 - .1 Common excavation quantities measured for payment will be actual volume removed within following limits:
 - .1 Width for excavation as measured.
 - .2 Depth from adjacent ground elevation immediately prior to excavation, to depth as measured.
- .2 Soil excavated for removal below depths and outside limits indicated, as directed by Departmental Representative, will be paid in accordance with the unit prices established for soil remediation work.
- .3 Rock or obstruction will be measured for payment based on actual time and materials used and will addressed as a change order in accordance with the Contract.
- .4 All of the following activities will not be measured separately for payment and are otherwise considered incidental to the Work:
 - .1 All operations and materials in connection with backfilling, sodding and reinstatement of excavated areas.
 - .2 Management, loading, weighing, hauling and unloading of excavated contaminated soil to landfill.
 - .3 Design, supply, installation, maintenance and removal of shoring, bracing, cofferdams and underpinning.
 - .4 Delays incurred during periods when no excavating is permitted.
 - .5 Mobilization and demobilization of equipment.

1.5 DEMOBILIZATION

- .1 Demobilization will be measured for payment as lump sum.
 - .1 Payment will be made after all equipment necessary to complete the work is located off site.

1.6 OTHER ITEMS NOT MEASURED FOR PAYMENT

- .1 No separate payment will be made for items in Section 01 11 00 – Summary of Work.
- .2 No separate payment will be made for items in Section 01 14 00 – Work Restrictions.
- .3 No separate payment will be made for items in Section 01 31 19 – Project Meetings.
- .4 No separate payment will be made for items in Section 01 32 16.07 – Construction Progress Schedule – Bar (GANTT) Chart.
- .5 No separate payment will be made for items in Section 01 33 00 – Submittals.
- .6 No separate payment will be made for items in Section 01 35 13.43 – Special Project Procedures for Contaminated Sites.
- .7 No separate payment will be made for items in Section 01 35 29.14 – Health and Safety for Contaminated Sites.
- .8 No separate payment will be made for items in Section 01 35 43 – Environmental Procedures.
- .9 No separate payment will be made for items in Section 01 45 00 – Quality Control.
- .10 No separate payment will be made for items in Section 01 51 00 – Temporary Utilities.
- .11 No separate payment will be made for items in Section 01 52 00 – Construction Facilities.
- .12 No separate payment will be made for items in Section 01 56 00 – Temporary Barriers and Enclosures.
- .13 No separate payment will be made for items in Section 01 71 00 – Examination and Preparation.
- .14 No separate payment will be made for items in Section 01 74 11 – Cleaning.
- .15 No separate payment will be made for other items in Section 02 61 00.01 – Soil Remediation.
- .16 No separate payment will be made for other items in Section 02 83 10 – Lead – Base Paint Abatement – Minimum Precautions.
- .17 No separate payment will be made for other items in Section 02 83 11 – Lead – Base Paint Abatement – Intermediate Precautions.

- .18 No separate payment will be made for other items in Section 02 83 12 – Lead – Base Paint Abatement – Maximum Precautions.
- .19 No separate payment will be made for any items or activities not specifically listed in this Section.
 - .1 These items will not be measured separately for payment and are otherwise considered incidental to the Work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting 2 days in advance of meeting date to Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within 3 days after meetings and transmit to meeting participants and, affected parties not in attendance.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 2 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Health and safety in accordance with Section 01 35 29.14 – Health and Safety for Contaminated Sites.
 - .3 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .4 Schedule of submission of shop drawings, samples, colour chips.
 - .5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

- .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .8 Owner provided products.
- .9 Record drawings and photographs in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Maintenance manuals.
- .11 Take-over procedures, acceptance, warranties.
- .12 Monthly progress claims, administrative procedures, photographs, hold backs.
- .13 Appointment of inspection and testing agencies or firms.
- .14 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

- .1 During course of Work schedule progress meetings at the call of Departmental Representative.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Notify parties minimum 2 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Health and Safety issues, including incidents, near misses and corrective measures.
 - .4 Environmental compliance and impact due to changes in weather, site conditions or other requirements.
 - .5 Field observations, problems, conflicts.
 - .6 Problems which impede construction schedule.
 - .7 Review of off-site fabrication delivery schedules.
 - .8 Corrective measures and procedures to regain projected schedule.
 - .9 Revision to construction schedule.
 - .10 Progress schedule, during succeeding work period.
 - .11 Review submittal schedules: expedite as required.
 - .12 Maintenance of quality standards.
 - .13 Review proposed changes for effect on construction schedule and on completion date.
 - .14 Review of budget issues.
 - .15 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Consultant: the Consultant is the person or entity identified as such in the Agreement. The Consultant is the Architect, the Engineer, or entity licensed to practice in the province or territory of the Place of the Work.
- .6 Contractor: the Contractor is the person or entity identified as such in the Agreement. The term Contractor means the Contractor or the Contractor's authorized representative as designated to the Owner in writing.
- .7 Departmental Representative: the Departmental Representative is the person or entity identified as such in the Agreement. The term Departmental Representative means the Departmental Representative or the Departmental Representative's authorized agent or representative as designated to the Contractor in writing, but does not include the Consultant.
- .8 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .9 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .10 Milestone: significant event in project, usually completion of major deliverable.
- .11 Owner: the Owner is the person or entity identified as such in the Agreement. The term Owner means the Owner or the Owner's authorized agent or representative as designated to the Contractor in writing, but does not include the Consultant.
- .12 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

- .13 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.
- .14 RAP: Remedial Action Plan, prepared by Golder Associates Ltd., most recent version.
- .15 SCRIA: Statement of Cultural Resource Impact Analysis, dated June 1, 2018.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Submit to Departmental Representative within 5 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
 - .1 LBP abatement completed within 30 working days of Award of Contract date.
 - .2 Soil remediation completed within 30 working days of Award of Contract date.
 - .1 LBP abatement to be completed at each building requiring soil remediation, prior to commencing soil remediation work.
 - .3 Interim Certificate (Substantial Completion) within 30 working days of Award of Contract date.

1.5 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.

- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as a minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Submittals.
 - .3 Mobilization.
 - .4 LBP abatement.
 - .1 Provide a breakdown including duration for each building.
 - .5 Soil remediation.
 - .1 Provide a breakdown including duration for each building.
 - .6 Supplied equipment long delivery items.

1.7 PROJECT SCHEDULE REPORTING

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

1.8 PROJECT MEETINGS

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

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 02 61 00.01 - Soil Remediation.
- .2 Section 02 83 10 – Lead - Base Paint Abatement - Minimum Precautions.
- .3 Section 02 83 11 – Lead - Base Paint Abatement - Intermediate Precautions.
- .4 Section 02 83 12 – Lead - Base Paint Abatement - Maximum Precautions.

1.2 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until submittal is approved.
- .3 Present shop drawings, submittals and product data in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals 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. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and 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 co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .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.

1.3 SHOP DRAWINGS, SUBMITTALS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

- .2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 5 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings or submittals by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings and submittals as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, submittal and product data.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Single line and schematic diagrams.

- .9 Relationship to adjacent work.
- .6 Information listed in applicable specification Sections, as indicated.
- .9 After Departmental Representative review, distribute copies.
- .10 Submit electronic copy of shop drawings and submittals for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of award of Contract for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of Contract complete with project name.
- .14 Submit electronic copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.4 AS-BUILT DRAWINGS AND SPECIFICATIONS

- .1 As work progresses, neatly record significant deviations from the Contract drawings and specifications using fine, red marker on full size white prints and specifications. Make the same changes on the electronic files.
- .2 Neatly print lettering and numbers in size to match original. Lines may be drawn free-hand but shall be neat and accurate. Add at each title block note: "AS BUILT". Circle on Table of Contents each title and number of drawing marked with "AS-BUILT" information. Circle on Table of Contents each specification section number and title of specification sections marked with "AS-BUILT" information.
- .3 Departmental Representative will provide one electronic set of drawings, schedules, and specifications for as-built drawing and specification purposes.
- .4 Record following significant deviations:
 - .1 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
 - .2 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - .3 Field changes of dimension.
 - .4 Other significant deviations which are concealed in construction and cannot be identified by visual inspection.
 - .5 Alternative materials and systems installed replacing original materials and systems specified by trade name.
- .5 Submit one paper copy and one electronic copy, of AS-BUILT drawings and specifications to Departmental Representative upon completion of Work.

1.5 CONSTRUCTION PHOTOGRAPHS

- .1 Submit electronic copy of colour digital photography in jpg format, standard resolution upon completion of Work.
- .2 Identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints and location of viewpoints determined by Departmental Representative.
- .4 Frequency:
 - .1 Before the site construction commences.
 - .2 At completion of excavation for soil remediation, before any reinstatement.
 - .3 At final reinstatement.

1.6 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

1.7 LIST OF SUBMITTALS

- .1 The following table provides a list of the required submittals, the timeframe for submission and the applicable specification Section.

Submittal	Timeframe for Submission	Section Number
Schedule for shut-down or closure of active service or facility.	Minimum 5 days prior to shut-down or closure.	01 11 00
Traffic Control Plan.	Within 5 days of award of Contract.	01 14 00
Contamination and Emissions Control Plan	Within 5 days of award of contract	01 35 43
Security Plan.	Within 5 days of award of Contract.	01 14 00
Master Plan.	Within 5 days of award of Contract.	01 32 16.07
Detailed Construction Schedule.	Within 5 working days of receipt of acceptance of Master Plan.	01 32 16.07
Detailed Construction Budget	Within 5 days of award of Contract.	-
As-Built Drawings and Specifications.	Upon completion of work.	01 33 00 01 78 00
Construction Photographs	Upon completion of work.	01 33 00 01 78 00
Workers' Compensation Board Status	Within 30 days of award of Contract	01 33 00
Transcription of Insurance	Within 30 days of award of Contract	01 33 00
Plan Detailing Management of Hazardous Wastes including <ul style="list-style-type: none"> • Proof of acceptance of expected volume of lead impacted soil at a MOECC licensed landfill • Name of one or more MOECC-licensed waste haulers for the lead-impacted soil 	Two weeks prior to start of work.	01 35 13.43

Submittals for Progress Meetings.	At least 2 days prior to progress meetings.	01 35 13.43
Site Layout.	Within 5 days after award of Contract.	01 35 13.43
Equipment Decontamination Pad.	Prior to commencing construction.	01 35 13.43
Health and Safety Plan.	Within 5 days after award of Contract.	01 35 29.14
Records of Contractor's Health and Safety Meetings.	Upon request.	01 35 29.14
Contractor's authorized representative's work site health and safety inspection reports.	Daily.	01 35 29.14
Orders, directions or reports issued by health and safety inspectors.	As applicable.	01 35 29.14
Incident and Accident Reports.	As applicable.	01 35 29.14
Safety Data Sheets.	As applicable.	01 35 29.14
Environmental Protection Plan.	Prior to commencing construction activities or delivery of materials to site.	01 35 43
Inspection and Test Reports.	As applicable.	01 45 00
Test Results and Mix Designs.	As requested.	01 45 00
Adjustment and balancing reports for mechanical and electrical systems.	As applicable.	01 45 00
Field drawings to indicate relative position of various services and equipment.	As requested.	01 71 00
Name and address of Surveyor.	Prior to commencing construction activities or delivery of materials to site.	01 71 00
Documentation to verify accuracy of field engineering work.	As requested.	01 71 00
Certificate signed by surveyor of completed work.	Upon completion of work.	01 71 00

Contractor's daily log of site activities.	Upon completion of work.	01 78 00
Detailed Work Plan.	Within 5 days of award of Contract.	02 61 00.01
Closeout Submittals: <ul style="list-style-type: none"> • Weigh scale tickets. • Summary Report. 	Upon completion of work.	02 61 00.01 01 78 00
Records of Underground Utility Locates.	Prior to commencement of work.	02 61 00.01
Proof of Arrangements to Dispose of Lead Based Paint Waste.	Prior to commencement of contaminated work.	02 83 10 02 83 11 02 83 12
Proof of Contractor's General and Environmental Liability Insurance.	Within 30 days of award of Contract	02 83 10 02 83 11 02 83 12
Permits for Transportation and Disposal of lead Based Paint Waste.	Prior to commencement of contaminated work.	02 83 10 02 83 11 02 83 12
Proof that Lead Based Paint Waste has been received and properly disposed of.	Within 5 days of receipt of waste at end destination.	02 83 10 02 83 11 02 83 12
Proof of Contractor employees lead awareness training.	Prior to commencement of contaminated work.	02 83 10 02 83 11 02 83 12
Proof that supervisory personnel have attended lead abatement course, of not less than two days duration.	Prior to commencement of contaminated work.	02 83 11 02 83 12
Notice of Project Form.	Prior to commencement of work.	02 83 11 02 83 12
Product Data: <ol style="list-style-type: none"> .1 "Eco-friendly" chemical peeling agents. .2 Encapsulants. .3 Amended water. .4 Slow drying sealer. 	Prior to commencement of work.	02 83 10 02 83 11 02 83 12
Test area.	Prior to commencement of work.	02 83 10

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Transportation and Dangerous Goods Act (1999).
- .2 CCME (Canadian Council of Ministers of the Environment) Contaminated Sites, Contaminated Soil and Groundwater, and Remediation of Contaminated Sites most current publications.
 - .1 Canadian Environmental Quality Guidelines, Canadian Council of Ministers of the Environment, 1999, updated 2001, 2002, 2003, 2004, 2005, 2006 and 2007.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittals.
- .2 Submit, prior to start of work, plan detailing management of hazardous wastes including name of licensed hauler and proof of acceptance at licensed landfill.
- .3 Submittals for Progress Meetings: make submittals at least 2 days prior to scheduled progress meetings as follows:
 - .1 Updated progress schedule detailing activities. Include review of progress with respect to previously established dates for starting and stopping various stages of Work, major problems and action taken, injury reports, equipment breakdown, and material removal.
 - .2 Copies of representative toxicity characteristic leaching procedure (TCLP) soil sample assessment results. The TCLP results in Appendix of the Remedial Action Plan shall be used.
 - .1 If the TCLP results are not acceptable to the selected licensed landfill site, the Contractor is to supplement with additional, representative, TCLP soil sampling and analysis results, as required.
 - .3 Copies of transport manifests, trip tickets and disposal receipts for waste materials removed from work area.
 - .4 Other information required by Departmental Representative or relevant to agenda for upcoming progress meeting.
- .4 Complete the Risk and Remediation (R/RM) Construction checklist included in Appendix 1 and following the completion of the work submit a copy of the completed R/RM checklist to the Departmental Representative.
- .5 Site Layout: within 5 days after date of Award of Contract and prior to mobilization to site, submit site layout drawings showing existing conditions and facilities, construction facilities and temporary controls provided by Contractor including following:
 - .1 Means of ingress and egress.
 - .1 Truck and vehicle routes, entrances, and exits to the Site are to be identified and documented prior to initiation of construction work on-Site
 - .2 Equipment and material staging areas.

- .3 Roll-off container areas. Locations shall be placed away from areas accessible to or frequented by the public and away from other environmentally sensitive areas.
- .4 Exclusion Zones, Contaminant Reduction Zones, and other zones specified in Contractor's site-specific Health and Safety Plan.
- .5 Grading, including contours, required to construct temporary facilities.
- .6 Equipment Decontamination Pad: submit equipment decontamination pad design to Departmental Representative for review prior to commencing construction.

1.3 REGULATORY REQUIREMENTS

- .1 Provide erosion and sediment control up slope from the pond and in accordance with federal, provincial, and local regulations.
- .2 Comply with federal, provincial, and local anti-pollution laws, ordinances, codes, and regulations when disposing of waste materials, debris, and rubbish.
- .3 Work to meet or exceed minimum requirements established by federal, provincial, and local laws and regulations which are applicable.
 - .1 Contractor: responsible for complying with amendments as they become effective.
- .4 In event that compliance exceeds scope of work or conflicts with specific requirements of contract notify Departmental Representative immediately.

1.4 SEQUENCING AND SCHEDULING

- .1 Do not commence Work involving contact with potentially contaminated materials until decontamination facilities are operational and approved by Departmental Representative.

1.5 EQUIPMENT DECONTAMINATION FACILITY

- .1 Prior to commencing work involving equipment contact with potentially contaminated materials, construct equipment decontamination pad to accommodate largest piece of on-site, potentially contaminated equipment.
- .2 Provide, operate and maintain suitable portable, high-pressure, low-volume decontamination wash units, each equipped with a self-contained water storage tank and pressurizing system and each capable of heating and maintaining wash waters to 80 degrees C and providing nozzle pressure of 1,035 kpa.
- .3 Provide, operate, and maintain the necessary equipment, pumps, and piping required to collect and contain equipment decontamination wastewater and sediment and transfer materials to approved storage facilities.

1.6 WASTEWATER STORAGE TANK

- .1 Provide, operate, and maintain wastewater storage tanks to store wastewaters.
- .2 Wastewater includes water collected from Equipment Decontamination Facility.
- .3 Discharges: comply with applicable discharge limitations and requirements; do not discharge to site sewer systems wastewaters that do not conform to, or are in violation of,

such limitations or requirements; obtain Departmental Representative's approval prior to discharge of wastewater.

- .4 Provide pumps and piping to convey collected wastewaters to designated wastewater storage tanks; provide wastewater storage tanks with minimum total live capacity such that effluent quality can be analyzed and approved prior to discharge.
- .5 Install wastewater storage tanks in locations as directed by Departmental Representative.
- .6 Support tanks on temporary aboveground foundations.
- .7 Connect pumps, piping, valves, miscellaneous items, and necessary utilities as required for operation of facilities; and protect tanks, valves, pumps, piping, and miscellaneous items from freezing.
- .8 Do not operate wastewater storage tanks until inspected and approved by Departmental Representative.
- .9 Notify Departmental Representative 72 hours minimum in advance of when wastewater storage tank is anticipated to be full.
 - .1 Do not discharge additional liquids to filled tank following sampling by Contractor.
 - .2 Departmental Representative will determine appropriate disposition of wastewaters based on sample analysis.
- .10 Transport and dispose of wastewaters at off-site disposal facility as identified by Contractor and approved by Departmental Representative.

1.7 CONTAMINATED SOIL STORAGE FACILITIES

- .1 Provide, maintain, and operate temporary storage facilities as required. Store soil in roll-off containers on-Site until each area is confirmed remediated by the Departmental Representative, to prevent erosion, transport, and leaching.
- .2 Identify potential container locations before construction work begins. Container locations shall be placed away from areas accessible to or frequented by the public, site users and owners and away from other environmentally sensitive areas.

1.8 DUST AND PARTICULATE CONTROL

- .1 Execute Work by methods to minimize raising dust from construction operations.
- .2 Implement and maintain dust and particulate control measures as determined necessary by Departmental Representative during construction and in accordance with Province of Ontario regulations.
- .3 Provide positive means to prevent airborne dust from dispersing into atmosphere. Use potable water for water misting system for dust and particulate control.
- .4 Use chemical means for water misting system for dust and particulate control only with Departmental Representative's prior written approval.

- .5 As minimum, use appropriate covers on trucks hauling fine or dusty soil. Use watertight vehicles to haul wet soil.
- .6 Prevent dust from spreading to adjacent property sites.
- .7 Departmental Representative will stop work at any time when Contractor's control of dusts and particulates is inadequate for wind conditions present at site, or when air quality monitoring indicates that release of fugitive dusts and particulates into atmosphere equals or exceeds specified levels.
- .8 If Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, stop work. Contractor must discuss procedures that Contractor proposes to resolve problem. Make necessary changes to operations prior to resuming excavation, handling, processing, or other work that may cause release of dusts or particulates.

1.9 POLLUTION CONTROL

- .1 Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious toxic substances and pollutants produced by construction operations.
- .2 Protect the pond from sedimentation when working in proximity and until the excavation has been closed.
- .3 Be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water. Maintain materials and equipment required for cleanup of spills or releases readily accessible on-site.
- .4 Promptly report spills and releases potentially causing damage to environment in accordance with Environmental Protection Plan and applicable regulations to:
 - .1 Authority having jurisdiction or interest in spill or release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
 - .1 Ontario Ministry of Environment Spills Action Centre must be notified by law at 1-800-268-6060.
 - .2 Owner of pollutant, if known.
 - .3 Person having control over pollutant, if known.
 - .4 Departmental Representative.
- .5 Contact manufacturer of pollutant if known and ascertain hazards involved, precautions required, and measures used in cleanup or mitigating action.
- .6 Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release.
- .7 Provide spill response materials including, containers, adsorbent, shovels, and personal protective equipment. Make spill response materials available at all times in which hazardous materials or wastes are being handled or transported. Spill response materials: compatible with type of material being handled.

1.10 EQUIPMENT DECONTAMINATION

- .1 Decontaminate equipment prior to arriving at site to initiate work. Ensure equipment is free of contaminants and invasive species.
- .2 Decontaminate equipment after working in potentially contaminated work areas and prior to subsequent work or travel on clean areas.
- .3 At minimum, perform following steps during equipment decontamination:
 - .1 Mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water to reduce amount of water needed and to reduce amount of contaminated rinsate generated. Use high-pressure, low-volume, hot water or steam supplemented by detergents or solvents as appropriate and as approved by Departmental Representative. Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages. Scrub surfaces with long handle scrub brushes and cleaning agent. Rinse off and collect cleaning agent. Air dry equipment in Clean Zone before removing from site or travelling on clean areas. Perform assessment as directed by Departmental Representative to determine effectiveness of decontamination.
 - .2 Wash excavator bucket at end of day and after excavation is complete at each building.
 - .1 Wash over roll-off containers to ensure all contaminated soil is captured in roll-off containers.
- .4 Roll-off containers to be equipped with a cover for use on-Site for soil storage and for use during transportation.
- .5 Each piece of equipment may be inspected by Departmental Representative after decontamination and prior to removal from site and/or travel on clean areas. Departmental Representative will have right to require additional decontamination to be completed if deemed necessary.
- .6 Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.
- .7 Collect decontamination wastewaters and sediments which accumulate on equipment decontamination pad. Transfer wastewaters to designated wastewater storage tank.
- .8 Transfer sediments to roll-off containers.
- .9 Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.
- .10 Have on hand sufficient pumping equipment, of adequate pumping capacity and associated machinery and piping in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment. Maintain piping and connections in good condition and leak-free.

1.11 WATER CONTROL

- .1 Maintain excavations free of water.

- .2 The groundwater at the Site is expected to be below the bases of the excavation areas, as such, no groundwater management would be expected during the remedial excavation.
- .3 Prevent surface water runoff from leaving work areas. During all stages of remediation and site construction, employ erosion and sediment control measures to limit the amount of impacted runoff escaping from the Site. The contractor should take all necessary steps to control and prevent any degradation of storm water runoff from the Site. These measures may include the use of suitable geotextile within catch basins for filtration, placement of tarps over exposed soil stockpiles and placement of silt fences around the work area. Consideration shall be given to storm water runoff management for after work periods and on weekends.
- .4 Do not discharge surface water runoff, or groundwater which may have come in contact with potentially contaminated material, off site or to municipal sewers.
- .5 Collect and dispose of wastewater from sanitary facilities off-site.
- .6 Prevent precipitation from infiltrating or from directly running off stockpiled soil materials. Cover stockpiled soil materials with an impermeable liner during periods of work stoppage including at end of each working day and as directed by Departmental Representative.
- .7 Direct surface waters that have not contacted potentially contaminated soil to existing surface drainage systems.
- .8 Control surface drainage including ensuring that gutters are kept open, water is not directed across or over pavements or sidewalks except through approved pipes or properly constructed troughs, and runoff from unstabilized areas is intercepted and diverted to suitable outlet.
- .9 Dispose of water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction.
- .10 Provide, operate, and maintain necessary equipment appropriately sized to keep excavations, staging pads, and other work areas free from water.

1.12 PROGRESS CLEANING

- .1 Maintain cleanliness of Work and surrounding site to comply with federal, provincial, and local fire and safety laws, ordinances, codes, and regulations.
- .2 Co-ordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.13 FINAL DECONTAMINATION

- .1 Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially contaminated soil prior to removal from site.
- .2 Perform decontamination as specified to satisfaction of Departmental Representative. Departmental Representative will direct Contractor to perform additional decontamination if required.

1.14 REMOVAL AND DISPOSAL

- .1 Remove surplus materials and temporary facilities from site.
- .2 Dispose of non-contaminated waste materials, litter, debris, and rubbish off-site.
- .3 Do not burn or bury rubbish and waste materials on-site.
- .4 Do not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner into streams, waterways, storm or sanitary drains.
- .5 Do not discharge wastes into streams or waterways.
- .6 Dispose of following materials at appropriate off-site facility identified by Contractor and approved by Departmental Representative:
 - .1 Debris including excess construction material.
 - .2 Non-contaminated litter and rubbish.
 - .3 Disposable PPE worn during final cleaning.
 - .4 Wastewater from sanitary facilities.
 - .5 Wastewater removed from wastewater storage tank.
 - .6 Wastewater generated from final decontamination operations including wastewater storage tank cleaning.
- .7 Dispose of materials in accordance with Section 01 35 43 - Environmental Procedures.
- .8 Wastewater sample and analysis: Contractor will perform sampling and analysis of stored wastewater for disposal purposes prior to removal from site. Results of analyses will determine appropriate methods of disposal. Upon receipt of analytical results, transfer tank contents without spills or release, as directed by Departmental Representative, to off-site disposal facility. Following completion of tank emptying, decontaminate tank interior with steam or high-pressure water wash supplemented by detergent. Dispose of tank decontamination water with tank contents.
- .9 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .10 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.

1.15 RECORD KEEPING

- .1 Maintain adequate records to support information provided to Departmental Representative regarding exception reports, annual reports, and biennial reports.
- .2 Maintain bills of lading for minimum 375 days from date of shipment or longer period required by applicable law or regulation.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CSA-S350-M1980 R2003, Code of Practice for Safety in Demolition of Structures.
- .2 National Building Code 2010 (NBC)
 - .1 NBC 2010, Division B, Part 8 Safety Measures at Construction and Demolition Sites.
- .3 National Fire Code 2010 (NFC)
 - .1 NFC 2010, Division B, Part 2 Emergency Planning, subsection 2.8.2 Fire Safety Plan.
- .4 Province of Ontario
 - .1 Occupational Health and Safety Act, R.S.O., 2004.
 - .2 Workplace Safety and Insurance Act, 1997.
 - .3 Municipal statutes and authorities.
- .5 Canada Labour Code
 - .1 Canada Occupational Safety and Health Regulations, 2002.

1.2 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittals.
- .2 Submit site-specific Health and Safety Plan within 5 days after date of award of Contract and prior to commencement of Work. Address following items:
 - .1 Safety and health risk or hazard analysis for each site task and operation.
 - .2 Develop checklist for items to be inspected on a daily basis. Document actions taken.
 - .3 Names of personnel and alternates responsible for site safety and health.
 - .4 Personnel training requirements including:
 - .1 Names of personnel and alternates responsible for site safety and health, hazards present on-site, and use of personal protective equipment.
 - .2 Work practices by which personnel can minimize risks from hazards, safe use of engineering controls and equipment on-site, medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards, and elements of site-specific Health and Safety Plan.
 - .3 Health and Safety training records for all personnel accessing the site.
 - .5 Personal protective equipment (PPE) program addressing:
 - .1 Donning and doffing procedures.
 - .2 PPE selection based upon-site hazards.

- .3 PPE use and limitations of equipment.
 - .4 Work mission duration, PPE maintenance and storage.
 - .5 PPE decontamination and disposal.
 - .6 PPE inspection procedures prior to, during, and after use.
 - .7 Evaluation of effectiveness of PPE program, and limitations during temperature extremes, and other appropriate medical considerations.
 - .8 Medical surveillance requirements for personnel assigned to work at site.
 - .9 Frequency and types of personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
 - .10 Site control measures employed at site including site map, site work zones, use of 'buddy system', site communications including site security, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.
 - .11 Decontamination procedures for equipment.
 - .12 Emergency response requirements addressing: pre-emergency planning, personnel roles, lines of authority and communication, emergency recognition and prevention, safe distances and places of refuge, site security and control, evacuation routes and procedures, decontamination procedures not covered under decontamination section, emergency medical treatment and first aid, emergency alerting and response procedures, critique of response and follow-up, PPE and emergency equipment, site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, provincial, or federal agencies.
 - .13 Procedures dealing with heat and/or cold stress and wildlife.
- .3 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .1 Departmental Representative will not be responsible for approving the Contractor's site-specific Health and Safety Plan nor be responsible for the Contractor's, or their subcontractors, health and safety.
- .4 Submit records of Contractor's Health and Safety meetings when requested.
- .5 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, daily.
- .6 Submit copies of orders, directions or reports issued by health and safety inspectors of the authorities having jurisdiction.
- .7 Submit copies of incident and accident reports.
- .8 Submit Safety Data Sheets (SDS).
- .9 Submit Workplace Safety and Insurance Board (WSIB) - Experience Rating Report within 5 days after date of award of Contract and prior to commencement of Work.

1.3 REGULATORY REQUIREMENTS

- .1 Comply with the Acts and regulations of the Province of Ontario.
- .2 Comply with specified standards and regulations to ensure safe operations at site containing hazardous or toxic materials.

1.4 SITE CONDITIONS

- .1 Work at site will involve contact with soil contaminated with lead. Wear appropriate PPE, including disposable gloves, safety glasses, long pants and long sleeves, to block the direct contact pathway during construction activities. A dust mask should be worn by workers in open contact with the excavation areas when dust is visible in the air and should continue to be worn until dust levels diminish (i.e., are no longer visible).

1.5 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan prior to commencing site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Ensure Health and Safety guidelines provide for safe and minimal risk working environment for site personnel and minimize impact of activities involving contact with hazardous materials or hazardous wastes on the general public, site users, owners and the surrounding environment.
- .3 Relief from or substitution for portion or provision of minimum Health and Safety Guidelines specified or reviewed site-specific Health and Safety Plan must be submitted to Departmental Representative in writing. Departmental Representative will respond in writing, either accepting or requesting improvements.

1.6 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 2004.

1.7 RESPONSIBILITY

- .1 Be responsible for safety of persons and property on-site and for protection of persons off-site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
- .3 Where applicable the Contractor shall be designated "Constructor", as defined by Occupational Health and Safety Act for the Province of Ontario.

1.8 HAZARD COMMUNICATION REQUIREMENTS

- .1 Comply with Workplace Hazardous Materials Information System (WHMIS) Regulation, R.R.O.

- .2 Safety Data Sheets (SDS) and documentation on any "hazardous" chemical that Contractor or Contractor Representatives plan to bring onto site shall be maintained on-site.

1.9 UNFORESEEN HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, immediately stop work and advise Departmental Representative verbally and in writing.
- .2 Follow procedures in place for Employees Right to Refuse Work as specified in the Occupational Health and Safety Act for the Province of Ontario.

1.10 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of Ontario, and in consultation with Departmental Representative.
 - .1 Contractor's Safety Policy.
 - .2 Constructor's Name.
 - .3 Notice of Project.
 - .4 Name, trade, and employer of Health and Safety Representative or Joint Health and Safety Committee members (if applicable).
 - .5 Ministry of Labour Orders and reports.
 - .6 Occupational Health and Safety Act and Regulations for Construction Projects for Province of Ontario.
 - .7 Address and phone number of nearest Ministry of Labour office.
 - .8 Material Safety Data Sheets.
 - .9 Written emergency Response Plan.
 - .10 Site Specific Safety Plan.
 - .11 Valid certificate of first aider on duty.
 - .12 WSIB "In Case of Injury At Work" poster.
 - .13 Location of toilet and cleanup facilities.

1.11 CORRECTION OF NON-COMPLIANCE

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

1.12 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.13 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.
- .2 Assign responsibility and obligation to Competent Supervisor where required to stop or start Work when, at Competent Supervisor's discretion, it is necessary or advisable for reasons of health or safety. Departmental Representative may also stop Work for health and safety considerations.
- .3 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Do not take action until after receipt of written approval by Departmental Representative.
- .4 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .5 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.14 PERSONNEL HEALTH, SAFETY, AND HYGIENE

- .1 Training: ensure personnel including all truck drivers entering site are trained in accordance with specified personnel training requirements.
- .2 Levels of Protection: establish levels of protection for each Work area based on planned activity and location of activity. Minimum PPE required for each level of protection as follows:
 - .1 Level D:
 - .1 Head, Eye, Ear Protection: hard hat, safety glasses with sideshields, ear muffs or plugs.
 - .2 Foot Protection: safety shoes.
 - .3 Clothing: standard work uniform.
- .3 Personal Protective Equipment:
 - .1 Furnish site personnel with appropriate PPE as specified above. Ensure that safety equipment and protective clothing is kept clean and maintained.
 - .2 Nitrile gloves to be worn for manual handling of contaminated soil or material.
- .4 Develop protective equipment usage procedures and ensure that procedures are strictly followed by site personnel; include following procedures as minimum:
 - .1 Ensure prescription eyeglasses worn are safety glasses and do not permit contact lenses on-site within work zones.
 - .2 Ensure footwear is steel-toed safety shoes or boots.
 - .3 Dispose of or decontaminate PPE worn on-site at end of each workday.
 - .4 Decontaminate reusable PPE before reissuing.
- .5 Heat Stress/Cold Stress: implement heat stress and cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.

- .6 Personnel Hygiene and Personnel Decontamination Procedures. Provide minimum as follows:
 - .1 Suitable containers for storage and disposal of used disposable PPE.
 - .2 Potable water and suitable sanitation facility.
 - .3 Handwashing station. All personnel are to wash their hands thoroughly with soap and water before eating or smoking.
- .7 Emergency and First-Aid Equipment:
 - .1 Locate and maintain emergency and first-aid equipment in appropriate location on-site including first-aid kit to accommodate number of site personnel, in accordance with applicable regulations.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Definitions:
 - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
 - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
 - .3 Green Remediation: the application of technologies and approaches that enhance a cleanup project's environmental, social, and economic footprints, as defined by the California Department of Toxic Substances Control.
- .2 Ontario Provincial Standard Drawings (OPSD):
 - .1 OPSD 219.110 – Light-Duty Silt Fence Barrier, November 2015.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review by Departmental Representative .
- .3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues, including Green Remediation, to be addressed during construction.
- .4 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .5 Include in Environmental Protection Plan:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Descriptions of environmental protection personnel training program.
 - .4 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .5 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, sanitary facilities, and

stockpiles of excess or spoil materials including methods to control runoff and to contain materials on-site.

- .6 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
- .7 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .8 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .9 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .10 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .11 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .12 Storm Water Management Plan identifying methods and procedures for management and/or discharge of runoff which is directly derived from construction activities.
- .13 Historical, archaeological, cultural resources, biological resources and wetlands plan that defines procedures for protecting historical, archaeological, cultural resources, biological resources and wetlands and identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.
 - .1 Include methods to assure protection of known or discovered resources, including the two heritage buildings, and identify lines of communication between Contractor personnel and Departmental Representative .
 - .2 Include provision for temporary suspension of work activities in case of any relevant historical, archaeological or cultural finding, as determined by the Departmental Representative .
 - .1 Refer to Statement of Cultural Resource Impact Analysis for action items to be undertaken and include in Plan.
- .14 Green Remediation Plan: to the extent practicable, explore and implement green remediation strategies and applications in the performance of the requirements of this work assignment to maximize sustainability, including Energy, Water, Air & Atmosphere, Materials & Waste, and Land & Ecosystems:
 - .1 Energy management strategies to increase energy efficiency and use of renewable energy.
 - .2 Water management strategies to reduce water consumption, reuse treated water, and use efficient techniques to manage and protect surface water and groundwater.

- .3 Air emission strategies to decrease emissions of harmful air pollutants from treatment processes, operation of heavy machinery, and transportation of vehicles.
- .4 Use of “eco-friendly” chemical peeling agents.
- .5 Solid and liquid waste management strategies to reduce Contractor and Project materials consumption and waste generation.
- .6 Land and ecosystems management strategies to protect ecosystems during site cleanup.

1.3 FIRES

- .1 Fires and burning of rubbish on-site not permitted.

1.4 DISPOSAL OF WASTES

- .1 Do not bury rubbish and waste materials on site unless approved by Departmental Representative .
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .3 Do not discharge wastes into streams or water ways.
- .4 Separate and dispose of accumulated waste materials off-site in accordance with O.Reg. 347 General Waste Management, to MOECC approved disposal facilities or approved transfer stations, including, but no limited to, the following:
 - .1 Debris including excess construction material.
 - .2 Non-contaminated litter and rubbish.
 - .3 Disposable PPE worn during remediation work.
- .5 Appropriate procedures shall be implemented for handling, temporary storage, transport and disposal of impacted soils during all phases of the project. Refer to Land Disposal Restrictions in O.Reg. 347 - General Waste Disposal under Ontario EPA and MOECC Fact Sheet "Summary of Land Disposal Restrictions, Treatment and Notification Requirements for Waste Generators". Off-site disposal will be by licensed haulers to a MOECC approved disposal facility.
- .6 Disposal/recycling of other waste generated during the project shall be done in compliance with Ontario Waste Regulations and the facilities used will be approved by the Departmental Representative .

1.5 VEHICULAR ACCESS AND PARKING

- .1 Maintenance and Use:
 - .1 Prevent contamination of access roads. Immediately scrape up debris or material on access roads which is suspected to be contaminated as determined by Departmental Representative ; transport and place into designated area approved by Departmental Representative . Clean access roads at least once per shift.
 - .2 Departmental Representative may collect soil samples for chemical analyses from traveling surfaces of constructed and existing access routes prior to, during,

and upon completion of Work. Excavate and dispose of clean soil contaminated by Contractor's activities at no additional cost.

- .2 Vehicles/equipment shall be in good working order and not be leaking any fuel or fluids.
- .3 Restrict access of vehicles from creek banks to protect slope stability.
- .4 No vehicles or equipment re-fuelling to be conducted on the Site.
- .5 Refuelling of vehicles and equipment shall not be conducted near watercourses
- .6 Traffic management measures (such as 'flag man') shall be implemented if required at site access points to direct traffic.

1.6 DRAINAGE

- .1 Do not allow water containing suspended materials to enter into waterways, sewer or drainage systems.
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
- .3 Do not direct water flow in a manner which would cause erosion to existing areas.

1.7 SURFACE WATER AND GROUNDWATER QUALITY

- .1 Materials and equipment shall be operated and stored in a manner that prevents deleterious substances (e.g., petroleum products, silt, etc.) as defined by the Fisheries Act from entering surface water.
- .2 The groundwater at the Site is expected to be below the bases of the excavation areas and as such, no groundwater management would be expected during the remedial excavation. In addition, no impacts in groundwater were identified.

1.8 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on-site and adjacent properties where indicated or as directed by the Departmental Representative .
- .2 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .3 Minimize stripping of topsoil and vegetation.
- .4 Restrict tree removal to areas indicated or designated by Departmental Representative .
- .5 Minimize clearing of vegetation to only those areas necessary for construction and operation.
- .6 Minimize the removal of terrestrial habitat to the extent possible during clearing.

1.9 VEGETATION

- .1 Protect vegetation that does not have to be removed by fencing/delineating construction working and/or storage areas.
- .2 Operate construction machinery in a manner that minimizes damage to adjacent vegetation.

1.10 WORK ADJACENT TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.
- .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.
- .7 Do not blast under water or within 100 m of indicated spawning beds.
- .8 Do not use water from waterways.
- .9 Special care shall be exercised while working near water's edge including site-specific erosion and sediment control measures. Silt fences shall be used to minimize sediment transport as well as limit access to watercourses by site personnel.

1.11 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Vehicles and equipment must be maintained in good working condition, equipped with emission controls as applicable to local authorities' emission requirements.
- .3 Control emissions from equipment and plant to local authorities' emission requirements.
- .4 Ensure hazardous substances (including fuel) are stored, handled and applied in a manner to prevent release to the environment and in a legal manner in accordance with hazardous waste regulations.
- .5 Secure all materials at non-productive times (night and shut-down).
- .6 Vehicles shall be shut off when not in use. No vehicle idling on-site.
- .7 Store hazardous or toxic substances in a designated area.
- .8 Comply with requirements of WHMIS regarding use, handling, storage and disposal of hazardous materials; and regarding labelling and provision of SDS acceptable to Labour Canada.

1.12 EROSION AND SEDIMENT CONTROL

- .1 Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other work areas. Prevent erosion and sedimentation.
- .2 Minimize amount of bare soil exposed at one time. Stabilize disturbed soils as quickly as practical. Strip vegetation, regrade, or otherwise develop to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as directed by Departmental Representative .
- .3 Provide and maintain temporary measures to prevent erosion and migration of silt, mud, sediment, and other debris off site or to other areas of site where damage might result, or that might otherwise be required by Laws and Regulations.
- .4 Plan construction procedures to avoid damage to work or equipment encroachment onto water bodies or drainage ditch banks. In event of damage, promptly take action to mitigate effects. Restore affected bank or water body to existing condition.
- .5 Installation:
 - .1 Construct temporary erosion control items as required.
 - .1 At a minimum, provide a light-duty silt fence barrier as per OPSD 219.110 between the excavation area for the Program Building and the Pond.
 - .1 Leave silt fence barrier in place and maintain until vegetation is established.
 - .2 Check erosion and sediment control measures weekly after each rainfall; during prolonged rainfall check daily.
 - .3 Whenever sedimentation is caused by stripping vegetation, regrading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
 - .4 Prior to or during construction, Departmental Representative may require installation or construction of improvements to prevent or correct temporary conditions on site. Improvements may include berms, mulching, sediment traps, detention and retention basins, grading, planting, retaining walls, culverts, pipes, guardrails, temporary roads, and other measures appropriate to specific condition. Temporary improvements must remain in place and in operation as necessary or until otherwise directed by Departmental Representative .
 - .5 Unless Departmental Representative directs otherwise, remove temporary erosion and sediment control devices upon completion of Work. Dispose of accumulated sediments and shape area to permit natural drainage to satisfaction of Departmental Representative . Materials once removed become property of Contractor.
 - .6 Do not disturb existing embankments or embankment protection.
 - .7 Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures. If soil and debris from site accumulate in low areas, storm sewers, roadways, gutters, ditches, or other areas where in Departmental Representative 's determination it is undesirable, remove accumulation and restore area to original condition.

1.13 SPILLS OR RELEASE OF DELETERIOUS SUBSTANCES

- .1 Immediately contain, limit spread and clean up in accordance with provincial regulatory requirements.
- .2 All workers shall be fully aware of the spill prevention and response procedures including notification of Departmental Representative .
- .3 Promptly report spills and releases potentially causing damage to environment in accordance with Environmental Protection Plan and applicable regulations to:
 - .1 Authority having jurisdiction or interest in spill or release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
 - .1 Ontario Ministry of Environment Spills Action Centre must be notified by law at 1-800-268-6060.
 - .2 Owner of pollutant, if known.
 - .3 Person having control over pollutant, if known.
 - .4 Departmental Representative .
- .4 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.
- .5 Spill kits will be kept on-site during all project phases.
- .6 Contractor shall take due care to ensure no deleterious materials including sediment-laden runoff leave the worksite, or enter any: surface water, storm water, or sanitary sewers at or near the worksite.
- .7 Equipment fuelling or lubricating shall occur in a designated area with proper controls to prevent the release of deleterious substances, and shall be conducted away from any surface water drains or collection points.
- .8 In accordance with the Fisheries Act, approval must be obtained from DFO for use of any paints, corrosion protective coatings, wood preservatives or any other hazardous material that will be applied to surfaces that will have contact with the marine environment.
- .9 Any equipment remaining on site overnight shall have appropriately placed drip pans.
- .10 Protect the roadways from tracking of mud, soil, and debris throughout the work.
- .11 Prevent discharges containing asphalt, grout, concrete or other waste materials from reaching storm drains or the marine environment. This includes, but is not limited to:
 - .1 Minimizing the washing of sand or gravel from new asphalt, debris from drilling or cutting or other materials into storm drains and the marine environment by sweeping.
 - .2 Application of fog seals, tack coats or other coatings, if required, during periods when rainfall is unlikely to occur during application.
 - .3 Cleaning equipment off site.
 - .4 Protection of drainage structures with filter fences if required.

1.14 NOISE CONTROL

- .1 All construction equipment shall be operated with exhaust systems in good repair to minimize noise.
- .2 Construction activities that could create excessive noise shall be restricted to daylight hours and adhere to the municipal noise by-law.
- .3 If work is to be undertaken outside the specified period in the local noise by-law, then approval for an exemption to the by-law shall be obtained by the Contractor from the municipality.
- .4 Ensure that noise control devices (i.e. mufflers, silencers) on construction equipment are properly maintained.

1.15 HISTORICAL/ ARCHAEOLOGICAL CONTROL

- .1 Provide historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.
- .2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative .
 - .1 Refer to Statement of Cultural Resource Impact Analysis for action items to be undertaken and include in Plan.
- .3 If archaeological deposits are discovered during the project work shall stop immediately and the Departmental Representative and Parks Canada project manager shall immediately be notified.
- .4 Archaeologically significant material, if found on the property, remains the property of the Crown and shall not be removed from the site.
- .5 Management of the archaeological materials will be performed by Parks Canada and coordinated through Departmental Representative .

1.16 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, Contract Documents and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative .
 - .1 Do not take action until after receipt of written approval by Departmental Representative .
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.17 SPECIES AT RISK

- .1 Should a species or its critical habitat be encountered, the Contractor should stop work and contact Departmental Representative for direction.

1.18 FISH/ FISH HABITAT

- .1 All materials and equipment used will be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) as defined by the Fisheries Act from entering the surface water.

1.19 GREEN REMEDIATION

- .1 Energy
 - .1 Select suitably sized power machinery and equipment that operate using clean alternative fuels, are energy efficient or hybrid, and maintain equipment at peak performance to maximize efficiency.
 - .2 Purchase materials from one supplier of locally produced products and select local providers for field operations.
 - .3 Coordinate outside services and service providers to minimize transport of equipment.
 - .4 Employ auxiliary power units to power cab heating and air conditioning when a machine is unengaged.
 - .5 Replace, repower, or retrofit older engines with advanced emission control devices to reduce harmful pollutants.
 - .6 Control nuisance odours associated with diesel emissions from construction equipment.
 - .7 Maintain engines to meet original standards and train operators to run equipment efficiently.
- .2 Water
 - .1 Minimize fresh water and potable water consumption and maximize use of non-potable water and water reuse during daily operations
 - .2 Prevent nutrient loading in nearby water bodies.
 - .3 Minimize runoff using open-space preservation methods such as duster development, reduced pavement widths, and shared transportation access.
 - .4 Utilize engineered structures or landscape features such as basins, trenches, porous pavement, disconnected downspouts, and rain gardens to capture and infiltrate runoff.
 - .5 Use natural systems such as green roofs, grassed swales or channels, wetlands, and the elimination of curbs and gutters to manage storm water and route excess runoff off the site.
 - .6 Utilize biodegradable tarps and mats to contain dust rather than spraying with water.
- .3 Air Emissions

- .1 Reduce atmospheric release of toxic or priority pollutants and minimize dust export of contaminants.
- .2 Consolidate onsite and offsite vehicular trips to reduce fuel consumption.
- .3 Cover excavated areas with biodegradable fabric or with synthetic material that can be reused for other purposes.
- .4 Secure and cover loose, excavated material in open trucks, and reuse with reuseable covers.
- .5 Use “eco-friendly” chemical peeling agents.
- .6 Revegetate excavated areas as quickly as possible.
- .7 Limit onsite vehicle speeds to 10 miles per hour.
- .8 Retrofit machinery and heavy equipment for diesel-engine emission control and exhaust treatment technologies such as particulate filters and oxidation catalysts.
- .9 Maintain engines of vehicles and machinery in accordance with manufacturer recommendations.
- .10 Modify field operations through combined activity schedules, an idle reduction plan, and using machinery with automatic idle-shutdown devices.
- .11 Replace conventional engines of existing vehicles and purchase new vehicles equipped for hybrid systems or alternative fuel.
- .12 Minimize the use of heavy equipment that consumes high volumes of fuel and use cleaner fuels such as ultra-low sulphur diesel.
- .4 Waste
 - .1 Minimize waste generation and re-use materials whenever possible.
 - .2 Minimize natural resource extraction and disposal.
 - .3 Segregate materials such as metals, concrete, and lumber for reuse or recycling.
 - .4 Screen and stockpile clean, excavated soil for potential onsite use as infill and minimize shipments to landfills.
 - .5 Select the closest waste receiver.
 - .6 Use products with recycled and bio-based content and recycling potential.
 - .7 Salvage uncontaminated and pest- or disease-free organic debris for use as on-site or off-site infill, mulch, or compost.
 - .8 Salvage uncontaminated objects with potential recycle, resale, donation, or onsite infrastructure value such as steel, concrete, granite, and storage containers.
 - .9 Reuse or recycle recovered product from remedial activities.
 - .10 Incorporate recycled and salvaged materials such as concrete and asphalt into the work for fill or erosion control.
 - .11 Salvage wood scraps for onsite landscaping use, mulch, and erosion control.
- .5 Land and Ecosystems
 - .1 Establish efficient traffic patterns to minimize soil compaction in work areas.
 - .2 Ensure all equipment is clean prior to arrival on site to minimize potential of transporting invasive species.
 - .3 Minimize soil and habitat disturbance and reduce noise and lighting disturbance.
 - .4 Minimize bioavailability of contaminants through adequate contaminant source and plume controls.
 - .5 Increase wildlife habitat.

- .6 Increase carbon sequestration.
- .7 Create new greenspaces or corridors.
- .8 Prevent topsoil compaction and increase subsurface water infiltration.
- .9 Plant native vegetation.
- .10 Provide non-compacted soil that is conducive to plant growth.
- .11 At the end of the project work, thoroughly clean the project area of debris, dirt, and trash using non-phosphate, plant-based, and biodegradable cleaners and detergents.
- .12 Utilize environmentally friendly landscaping solutions to minimize environmental impacts at the site.
- .13 Use environmentally friendly lubricants for engine maintenance.
- .14 Use “eco-friendly” chemical peeling agents.
- .15 Place decontamination station away from environmentally sensitive areas.
- .16 Use secondary containment to avoid cross-contamination.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling.
- .3 Ensure public waterways remain free of waste and volatile materials disposal.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

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

1.2 HAZARDOUS MATERIAL DISCOVERY

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

1.3 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions and municipal by-laws.

1.4 NATIONAL PARKS ACT

- .1 Perform Work in accordance with National Parks Act when projects are located within boundaries of National Park.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ABBREVIATIONS AND ACRONYMS

- .1 The abbreviations and acronyms are commonly found in the Project Manual and represent the associated organizations or terms.

1.2 MATERIALS, EQUIPMENT AND METHODS

- .1 A:
- .1 AL: aluminum.
 - .2 AB: anchor bolt.
- .2 B:
- .1 B: base.
 - .2 BEAST: benthic assessment of sediment.
 - .3 BH: bore hole.
 - .4 BL: bottom layer.
 - .5 BLK: block.
 - .6 BOT: bottom.
 - .7 BMP: best management practice.
 - .8 B PL: base plate.
 - .9 BRG: bearing.
 - .10 BSMT: basement.
 - .11 BTEX: benzene, toluene, ethylbenzene, and xylenes.
- .3 C:
- .1 CB: catch basin.
 - .2 CC: centre to centre.
 - .3 CCN: contemplated change notice.
 - .4 CDF: controlled density fill.
 - .5 CEC: Canadian electrical code.
 - .6 CHS: Canadian hydrographic service.
 - .7 CL: centreline.
 - .8 CLR: clear.
 - .9 COL: column.
 - .10 CONC: concrete.
 - .11 CONC BLK: concrete block.
 - .12 CONT: continuous.
 - .13 COMPL: complete.
 - .14 CPM: critical path method.
 - .15 C/W: complete with.

- .4 D:
 - .1 D: deep.
 - .2 DEG: degree.
 - .3 DIA: diameter.
 - .4 DIM: dimension.
 - .5 DL: dead load.
- .5 E:
 - .1 EA: each.
 - .2 ECF: engineered containment facility.
 - .3 EE: each end.
 - .4 EF: each face.
 - .5 EL: elevation.
 - .6 ELEC: electric.
 - .7 ENCL: enclosure.
 - .8 EQ: equal.
 - .9 EXIST: existing.
 - .10 EW: each way.
- .6 F:
 - .1 FC: fuel contributed.
 - .2 FDN: foundation.
 - .3 FEXT: fire extinguisher.
 - .4 FIN: finish.
 - .5 FIP: federal identity program.
 - .6 FLD: field.
 - .7 FRR: fire resistance rating.
 - .8 FTG: footing.
- .7 G:
 - .1 GALV: galvanized steel.
 - .2 GC: General Conditions.
 - .3 GCL: geosynthetic clay liner.
- .8 H:
 - .1 HOR: horizontal.
 - .2 HOR EF: horizontal each face.
 - .3 HP: hydro pole.
 - .4 HPA: Hamilton Port Authority.
 - .5 HT: height.
 - .6 HYD: hydrant.
- .9 I:
 - .1 ID: inside diameter.

- .10 J:
 - .1 JT: joint.
- .11 L:
 - .1 LG: long.
 - .2 LL: live load.
- .12 M:
 - .1 MAS: masonry.
 - .2 MAX: maximum.
 - .3 MET: metal.
 - .4 MH: maintenance hole.
 - .5 MIN: minimum.
- .13 N:
 - .1 NBC: national building code.
 - .2 NF: near face.
 - .3 NFC: national fire code.
 - .4 NIC: not in contract.
 - .5 NTS: not to scale.
- .14 O:
 - .1 OBC: Ontario building code.
 - .2 OC: on centre.
 - .3 OD: outside diameter.
 - .4 OPNG: opening.
- .15 P:
 - .1 PAH: polynuclear aromatic hydrocarbons.
 - .2 Pb: Lead
 - .3 PCC: precast concrete.
 - .4 PL: plate.
 - .5 PLYWD: plywood.
 - .6 PR: pair.
 - .7 PREFAB: prefabricated.
 - .8 PRFL: profile.
 - .9 PT: paint.
 - .10 PVC: polyvinyl chloride.
- .16 R:
 - .1 R: radius.
 - .2 RC: reinforced concrete.
 - .3 REINF: reinforced/reinforcing.
 - .4 REQD: required.

- .5 REQT: requirement.
- .6 RO: rough opening.
- .7 RWL: rain water leader.
- .17 S:
 - .1 SAN SEW: sanitary sewer.
 - .2 SCHED: schedule.
 - .3 SD: smoke developed.
 - .4 SECT: section.
 - .5 SPEC: specification.
 - .6 SS: stainless steel.
 - .7 STD: standard.
 - .8 STL: steel.
 - .9 STC: sound transmission class.
 - .10 STL PL: steel plate.
 - .11 STN: stone.
 - .12 STR: structure or structural.
 - .13 ST SEW: storm sewer.
- .18 T:
 - .1 T: top.
 - .2 T&B: top and bottom.
 - .3 TCB: turbidity control plan.
 - .4 TEL: telephone.
 - .5 THKNS: thickness.
 - .6 TRANSV: transverse.
 - .7 TYP: typical.
- .19 U:
 - .1 UGRD: underground.
 - .2 UOS: unless otherwise specified.
 - .3 U/S: underside.
- .20 V:
 - .1 VERT: vertical.
 - .2 VERT EF: vertical each face.
- .21 W:
 - .1 WD: wood.
 - .2 WHMIS: workplace hazardous materials information system.
 - .3 WSIB: workplace safety and insurance board.
 - .4 WT: weight.
 - .5 WTP: water treatment plant.

1.3 STANDARDS ORGANIZATIONS

.1 Standards writing organizations:

- .1 AA - Aluminum Association.
- .2 ACPA - American Concrete Pipe Association.
- .3 ANSI - American National Standards Institute.
- .4 ASHRAE - American Society of Heating and Refrigerating and Air-Conditioning Engineers.
- .5 ASTM - American Society for Testing and Materials.
- .6 AWWA - American Water Works Association.
- .7 CCMPPA - Canadian Concrete Masonry Producers Association.
- .8 CGSB - Canadian General Standards Board.
- .10 CNTA - Canadian Nursery Trades Association.
- .11 CPCA - Canadian Painting Contractors Association.
- .12 CSA - Canadian Standards Association.
- .13 CSC - Construction Specifications Canada.
- .14 CSI - Construction Specifications Institute.
- .15 CSSBI - Canadian Sheet Steel Building Institute.
- .16 EEMAC - Electrical and Electronic Manufacturer's Association of Canada.
- .17 ESA - Electrical Safety Authority.
- .18 FFC - Federal Fire Commissioner.
- .19 FSC - Forest Stewardship Council.
- .20 IEEE - Institute of Electrical and Electronics Engineers Inc.
- .21 ISO - International Organization for Standardization.
- .22 LEED - LEED Canada, Leadership in Energy and Environmental Design.
- .23 MPI - Master Painters Institute.
- .24 NAAMM - National Association of Architectural Metal Manufacturers.
- .25 NCPI - National Clay Pipe Institute.
- .26 NEMA - National Electrical Manufacturers Association.
- .27 NFPA - National Fire Protection Association.
- .28 OPSD - Ontario Provincial Standard Drawings.
- .29 OPSS - Ontario Provincial Standard Specifications.
- .30 PPI - Plastics Pipe Institute.
- .31 SCAQMD - South Coast Air Quality Management District.
- .32 TIA - Telecommunications Industry Association.
- .33 UL - Underwriters Laboratories.
- .34 ULC - Underwriters Laboratories of Canada.
- .35 US EPA - United States Environmental Protection Agency.
- .36 WH - Warnock Hersey.

1.4 FEDERAL GOVERNMENT DEPARTMENTS AND AGENCIES

.1 Departments, agencies and crown corporations.

- .1 CEAA - Canadian Environmental Assessment Agency.
- .2 CSC - Correctional Service Canada.
- .3 CRA - Canada Revenue Agency.
- .4 DND - Department of National Defence.
- .5 EC - Environment Canada.
- .6 FHBRO - Federal Heritage Buildings Review Office.
- .7 HCD - Heritage Conservation Directorate.
- .8 LC - Labour Canada.
- .9 PCA - Parks Canada Agency.
- .10 PWGSC - Public Works and Government Services Canada.
- .11 RCMP - Royal Canadian Mounted Police.
- .12 TBS - Treasury Board Secretariat.
- .13 TC - Transport Canada.

1.5 PROVINCIAL GOVERNMENT DEPARTMENTS AND AGENCIES

- .1 MOEE - Ontario Ministry of Environment and Energy.
- .2 MOL - Ontario Ministry of Labour.
- .3 MTO and MOT - Ontario Ministry of Transportation.

1.6 INTERNATIONAL GOVERNMENT DEPARTMENTS AND AGENCIES

- .1 DOHMH - New York City Department of Health and Mental Hygiene, USA.
- .2 GSA - Government Services Administration, USA.

1.7 UNITS OF MEASURE METRIC

- .1 The following abbreviations of units of measure are commonly found in the Project Manual:
 - .1 C: Celsius.
 - .2 cm: centimetre.
 - .3 kg: kilogram.
 - .4 kg/m³: kilogram per cubic metre.
 - .5 kN: kilonewton.
 - .6 kPa: kilopascals.
 - .7 kw: kilowatts.
 - .8 l/s: litre per second.
 - .9 m: metre.
 - .10 m³: cubic metre.
 - .11 mg/kg: milligrams per kilogram.
 - .12 mg/L: milligrams per litre.
 - .13 mm: millimetres.
 - .14 MPa: megapascal.

- .15 NTU: nephelometric turbidity unit.
- .16 ppm: parts per million.
- .17 ug/L: micrograms per litre.
- .18 ug/m³: micrograms per cubic metre.

1.8 UNITS OF MEASURE IMPERIAL

- .1 The following abbreviations of units of measure are commonly found in the Project Manual:

- .1 F: Fahrenheit.
- .2 ft: foot/feet.
- .3 ga: gauge.
- .4 gpm: gallons per minute.
- .5 in: inches.
- .6 lbs: pounds.
- .7 NTU: nephelometric turbidity unit.
- .8 psi: pounds-force per square inch.
- .9 ppm: parts per million.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION

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

1.2 INSPECTION AGENCIES

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

1.3 ACCESS TO WORK

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

1.4 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Departmental Representative will be collecting and submitting samples from base and edge limits of excavated areas for testing, as specifically requested in specifications. Results will be required before reinstating the excavations. Departmental Representative

will make reasonable attempts to have results within two working days in order to not cause delays in Work.

1.5 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by 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.

1.6 REPORTS

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

1.7 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.8 EQUIPMENT AND SYSTEMS

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
 - .1 Items in this Section are considered mandatory. Departmental Representative may issue order to stop work based on the Contractor's non-compliance with any requirements listed in this Section.
- .2 Remove from site all such work after use.

1.2 WATER SUPPLY

- .1 Provide continuous supply of potable water for construction use.

1.3 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .5 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.

- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.
- .6 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.4 TEMPORARY POWER AND LIGHT

- .1 Provide and pay for temporary power during construction.
- .2 Lighting: to assure full and clear visibility for work areas during night work operations.
- .3 Provide and maintain temporary lighting throughout project.
 - .1 Provide fully-shielded (directed) lighting to minimize disturbance on wildlife.

1.5 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on-site.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.2 HOISTING

- .1 Provide, operate and maintain hoists or cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists or cranes to be operated by qualified operator.

1.3 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.4 CONSTRUCTION PARKING

- .1 Parking will be permitted on-site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.
- .3 Clean access areas where used by Contractor's equipment.

1.5 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in 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 manner to cause least interference with work activities.

1.6 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Clean and service sanitary facilities at least once per week and dispose of wastewater off-site.

1.7 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on-site.
- .2 Signs and notices for safety and instruction in both official languages. Graphic symbols in accordance with applicable regulations.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off-site on completion of project or earlier if directed by Departmental Representative.
- .4 Signage, temporary fencing and barriers to be provided to adequately delineate the construction working areas to prevent inadvertent trespass onto the site by third parties.

1.8 ACCESS AND HAUL ROADS

- .1 Comply with weight and width limitations on access roads and bridges.

1.9 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .7 Dust control: adequate to ensure safe operation at all times.
- .8 Provide snow removal during period of Work.

1.10 CLEAN-UP

- .1 Clean in accordance with Section 01 74 11 - Cleaning.

- .2 Reinstall portions of site used for construction facilities, or disturbed during Work, to equal or better than existing conditions.
- .3 Remove construction debris, waste materials, packaging material from work site daily.
- .4 Clean dirt or mud tracked onto roadways.
- .5 Store materials resulting from demolition activities that are salvageable.
- .6 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

1.2 HOARDING

- .1 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations.
- .2 Provide as required by governing authorities.

1.4 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

1.2 SURVEY REFERENCE POINTS

- .1 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .2 Make no changes or relocations without prior written notice to Departmental Representative.
- .3 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .4 Require surveyor to replace control points in accordance with original survey control.

1.3 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on-site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading.
- .4 Stake slopes.

1.4 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.

1.5 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain approval for actual location.

- .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.6 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of excavation, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.7 SUBMITTALS

- .1 Submit name and address of Surveyor to Departmental Representative.
- .2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents upon completion of work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Departmental Representative or other Contractors.
 - .1 Provide wildlife proof garbage containers.
- .2 Remove waste materials from site at daily 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 site.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling.
- .7 Dispose of waste materials and debris off-site.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Departmental Representative or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on-site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Sweep and wash clean paved areas.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative's inspection.
 - .2 Departmental Representative's Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
 - .2 When Work incomplete according to Owner and Departmental Representative, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
 - .7 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.2 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.

- .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse and recycling.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Upon completion of Work, submit to the Departmental Representative, electronic copies of the following:
 - .1 Written proof (weigh scale tickets) that contaminated soil has been sent to centre authorized by MOECC for Province of Ontario.
 - .2 As-built drawings of the completed work.
 - .3 Construction photographs.
 - .4 Contractor's daily log of site activities.
 - .5 Contactor's Closeout Summary Report.
 - .1 Include all activities completed during course of work.
- .3 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.

- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents and samples apart from documents used for construction.
- .3 Label each document "AS-BUILT" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.4 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Field changes of dimension and detail.
 - .4 Changes made by change orders.
 - .5 Details not on original Contract Drawings.
 - .6 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 Provide record documents in accordance with Section 01 33 00 – Submittals.
- .8 Provide digital photos for site records in accordance with Section 01 33 00 - Submittals.

1.5 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.6 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Additional requirements: as specified in individual specifications sections.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .2 Store components subject to damage from weather in weatherproof enclosures.
- .3 Store paints and freezable materials in a heated and ventilated room.
- .4 Remove and replace damaged products at own expense and for review by Departmental Representative.

1.8 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative for approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 11 month warranty inspection, measured from time of acceptance, by Departmental Representative.

- .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .6 Cross-reference to warranty certificates as applicable.
 - .7 Starting point and duration of warranty period.
 - .8 Summary of maintenance procedures required to continue warranty in force.
 - .9 Organization, names and phone numbers of persons to call for warranty service.
 - .10 Typical response time and repair time expected for various warranted equipment.
 - .3 Contractor's plans for attendance at 11 month post-construction warranty inspections.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittals.

1.2 SUMMARY

- .1 Section includes contaminated soil removal, off-site disposal and construction of risk management measures by placement of topsoil and sod. Soil remediation and construction of risk management measures work includes:
 - .1 Remedial soil excavation and off-site disposal from areas on site, as indicated.
 - .2 Provide equipment required for soil remediation.
 - .3 Transportation of all equipment, staff, clean fill, and contaminated materials, to and from site, as required.
 - .4 Co-ordination, supervision and preparation for remediation of contaminated soil. Provide Departmental Representative 1 week notice prior to the commencement of site work for provision of site supervision.
 - .5 Specification of final soil remediation design and facilities required.
 - .6 Provision and installation of materials and equipment necessary to remediate site.
 - .7 Preparation of soil storage over layout and installation of associated equipment.
 - .8 Implementation of safety work zones, temporary barriers, site Health and Safety Plans and Emergency Response Plans.
 - .9 Management of contaminated soil.
 - .10 Backfilling of excavations with topsoil and sod and grading of excavations to match the existing grade **(to be completed by others)**.

1.3 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification, Third Edition, 1998.
- .2 Applicable environmental and health and safety laws and regulations for Province of Ontario.
- .3 Canadian Environmental Assessment Act, 2012 (S.C. 2012, c. 19, s. 52).
- .4 CCME (Canadian Council of Ministers of the Environment) Canadian Soil Quality Guidelines as referenced in Remedial Action Plan.
- .5 Environmental Protection Act. R.R.O. 1990
 - .1 Chapter E19 as amended.
 - .2 Regulation 102/94, Waste Audits and Waste Reduction Work Plans
 - .3 Regulation 103/94, Industrial, Commercial and Institutional Source Separation Programs.
 - .4 Regulation 153-04 as amended.
 - .5 Regulation 347, General – Waste Management.

- .6 Ontario Water Resource Act, R.R.O.1990.
 - .1 Regulation 903 as amended.
- .7 Transportation of Dangerous Goods Act, 1992.
- .8 Fisheries Act.
- .9 Migratory Birds Convention Act.
- .10 Migratory Birds Regulations.
- .11 Workplace Hazardous Materials Information System (Globally Harmonized System), 2015 (WHMIS GHS).
- .12 MOECC Table 1 Standards "Full Depth Background Condition Standards" under "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" dated April 15, 2011 of the Ontario Regulation ("O. Reg.") 153/04 as amended.

1.4 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Quality Assurance and Quality Control Submittals:
 - .1 Provide Quality Assurance and Quality Control Submittals in accordance with Section 01 33 00 - Submittals as follows:
 - .1 Provide a Detailed Work Plan that demonstrates understanding of the work sequencing, scheduling and project risks. Detailed Work Plan should include:
 - .1 Description and sketches of the phasing of the work/construction sequence and construction methodologies.
 - .2 Identification of main project risks and mitigation measures.
 - .1 Methods to correct potential containment issues.
 - .2 Primary schedule risks and potential mitigations.
 - .3 Description of emergency plans in case of breakdown, spill or other problem.
 - .4 Waste management plan and complete list of wastes, including waste registration numbers as required by provincial regulations, which will be generated by activities.
 - .5 Methods that will be achieve the applicable site criteria as mandated by the Canadian Council of Environmental Ministers (CCME) and specified in the most recent Remedial Action Plan.
 - .2 Closeout Submittals:
 - .1 Provide written proof (weigh scale tickets) that contaminated soil has been disposed of at a facility authorized by MOECC for Province of Ontario upon completion of work.
 - .2 Provide written proof (weigh scale tickets) that Lead Based Paint (LBP) hazardous waste from stripping/peeling and substrate

removal has been disposed of at a facility authorized by MOECC for Province of Ontario upon completion of work.

- .3 Underground Utility Locates:
 - .1 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field and clearance record from utility authority prior to commencement of Work.

1.5 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Identify members of project team including project manager. Define experience, education and training, qualifications, tasks and responsibilities of each team member.
- .2 Regulatory Requirements:
 - .1 Perform work in accordance with:
 - .1 Acts, Regulations, Laws, guidelines codes of practice, directives and policies of government authorities pertaining to: environment; noise; water supply; waste water; air quality; health and safety; transportation; waste management.
 - .2 CCME (Canadian Council of Ministers of the Environment) Contaminated Sites, Contaminated Soil and Groundwater, and Remediation of Contaminated Sites most current publications.
 - .3 WHMIS GHS.
 - .4 Canadian Environmental Assessment Act.
 - .5 Canadian Environmental Protection Act (New Substance Notification Regulations).
 - .6 Transportation of Dangerous Goods Act.
 - .7 National Building Code of Canada.
 - .8 National Electricity Code of Canada.
 - .9 National Fire Code of Canada.
 - .10 The Fisheries Act.
 - .11 Migratory Birds Convention Act.
 - .12 Migratory Birds Regulations.
 - .13 National Electricity Code 2006.
 - .14 Canadian Electrical Code 2009.
 - .15 Ontario Electrical Safety Code 2009, and all bulletins (Ontario).
- .3 Certifications:
 - .1 Analytical work must be conducted by a certified laboratory and its QA/QC procedures must be explained in detail.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Contaminated Soil:
 - .1 Load the excavated contaminated soil into roll-off containers, cover the contaminated soil with cap or tarp to minimize the generation of contaminated

runoff and underlay contaminated soil with flexible membrane (15 mil or thicker) to minimize or prevent leaching losses. Store, analyze, transport and dispose of contaminated soil according to current federal and provincial regulations.

- .1 Do not dilute contaminated soil with less contaminated soil.
- .2 Store any non-contaminated soil excavated only on non-contaminated site surface areas. Ensure no contact between non-contaminated excavated soil and drainage, contaminated water or contaminated soil.
- .3 Segregate granular materials for reuse in the final excavation.
- .2 New Materials and Equipment:
 - .1 All backfill must be new material from a MOE licensed gravel pit.
 - .2 Ship, store and preserve in original packaging with manufacturer's seal and label remain intact.
 - .3 Ensure materials and equipment are not damaged, altered or soiled during shipment, handling and storage.
 - .4 Transport rejected equipment and materials from work site immediately.
 - .5 Store materials and equipment according to manufacturer's and supplier's instructions.
 - .6 Establish quality management system for materials and equipment.

1.7 PROJECT/SITE CONDITIONS

- .1 Existing Conditions:
 - .1 Review supporting documentation, included in the Bid Documents, summarizing extent of soil contamination.
 - .2 Conduct, with Departmental Representative, condition survey of heritage buildings, existing trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by Work.
 - .1 Where required for excavation, cut roots or branches.
 - .3 Protect existing surface features from damage while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.
- .2 Buried services:
 - .1 Before commencing work establish location of public and private buried services on and adjacent to site.
 - .2 Arrange with appropriate authority and leaseholder for relocation of buried services that interfere with execution of work: pay costs of relocating services.
 - .3 Remove obsolete buried services: cap cut-offs.
 - .4 Size, depth and location of existing utilities and structures are not known.
 - .5 Prior to beginning excavation Work, notify applicable authorities having jurisdiction. Authorities having jurisdiction to clearly mark such locations to prevent disturbance during Work.
 - .6 Confirm locations of buried utilities by careful test excavations or soil hydrovac methods, as required.
 - .7 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered.

- .8 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before re-routing.
- .9 Record location of maintained, re-routed and abandoned underground lines.
- .10 Confirm locations of recent excavations adjacent to area of excavation.

1.8 MAINTENANCE

- .1 Access Roads:
 - .1 Obtain permission to use existing roads to access site.
 - .2 Maintain access roads as follows:
 - .1 Maintain and clean roads for duration of Work.
 - .2 Repair damage incurred from use of roads.
 - .3 Provide photographic documentation of roads used by construction vehicles before, during and after Work.

Part 2 Products

2.1 MATERIALS

- .1 Contaminated Soil:
 - .1 Contractor will be responsible for excavating, treatment, loading and hauling of contaminated soil for disposal at an MOECC-licensed landfill. Contractor assumes all responsibility for damages and liabilities associated with contaminated soil.
- .2 Reinstatement with Topsoil **(to be completed by others)**:
 - .1 Mixture of particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth.
 - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to 70% sand, minimum 7% clay, and contain 2 to 10% organic matter by weight.
 - .2 Contain no toxic elements, growth inhibiting materials or invasive species.
 - .3 Finished surface free from:
 - .1 Debris and stones over 50 mm diameter.
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
 - .4 Consistence: friable when moist
 - .5 Horticultural loam, pH value 5.5 to 7.5.
- .3 Sod **(to be completed by others)**:
 - .1 Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.
 - .1 Turf Grass Nursery Sod types:
 - .1 Number One Kentucky Bluegrass Sod: Nursery Sod grown solely from seed of cultivars of Kentucky Bluegrass, containing not less than 50% Kentucky Bluegrass cultivars.

- .2 Turf Grass Nursery Sod quality:
 - .1 Not more than 2 broadleaf weeds or 10 other weeds per 40 square metres.
 - .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 50 mm.
 - .3 Mowing height limit: 35 to 65 mm.
 - .4 Soil portion of sod: 10 to 15 mm in thickness.
- .4 Hazardous Waste:
 - .1 Disposed in accordance with provincial regulations.

2.2 EQUIPMENT

- .1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- .2 Roll-off containers:
 - .1 Clean prior to delivery to site.
 - .2 Cover roll-off containers with tarpaulins when not in active use and during transportation.
 - .3 Use roll-off containers that do not allow leakage of contaminated water or soil for transporting contaminated soil off-site.

Part 3 Execution

3.1 BACKGROUND INFORMATION

- .1 Maximum Concentrations at the site for lead in soil is as follows:
 - .1 437 mg/kg in soil, on the south side of the Owner's Residence (building 10).

3.2 PREPARATION/PROTECTION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 Protection:
 - .1 Keep excavation sites water free throughout work and manage recovered water according to contamination level and provincial, municipal and territory regulations.
 - .2 Protect excavation from rainwater.
 - .3 Provide temporary structures to divert flow of surface waters from excavation.
 - .4 Provide safety measures to ensure worker and public safety.
 - .5 Consult Departmental Representative regarding potential site specific geotechnical considerations.
 - .6 Protect buried services that are required to remain undisturbed.
 - .7 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction.
 - .1 Protect existing trees from damage.

3.3 TEMPORARY SUSPENSION OF WORK

- .1 Temporarily suspend work activities upon discovery of any relevant historical, archaeological or cultural finding, as determined by the Departmental Representative.
 - .1 Notify in writing Departmental Representative immediately upon discovery of any relevant historical, archaeological or cultural finding.
 - .2 Departmental Representative will determine which work activities require suspension and when such work activities can resume.
- .2 Temporarily suspend work activities for environmental non-compliance.

3.4 METHOD OF REMEDIATION AND RISK MANAGEMENT (R/RM)

- .1 Excavation of contaminated soil:
 - .1 Excavate to lines, grades, elevations and dimensions as indicated.
 - .1 The excavation limits, grades, elevations and dimensions may be increased, as directed by the Departmental Representative.
 - .2 Correct unauthorized over-excavation as directed by Departmental Representative.
 - .2 Excavate contaminated soils to prevent contamination of non-contaminated soils.
 - .3 Excavation must not interfere with bearing capacity of adjacent foundations.
 - .4 Keep excavated and stockpiled soil safe distance away from edge of excavation.
 - .5 Restrict vehicle operations directly adjacent to open excavations.
 - .6 Any boulders, concrete, metal, or other waste materials to be separated from the soil, as contaminated soil that is mixed with rock and/or debris will typically not be accepted for landfill disposal. Once separated from the contaminated soil, concrete pieces and boulders can be backfilled into the excavated area provided that they are placed in such a way as to ensure that they will not protrude from the ground surface once the areas are reinstated. Any other waste material, such as scrap metal and glass, to be separated and removed for off-Site disposal at an appropriate waste disposal or recycling facility.
 - .7 Provide Departmental Representative 1 week notice prior to the commencement of site work for provision of site supervision.
- .2 Off-site disposal of contaminated soil:
 - .1 Dispose of contaminated soil in accordance with DELIVERY, STORAGE, AND HANDLING article of this Section.
 - .2 Locate a licensed waste disposal facility that will accept the soil.
 - .1 Determine if TCLP or other testing in addition to that provided by the Departmental Representative is required and fulfill any additional disposal requirements.
 - .1 Copies of the TCLP results and the disposal weight tickets to be provided to the Departmental Representative.
 - .3 Upon completion of Work, remove waste materials and debris, trim slopes, and correct defects as directed by Departmental Representative.
 - .4 Clean and reinstate areas affected by Work as directed by Departmental Representative.

- .5 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.
- .6 Clean permanent access roads of contamination resulting from project activity.

3.5 RESTORATION (TO BE COMPLETED BY OTHERS)

- .1 Do not proceed with restoration operations until completion of following:
 - .1 Departmental Representative has inspected and approved of excavation work.
- .2 Cultivate entire area which is to receive topsoil to minimum depth of 100 mm.
 - .1 Cross cultivate those areas where equipment used has compacted soil.
- .3 Backfill excavations with topsoil.
 - .1 Submit proof of the source and quality of the clean backfill material to be used on the Site. The clean backfill must meet MOECC Table 1 Standards (April 15, 2011) under O.Reg.153/04 as amended.
 - .2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
 - .3 Do not use backfill material which is frozen or contains ice, snow or debris.
 - .4 Spread topsoil in uniform layers not exceeding 150 mm.
 - .5 For sodded areas keep topsoil 15 mm below finished grade.
 - .6 Manually spread topsoil/planting soil around trees, shrubs and obstacles.
- .4 Re-instate surface grading to give site same appearance as before remediation work or to final site condition, as indicated.
 - .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
- .5 Place sod with live grass to cover the topsoil.
 - .1 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.
 - .2 Fine grade surface free of humps and hollows to smooth, even grade, to contours and elevations indicated, to tolerance of plus or minus 8 mm, for Turf Grass Nursery Sod, surface to drain naturally.
 - .3 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site.
 - .4 Lay sod within 24 hours of being lifted if air temperature exceeds 20 degrees C.
 - .5 Lay sod sections in rows, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
 - .6 Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.
- .6 Upon completion of Work, remove waste materials and debris, trim slopes, and correct defects as directed by Departmental Representative.
- .7 Clean and reinstate areas affected by Work as directed by Departmental Representative.
- .8 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.
- .9 Clean permanent access roads of contamination resulting from project activity.

3.6 MAINTENANCE OF SOD DURING WARRANTY PERIOD (TO BE COMPLETED BY OTHERS)

- .1 Perform following operations from time of installation until end of warranty period.
 - .1 Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 75 to 100 mm.
 - .2 Cut grass to 50 mm when or prior to it reaching height of 75 mm. Remove clippings which will smother grassed areas.
 - .3 Maintain sodded areas weed free 95%.
 - .4 Repair and resod dead or bare spots to satisfaction of Departmental Representative.

3.7 FIELD QUALITY CONTROL

- .1 Site Tests:
 - .1 Ensure leachate test (TCLP) results conform to provincial hazardous waste regulations.
 - .2 Remove and replace non-compliant materials.

3.8 EQUIPMENT DECONTAMINATION

- .1 Decontaminate equipment used in work in designated area with decontamination pad. Remove from site at end of work.

3.9 ENVIRONMENTAL PROTECTION

- .1 Not used.

3.10 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Comply with requirements of this Section when performing the following work:
 - .1 Removal of lead containing coatings with a chemical gel or paste and fibrous laminated cloth wrap from the exterior walls, as per Remedial Action Plan.
 - .1 Removal of lead containing coatings on heritage buildings shall be completed using this method with an “eco-friendly” chemical peeling agent.
 - .2 Removal of lead containing coatings or materials, or the installation of rigid siding or similar enclosure materials over surfaces with lead containing coatings or materials, using a power tool that has an effective dust collection system equipped with a HEPA filter from the exterior walls, as per Remedial Action Plan.
 - .3 Replacement or removal of lead containing coatings or materials with non-powered hand tools, other than manual scraping and sanding from the exterior walls, as per Remedial Action Plan.
- .2 This section is applicable to the following buildings:
 - .1 Friar Tuck Building
 - .2 Camp Craft
 - .3 TBS Centre
 - .4 Program Building
 - .5 Lunch Barn/Photography Building/Coaches Corner
 - .6 Mom’s Place/Nook and Cranny
 - .7 Maintenance Building
 - .8 Will Scarlett Building
 - .9 Baseball Office
 - .10 Owner’s Residence

1.2 RELATED SECTIONS

- .1 Section 02 83 11 – Lead Paint Abatement - Intermediate Precautions.
- .2 Section 02 83 12 – Lead Paint Abatement - Maximum Precautions.

1.3 REFERENCES

- .1 Ontario Occupational Health and Safety Act
 - .1 O. Reg. 490/09, as amended: *Designated Substances – Lead*.
 - .2 O.Reg. 833/90, as amended: *Control of Exposure to Biological or Chemical Agents*.
 - .3 O.Reg. 860/90, as amended: *Workplace Hazardous Materials Information System (WHMIS)*.
 - .4 O.Reg. 213/01, as amended: *Construction Projects*.

- .5 Ontario Ministry of Labour Guideline: *Lead on Construction Projects*, 2011.
- .2 Ontario Environmental Protection Act
 - .1 O.Reg. 347/90, as amended: *General – Waste Management*.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-Z94.4-18, Respiratory Protection.
- .4 Canadian Department of Justice
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
 - .2 Hazardous Products Act (HPA) and Hazardous Products Regulations, SOR/2015-17 (HPR).
 - .3 Canada Labour Code Part II, SOR 86-304 - Occupational Health and Safety Regulations.
 - .4 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres and/or particles greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Owner, Departmental Representative or representatives of regulatory agencies.
- .3 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. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.
- .4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.
- .5 Competent person: individuals capable of identifying existing lead hazards in workplaces and taking corrective measures to eliminate them.
- .6 Lead dust: dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead per square foot (ug/ft²), based on surficial lead dust sampling.

1.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead waste in accordance with requirements of authority having jurisdiction.

- .3 Provide Provincial Notice of Project Form.
- .4 Provide proof of Contractor's General and Pollution Liability Insurance.
- .5 Quality Control:
 - .1 Provide Departmental Representative copies of all necessary permits and/or approvals for transportation and disposal of lead waste and proof that lead waste has been received and properly disposed by an approved facility.
 - .2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures to mitigate exposure in accordance with the requirements of Part 1.3.1.4 and Part 1.3.1.5.
 - .3 Provide proof satisfactory to Departmental Representative that supervisory personnel have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures to mitigate exposure in accordance with the requirements of Part 1.3.1.4 and Part 1.3.1.5.
- .6 Product data:
 - .1 Provide documentation including test results, fire and flammability data, and Safety Data Sheets (SDS) for all chemicals or materials to be used.

1.6 TEST AREA

- .1 Provide test area for eco friendly chemical peeling agent on heritage buildings prior to commencement of the work.
 - .1 Test area to be 0.3 m x 0.3 m and be located in an inconspicuous location on the building.

1.7 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to lead disturbances, provided that in case of conflict among those requirements or with these specifications the 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 Section 01 35 29.14 - Health and Safety for Contaminated Sites.
 - .2 Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing requirements for workers and visitors include:
 - .1 Respirator: NIOSH approved and meeting *Table 1: Respirator Requirements* of Reference 1.3.1.5.
 - .2 Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
 - .2 Eating, drinking, chewing, vaping and smoking are not permitted in work area.
 - .3 Ensure workers wash hands and face when leaving work area.

.4 Visitor Protection:

- .1 Provide approved respirators to Authorized Visitors to work areas.
- .2 Instruct Authorized Visitors in the procedures to be followed in entering and exiting work area.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling.
- .2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Provincial and Municipal regulations.
 - .1 Disposal of lead waste must comply with Ontario Regulation 347/90.

1.9 EXISTING CONDITIONS

- .1 Reports and information pertaining to lead containing paint to be handled, removed, or otherwise disturbed and disposed of during this Project are provided in the Remedial Action Plan.
- .2 Notify Departmental Representative of additional lead containing paint discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.10 SCHEDULING

- .1 Not later than two days before beginning Work on this Project notify following in writing:
 - .1 Provincial Ministry of Labour.
- .2 Inform sub trades of presence of lead containing materials identified in Existing Conditions.
- .3 Provide Departmental Representative copy of all notifications prior to start of Work.

1.11 INSTRUCTIONS TO CONTRACTOR

- .1 Provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in all aspects of the work procedures, and in use, cleaning, and disposal of respirators and other personal protective equipment.
- .2 Instruction and training related to personal protective equipment must include, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .3 Instruction and training must be provided by competent, qualified person.

- .4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

- .1 Polyethylene 0.25 mm thick (10 mil) unless otherwise specified; in sheet size to minimize joints.
- .2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.
- .3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual lead residue.
- .4 Lead waste containers, including labels and safety marks, must comply with the requirements of the TDGA and O.Reg. 347/90.

Part 3 Execution

3.1 SUPERVISION

- .1 One Supervisor for every ten workers is required.
- .2 Supervisor must remain within work area during disturbance, removal, or handling of lead containing paints.

3.2 PREPARATION

- .1 Remove and store items to be salvaged or reused.
 - .1 Protect and wrap items and transport and store in area specified by Owner.
- .2 Work Area:
 - .1 Isolate the work area utilizing barrier tape, construction fencing or other similar system.
 - .2 Seal off openings (i.e. windows and doors) into buildings within work area.
 - .3 If buildings in work area(s) or immediately downwind have operational HVAC systems, they must be shut off during all active work that disturbs lead to prevent possible lead emissions from entering the HVAC systems and/or buildings.
 - .4 Protect ground surfaces below exterior painted surfaces to be worked on with polyethylene. Polyethylene must be secured to prevent being blown, moved by wind and/or a trip hazard. Positioning of polyethylene must ensure all lead materials are captured to prevent contamination of the ground. Polyethylene must be wetted and cleaned regularly to prevent lead dust/flakes/debris from being blown. Contractor will be solely liable for contamination of ground/structure surfaces or downwind structures due to inadequate and/or inappropriate protective measures.
 - .5 For occupied structures, ensure emergency egress is maintained to satisfaction of Authority(ies) having jurisdiction.

- .6 Provide adequate temporary water supply.
 - .7 Provide temporary electrical power for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA standards. Ensure safe installation of electrical cables and equipment.
 - .8 Provide appropriate decontamination facilities for both workers and equipment. Decontamination facilities must be established such that all workers and all equipment will be cleaned of surficial lead contamination on exit from work area(s), excepting that equipment may be moved between different onsite lead work areas without decontamination provided workers moving said equipment are protected from exposure.
- .3 Do not start work until:
- .1 Arrangements have been made for packaging, labelling and subsequent disposal of waste materials to be generated.
 - .2 Tools, equipment, and waste containers are on site.
 - .3 Arrangements have been implemented for work site security and safety.
 - .4 Decontamination facilities are established for workers and equipment.
 - .5 Notifications have been completed.

3.3 LEAD ABATEMENT

- .1 Remove or disturb lead containing paint in small sections using one or more of the techniques described in Part 1.1.1.
- .2 Frequently mist polyethylene and surfaces to be disturbed to minimise airborne lead emissions.
- .3 As frequently as required to prevent workers from generating airborne lead emissions by walking on, over or through removed lead materials on the polyethylene and/or to prevent airborne lead emissions due to climatic conditions, pack generated waste being removed in labeled waste containers for temporary onsite storage prior to transport and disposal.
- .4 Seal labeled waste containers when full. Clean external surfaces thoroughly by wet sponging. Remove from lead work area to designated staging area. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .5 After completion of lead disturbance activities, wire brush and wet sponge all surfaces from which lead containing paint has been abated to remove all traces of visible material.
- .6 After inspection and concurrence by Departmental Representative that no additional lead work is required in the work area to meet the scope of work, the work area or work enclosure may be dismantled and/or disposed of.

3.4 INSPECTION

- .1 Inspections from Departmental Representative to confirm compliance with specifications and governing authority requirements. Deviations from these requirements not approved

in writing by Departmental Representative will result in work stoppage, at no cost to Owner.

- .2 Departmental Representative will inspect work for:
 - .1 Adherence to specific procedures and materials.
 - .2 Airborne lead emissions.
 - .3 Final cleanliness and completion.
 - .4 Regulatory compliance.
- .3 As per reference 1.3.1.5, precautions and protective measures are based on presumed levels of lead emissions generated during specific abatement activities. Air samples may be collected by the Departmental Representative to verify adequacy of protective and precautionary measures employed relative to the airborne lead emissions.
 - .1 Analytical results will be compared to the allowable occupational exposure limit for lead in Ontario and/or to the classification of work thresholds as per reference 1.3.1.5.
 - .2 If sampled airborne concentrations dictate additional precautionary and/or protective measures are necessary, work to stop until additional measures implemented or the work task(s) altered to reduce airborne emissions of lead. Confirmatory air sampling may then be performed to verify.
- .4 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 LEAD SURFACE SAMPLING - WORK AREAS

- .1 Final lead surface sampling may be conducted by the Departmental Representative as part of the determination as to whether lead remediation activities are complete.
 - .1 Final lead wipe sampling results from horizontal and vertical surfaces must show lead levels of less than 40 micrograms of lead per square foot for interior floors and other smooth, hard surfaces, or less than 250 micrograms per square foot for windowsill and rough surfaces (e.g., wooden structural components).
 - .2 If wipe sampling results show levels of lead in excess of 40 micrograms per square foot or 250 micrograms per square foot, depending on the nature of the surface, all surfaces must be re-cleaned at contractor's expense.
 - .3 Repeat as necessary until lead levels are less than 40 micrograms per square foot for interior floors and other smooth, hard surfaces, or less than 250 micrograms per square foot for windowsill and rough surfaces.

3.6 FINAL CLEANUP

- .1 Following cleaning, visual inspection by Departmental Representative and when all lead wipe surface samples collected are below acceptable concentrations, proceed with final cleanup.
- .2 After misting, remove polyethylene by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.

- .3 Place polyethylene, tape, cleaning material, clothing, and contaminated waste in labeled waste containers for transport as lead waste. Clean external surfaces thoroughly by wet sponging. Remove from lead work area to designated staging area.
- .4 Conduct final visual check of work area to ensure no dust, debris or paint chips remain on surfaces or ground as result of dismantling operations.
- .5 In designated waste staging area, perform final external surface cleaning of all waste containers by wet sponging. Make arrangement for waste pickup by an approved waste carrier. Supervisor must be present during waste pickup. Waste manifest must be signed by a TDGA trained individual. Manifest distribution must be completed within 24 hours per the instructions located on the backside of the manifest.

3.7 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

- .1 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Comply with requirements of this Section when performing following Work:
 - .1 Removal of lead containing paint by scraping or sanding using non-powered hand tools.
 - .2 Application of an encapsulation sealant to lead containing paint using a brush, roller or low pressure sprayer following abrasive preparation of the surface to be sealed, using scraping, sanding or other similar non-powered hand tools, to free the painted surface of loose and flaking paint.
 - .3 Manual demolition of lead-painted plaster walls or building components by striking wall with sledgehammer or similar tool.
- .2 This section is applicable to the following buildings:
 - .1 Friar Tuck Building
 - .2 Camp Craft
 - .3 TBS Centre
 - .4 Program Building
 - .5 Lunch Barn/Photography Building/Coaches Corner
 - .6 Mom's Place/Nook and Cranny
 - .7 Maintenance Building
 - .8 Will Scarlett Building

1.2 RELATED SECTIONS

- .1 Section 02 83 10 – Lead Paint Abatement - Minimum Precautions.
- .2 Section 02 83 12 – Lead Paint Abatement - Maximum Precautions.

1.3 REFERENCES

- .1 Ontario Occupational Health and Safety Act
 - .1 O.Reg. 490/09, as amended: *Designated Substances – Lead*.
 - .2 O.Reg. 833/90, as amended: *Control of Exposure to Biological or Chemical Agents*.
 - .3 O.Reg. 860/90, as amended: *Workplace Hazardous Materials Information System (WHMIS)*.
 - .4 O.Reg. 213/01, as amended: *Construction Projects*.
 - .5 Ontario Ministry of Labour Guideline: *Lead on Construction Projects*, 2011.
- .2 Ontario Environmental Protection Act
 - .1 O.Reg. 347/90, as amended: *General – Waste Management*.
- .3 Canadian Standards Association (CSA International)

- .1 CAN/CSA-Z94.4-18, Respiratory Protection.
- .2 CAN/CSA-Z180.1-00(R2010), Compressed Breathing Air and Systems.
- .4 Canadian Department of Justice
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
 - .2 Hazardous Products Act (HPA) and Hazardous Products Regulations, SOR/2015-17 (HPR).
 - .3 Canada Labour Code Part II, SOR 86-304 - Occupational Health and Safety Regulations.
 - .4 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres and/or particles greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Owner, Departmental Representative or representatives of regulatory agencies.
- .3 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. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.
- .4 Occupied Area: areas of building or work site that is outside Work Area.
- .5 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing low pressure mist or fine spray.
- .6 Competent person: individuals capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.
- .7 Lead dust: dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead per square foot, based on surficial lead dust sampling

1.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead waste in accordance with requirements of authority having jurisdiction.
- .3 Provide Provincial Notice of Project Form.

- .4 Provide proof of Contractor's General and Pollution Liability Insurance.
- .5 Quality Control:
 - .1 Provide Departmental Representative copies of all necessary permits for transportation and disposal of lead waste and proof that that lead waste has been received and properly disposed by an approved facility.
 - .2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures to mitigate exposure in accordance with the requirements of Part 1.3.1.4 and Part 1.3.1.5.
 - .3 Provide proof satisfactory to Departmental Representative that supervisory personnel have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures to mitigate exposure in accordance with the requirements of Part 1.3.1.4 and Part 1.3.1.5 as well as completion of a construction-specific supervision course. Minimum of one supervisor for every ten workers.
- .6 Product data:
 - .1 Provide documentation including test results, fire and flammability data, and Safety Data Sheets (SDS) for all chemicals or materials to be used.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to lead disturbances, provided that in case of conflict among those requirements or with these specifications the 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 Section 01 35 29.14 - Health and Safety for Contaminated Sites.
 - .2 Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing requirements for workers and visitors includes:
 - .1 Respirator: NIOSH-approved and meeting *Table 1: Respirator Requirements* of Reference 1.3.1.5.
 - .2 Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
 - .3 Disposable-type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.
 - .4 Remove street clothes in a designated clean changing area and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in designated changing area.

- .5 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead contaminated materials. Leave reusable items except respirator in Work Area. When not in use in Work Area, store work footwear in a designated area but not the designated changing area. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from Work Area.
- .2 Eating, drinking, chewing, vaping and smoking are not permitted in Work Area.
- .3 Ensure workers are fully protected with respirators and protective clothing during all preparation activities where a risk of lead exposure exists.
- .4 Ensure workers wash hands and face when leaving Work Area.
- .5 Provide and post in designated changing area the procedures described in this Section.
- .6 Ensure no person required to enter Work Area has facial hair that affects seal between respirator and face.
- .7 Visitor Protection:
 - .1 Provide protective clothing and approved respirators to Authorized Visitors to Work Areas.
 - .2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.
 - .3 Instruct Authorized Visitors in the proper procedures to be followed in entering into and exiting from Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling.
- .2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Provincial and Municipal regulations.
 - .1 Disposal of lead waste must comply with O. Reg. 347/90.

1.8 EXISTING CONDITIONS

- .1 Reports and information pertaining to lead containing paint to be handled, removed, or otherwise disturbed and disposed of during this Project are provided in the Remedial Action Plan.
- .2 Notify Departmental Representative of additional lead containing paint discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.9 SCHEDULING

- .1 Not later than two days before beginning Work on this Project notify the following in writing:
 - .1 Provincial Ministry of Labour.

- .2 Inform sub trades of presence of lead-containing materials identified in Existing Conditions.
- .3 Provide Departmental Representative copy of notifications prior to start of Work.

1.10 INSTRUCTIONS TO CONTRACTOR

- .1 Provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in all aspects of the work procedures, and in use, cleaning, and disposal of respirators and other personal protective equipment.
- .2 Instruction and training related to personal protective equipment must include, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .3 Instruction and training must be provided by competent, qualified person.
- .4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

- .1 Polyethylene: 0.25 mm thick (10 mil) unless otherwise specified; in sheet size to minimize joints.
- .2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.
- .3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead residue.
- .4 Lead waste containers, including labels and safety marks, must comply with the requirements of the TDGA and O.Reg. 347/90.

Part 3 Execution

3.1 SUPERVISION

- .1 One Supervisor for every ten workers is required.
- .2 Supervisor must remain within work area during disturbance, removal, or other handling of lead containing paints.

3.2 PREPARATION

- .1 Remove and store items to be salvaged or reused.
 - .1 Protect and wrap items and transport and store in area specified by Owner.
- .2 Work Area:
 - .1 Isolate the work area utilizing barrier tape, construction fencing or other similar system.
 - .2 Seal off openings (i.e., windows and doors) into buildings within work area.
 - .3 If buildings in work area(s) or immediately downwind have operational HVAC systems, they must be shut off during all active work that disturbs lead to prevent possible lead emissions from entering the HVAC systems and/or buildings.
 - .4 Protect ground surfaces below exterior painted surfaces to be worked on with polyethylene. Polyethylene must be secured to prevent being blown, moved by wind and/or a trip hazard. Positioning of polyethylene must ensure all lead materials are captured to prevent contamination of the ground. Polyethylene must be wetted and cleaned regularly to prevent lead dust/flakes/debris from being blown. Contractor will be solely liable for contamination of ground/structure surfaces or downwind structures due to inadequate and/or inappropriate protective measures.
 - .5 At point of access to work areas and on each side of the established lead work area, install legible warning signs reading as follows where number in parentheses indicates minimum font size to be used:
 - .1 CAUTION LEAD HAZARD AREA (25 mm).
 - .2 NO UNAUTHORIZED ENTRY (19 mm).
 - .3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm).
 - .4 BREATHING LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm).
 - .6 For occupied structures, ensure emergency egress is maintained to satisfaction of Authority(ies) having jurisdiction.
 - .7 Provide adequate temporary water supply.
 - .8 Provide temporary electrical power for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA standards. Ensure safe installation of electrical lines and equipment.
 - .9 Provide appropriate decontamination facilities for both workers and equipment. Decontamination facilities must be established such that all workers and all equipment will be cleaned of surficial lead contamination on exit from work area(s), excepting that equipment may be moved between different onsite lead work areas without decontamination provided workers moving said equipment are protected from exposure.
- .3 Do not start work until:
 - .1 Arrangements have been made for packaging, labelling and subsequent disposal of waste materials to be generated.
 - .2 Tools, equipment, and waste containers are on site.

- .3 Arrangements have been implemented for work site security and safety.
- .4 Decontamination facilities are established for workers and equipment.
- .5 Notifications have been completed.

3.3 LEAD ABATEMENT

- .1 Remove or disturb lead containing paint in small sections using one or more of the techniques described in Part 1.1.1.
- .2 Frequently mist polyethylene and surfaces to be disturbed to minimise airborne lead emissions.
- .3 As frequently as required to prevent workers from generating airborne lead emissions by walking on, over or through removed lead materials on the polyethylene and/or to prevent airborne lead emissions due to climatic conditions, pack generated waste being removed in labeled waste containers for temporary onsite storage prior to transport and disposal.
- .4 Seal labeled waste containers when full. Clean external surfaces thoroughly by wet sponging. Remove from lead work area to designated staging area. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .5 After completion of lead disturbance activities, wire brush and wet sponge all surfaces from which lead containing paint has been abated to remove all traces of visible material. During this work keep surfaces wet.
- .6 After inspection and concurrence by Departmental Representative that no additional lead work is required in the work area to meet the scope of work, the work area or work enclosure may be dismantled and/or disposed of.

3.4 INSPECTION

- .1 Inspections from Departmental Representative to confirm compliance with specifications and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to Owner.
- .2 Departmental Representative will inspect work for:
 - .1 Adherence to specific procedures and materials.
 - .2 Airborne lead emissions.
 - .3 Final cleanliness and completion.
 - .4 Regulatory compliance.
- .3 As per Reference 1.3.1.5, precautions and protective measures are based on presumed levels of lead emissions generated during specific abatement activities. Air samples may be collected by the Departmental Representative to verify adequacy of protective and precautionary measures employed relative to the airborne lead emissions.

- .1 Analytical results will be compared to the allowable occupational exposure limit for lead in Ontario and/or to the classification of work thresholds as per reference 1.3.1.5.
- .2 If sampled airborne concentrations dictate additional precautionary and/or protective measures are necessary, work to stop until additional measures implemented or the work task(s) altered to reduce airborne emissions of lead. Confirmatory air sampling may then be performed to verify.
- .4 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 LEAD SURFACE SAMPLING - WORK AREAS

- .1 Final lead surface sampling may be conducted by the Departmental Representative as part of the determination as to whether lead remediation activities are complete.
 - .1 Final lead wipe sampling results from horizontal and vertical surfaces must show lead levels of less than 40 micrograms of lead per square foot for interior floors and other smooth, hard surfaces, or less than 250 micrograms per square foot for windowsill and rough surfaces (e.g., wooden structural components).
 - .2 If wipe sampling results show levels of lead in excess of 40 micrograms per square foot or 250 micrograms per square foot, depending on the nature of the surface, re-clean work area at contractor's expense and apply another acceptable coat of lock-down agent to surfaces.
 - .3 Repeat as necessary until fibre levels are less than 40 micrograms per square foot for interior floors and other smooth, hard surfaces, or less than 250 micrograms per square foot for windowsill and rough surfaces.

3.6 FINAL CLEANUP

- .1 Following cleaning, visual inspection by Departmental Representative and when all lead wipe surface samples collected are below acceptable concentrations, proceed with final cleanup.
- .2 After misting, remove polyethylene by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .3 Place polyethylene, tape, cleaning material, clothing, and other contaminated waste in labeled waste containers for transport as lead waste. Clean external surfaces thoroughly by wet sponging. Remove from lead work area to designated staging area.
- .4 Conduct final check of work area to ensure no dust, debris or paint chips remain on surfaces as result of dismantling operations.
- .5 In designated waste staging area, perform final external surface cleaning of all waste containers by wet sponging. Make arrangement for waste pickup by an approved waste carrier. Supervisor must be present during waste pickup. Waste manifest must be signed by a TDGA trained individual. Manifest distribution must be completed within 24 hours per the instructions located on the backside of the manifest.

3.7 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

- .1 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Comply with requirements of this Section when performing following Work:
 - .1 Removal of lead containing paint from the exterior walls, or replacement of substrates painted with lead containing paints, or installation of rigid siding or similar enclosure materials over surfaces with lead containing coatings, as indicated in the Remedial Action Plan, using power tools without an effective dust collection system equipped with HEPA filter.
 - .2 Abrasive blasting of lead containing paint on exterior walls, as indicated in the Remedial Action Plan.
- .2 This section is applicable to the following buildings:
 - .1 Friar Tuck Building
 - .2 Camp Craft
 - .3 TBS Centre
 - .4 Program Building
 - .5 Lunch Barn/Photography Building/Coaches Corner
 - .6 Mom's Place/Nook and Cranny
 - .7 Maintenance Building
 - .8 Will Scarlett Building

1.2 RELATED SECTIONS

- .1 Section 02 83 10 – Lead Paint Abatement - Minimum Precautions.
- .2 Section 02 83 11 – Lead Paint Abatement - Intermediate Precautions.

1.3 REFERENCES

- .1 Ontario Occupational Health and Safety Act
 - .1 O.Reg. 490/09, as amended: *Designated Substances – Lead*.
 - .2 O.Reg. 833/90, as amended: *Control of Exposure to Biological or Chemical Agents*.
 - .3 O.Reg. 860/90, as amended: *Workplace Hazardous Materials Information System (WHMIS)*.
 - .4 O.Reg. 213/01, as amended: *Construction Projects*.
 - .5 Ontario Ministry of Labour Guideline: *Lead on Construction Projects*, 2011.
- .2 Ontario Environmental Protection Act
 - .1 O.Reg. 347/90, as amended: *General – Waste Management*.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-Z94.4-18, Respiratory Protection.
 - .2 CAN/CSA-Z180.1-00(R2010), Compressed Breathing Air and Systems.

- .4 Canadian Department of Justice
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
 - .2 Hazardous Products Act (HPA) and Hazardous Products Regulations, SOR/2015-17 (HPR).
 - .3 Canada Labour Code Part II, SOR 86-304 - Occupational Health and Safety Regulations.
 - .4 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres and/or particles greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Owner, Departmental Representative or representatives of regulatory agencies.
- .3 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. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.
- .4 Occupied Area: area of building or work site outside Work Area.
- .5 Dispersed Oil Particulate (DOP) Test: testing method used to evaluate particle penetration and air flow resistance properties of filtration materials - HEPA filter leak test.
- .6 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing low pressure mist or fine spray.
- .7 Airlock: ingress or egress system without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.
- .8 Competent person: individuals capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.
- .9 Lead dust: dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead per square foot.
- .10 Negative Air Pressure Machine: extracts air directly from work area, through a HEPA filter, and discharges the filtered air to exterior of building.

1.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.

- .2 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead waste in accordance with requirements of authority having jurisdiction.
- .3 Provide Provincial Notice of Project Form.
- .4 Provide proof of Contractor's General and Pollution Liability Insurance.
- .5 Quality Control:
 - .1 Provide Departmental Representative copies of all necessary permits for transportation and disposal of lead waste and proof that lead waste has been received and properly disposed by an approved facility.
 - .2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures to mitigate exposure.
 - .3 Provide proof satisfactory to Departmental Representative that supervisory personnel have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures to mitigate exposure in accordance with the requirements of Part 1.3.1.4 and Part 1.3.1.5 as well as completion of a construction-specific supervision course. Minimum of one supervisor for every ten workers.
- .6 Product data:
 - .1 Provide documentation including test results, fire and flammability data, and Safety Data Sheets (SDS) for all chemicals or materials to be used.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to lead disturbances, provided that in case of conflict among those requirements or with these specifications the more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
 - .1 Require construction work to be in compliance with the occupational health and safety regulations in 01 35 29.14 - Health and Safety for Contaminated Sites.
 - .2 Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing to be worn by workers while in Lead Work Area includes:
 - .1 Respirator: NIOSH-approved and meeting *Table 1: Respirator Requirements of Reference 1.3.1.5*.
 - .2 Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
 - .3 Disposable-type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

- .4 Remove street clothes in a designated clean changing area and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in designated changing area.
- .5 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead - contaminated materials. Leave reusable items except respirator in Work Area. When not in use in Work Area, store work footwear in a designated area but not the designated changing area. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from Work Area.
- .2 Eating, drinking, chewing, vaping and smoking are not permitted in Work Area.
- .3 Ensure workers are fully protected with respirators and protective clothing during all preparation activities where a risk of lead exposure exists.
- .4 Ensure workers wash hands and face when leaving Work Area.
- .5 Provide and post in designated changing area the procedures described in this Section.
- .6 Ensure no person required to enter Work Area has facial hair that affects seal between respirator and face.
- .7 Visitor Protection:
 - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
 - .2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.
 - .3 Instruct Authorized Visitors in the proper procedures to be followed in entering into and exiting from Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling.
- .2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Provincial and Municipal regulations.
 - .1 Disposal of lead waste must comply with O. Reg. 347/90.

1.8 EXISTING CONDITIONS

- .1 Reports and information pertaining to lead containing paint to be handled, removed, or otherwise disturbed and disposed of during this Project are provided in the Remedial Action Plan.
- .2 Notify Departmental Representative of additional lead containing paint discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.9 SCHEDULING

- .1 Not later than two days before beginning Work on this Project notify the following in writing.
 - .1 Provincial Ministry of Labour.
- .2 Inform sub trades of presence of lead containing materials identified in Existing Conditions.
- .3 Provide Departmental Representative copy of notifications prior to start of Work.

1.10 INSTRUCTIONS TO CONTRACTOR

- .1 Provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in all aspects of the work procedures, and in use, cleaning, and disposal of respirators and other personal protective equipment.
- .2 Instruction and training related to personal protective equipment must include, at minimum:
 - .1 Proper fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .3 Instruction and training must be provided by competent, qualified person.
- .4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

- .1 Polyethylene 0.25 mm thick (10 mil) unless otherwise specified; in sheet size to minimize joints.
- .2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.
- .3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead paint residue.
- .4 Lead waste containers must comply with the requirements of the TDGA and O.Reg. 347/90.

Part 3 Execution

3.1 SUPERVISION

- .1 One Supervisor for every ten workers is required.

- .2 Supervisor must remain within work area during disturbance, removal, or handling of lead containing paints.

3.2 PREPARATION

- .1 Remove and store items to be salvaged or reused.
 - .1 Protect and wrap items and transport and store in area specified by Owner.
- .2 Work Area:
 - .1 Isolate the work area utilizing barriers, partial enclosures or full enclosures, as appropriate to prevent the migration of lead dust from within the work area to outside the work area. Measures found to be insufficient to prevent such migration of lead dust, as determined by the Departmental Representative, will result in a work stoppage until the enclosure is made more suitable for the work being performed, or the work task is changed to prevent lead dust migration.
 - .1 If the work to be performed involves dry abrasive blasting of lead containing paints or coatings, full enclosures must be erected around the work area to prevent the migration of lead dust to outside the work area, in accordance with Reference 1.3.1.5.
 - .2 Seal off openings (i.e., windows and doors) into buildings within work area and buildings within downwind migration areas.
 - .3 If buildings in work area(s) or immediately downwind have operational HVAC systems, they must be shut off during all active work that disturbs lead to prevent possible lead emissions from entering the HVAC systems and/or buildings.
 - .4 Protect ground surfaces below exterior painted surfaces to be worked on with polyethylene. Polyethylene must be secured to prevent being blown, moved by wind and/or a trip hazard. Positioning of polyethylene must ensure all lead materials are captured to prevent contamination of the ground. Polyethylene must be wetted and cleaned regularly to prevent lead dust/flakes/debris from being blown. Contractor will be solely liable for contamination of ground/structure surfaces or downwind structures due to inadequate and/or inappropriate protective measures.
 - .5 At all points of access to work areas and on each side of the established lead work area, install warning signs reading as follows where number in parentheses indicates minimum font size to be used:
 - .1 CAUTION LEAD HAZARD AREA (25 mm).
 - .2 NO UNAUTHORIZED ENTRY (19 mm)
 - .3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm).
 - .4 BREATHING LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm).
 - .6 For occupied structures, ensure emergency egress is maintained to satisfaction of Authority(ies) having jurisdiction.
 - .7 Provide adequate temporary water supply including water for emergency decontamination.
 - .8 Provide electrical power for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for

electrical tools, in accordance with applicable CSA standards. Ensure safe installation of electrical lines and equipment.

- .9 Provide appropriate decontamination facilities for both workers and equipment. Decontamination facilities must be established such that all workers and all equipment will be cleaned of surficial lead contamination on exit from work area(s), excepting that equipment may be moved between different onsite lead work areas without decontamination provided workers moving said equipment are protected from exposure.

- .1 Decontamination facilities must be erected and maintained in accordance with Reference 1.3.1.5.

- .3 Do not start work until:

- .1 Arrangements have been made for packaging, labelling and subsequent disposal of waste materials to be generated.
 - .2 Tools, equipment, and waste containers are on site.
 - .3 Arrangements have been implemented for work site security and safety.
 - .4 Decontamination facilities are established for workers and equipment.
 - .5 Notifications have been completed.

3.3 LEAD ABATEMENT

- .1 Remove or disturb lead containing paint in small sections using one or more of the techniques described in Part 1.1.1.
- .2 Frequently mist polyethylene, lead surfaces and ambient atmosphere in the work area to minimise airborne lead emissions.
- .3 As frequently as required to prevent workers from generating airborne lead emissions by walking on, over or through removed lead materials on the polyethylene and/or to prevent airborne lead emissions due to climatic conditions, pack generated waste being removed in labeled waste containers for temporary onsite storage prior to transport and disposal.
- .4 Seal labeled waste containers when full. Clean external surfaces thoroughly by wet sponging. Remove from lead work area to designated staging area. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .5 After completion of lead disturbance activities, wire brush and wet sponge all surfaces from which lead containing paint has been abated to remove all traces of visible material. During this work keep surfaces wet.
- .6 After inspection and concurrence by Departmental Representative that no additional lead work is required in the work area to meet the scope of work, the work area or work enclosure may be dismantled and/or disposed of.

3.4 INSPECTION

- .1 Inspections from Departmental Representative to confirm compliance with specification and governing authority requirements. Deviations from requirements not approved in

writing by Departmental Representative will result in work stoppage, at no cost to Owner.

- .2 Departmental Representative will inspect work for:
 - .1 Adherence to specific procedures and materials.
 - .2 Airborne lead emissions.
 - .3 Final cleanliness and completion.
 - .4 No additional costs will be allowed for additional labour or materials required to provide specified performance level.
- .3 When lead dust migration from Work Area occurs Departmental Representative will order Work shutdown.
 - .1 No additional costs will be allowed by Contractor for labour or materials required to decontaminate impacted areas from lead emission migration.
- .4 As per Reference 1.3.1.5, precautions and protective measures are based on presumed levels of lead emissions generated during specific abatement activities. Air samples may be collected by the Departmental Representative to verify adequacy of protective and precautionary measures employed relative to the airborne lead emissions.
 - .1 Analytical results will be compared to the allowable occupational exposure limit for lead in Ontario and/or to the classification of work thresholds as per reference 1.3.1.5.
 - .2 If sampled airborne concentrations dictate additional precautionary and/or protective measures are necessary, work to stop until additional measures implemented or the work task(s) altered to reduce airborne emissions of lead. Confirmatory air sampling may then be performed to verify.
- .5 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 LEAD SURFACE SAMPLING - WORK AREAS

- .1 Final lead surface sampling may be conducted by the Departmental Representative as part of the determination as to whether lead remediation activities are complete.
 - .1 Final lead wipe sampling results from horizontal and vertical surfaces must show lead levels of less than 40 micrograms of lead per square foot for interior floors and other smooth, hard surfaces, or less than 250 micrograms per square foot for windowsill and rough surfaces (e.g., wooden structural components).
 - .2 If wipe sampling results show levels of lead in excess of 40 micrograms per square foot or 250 micrograms per square foot, depending on the nature of the surface, re-clean work area at contractor's expense and apply another acceptable coat of lock-down agent to surfaces.
 - .3 Repeat as necessary until fibre levels are less than 40 micrograms per square foot for interior floors and other smooth, hard surfaces, or less than 250 micrograms per square foot for windowsill and rough surfaces.

3.6 FINAL CLEANUP

- .1 Following cleaning, visual inspection by Departmental Representative and when all lead wipe surface samples collected are below acceptable concentrations, proceed with final cleanup.
- .2 After misting, remove polyethylene by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .3 Place polyethylene, tape, cleaning material, clothing, and other contaminated waste in labeled waste containers for transport as lead waste. Clean external surfaces thoroughly by wet sponging. Remove from lead work area to designated staging area.
- .4 Conduct final check of work area to ensure no dust, debris or paint chips remain on surfaces as result of dismantling operations.
- .5 In designated waste staging area, perform final external surface cleaning of all waste containers by wet sponging. Make arrangement for waste pickup by an approved waste carrier. Supervisor must be present during waste pickup. Waste manifest must be signed by a TDGA trained individual. Manifest distribution must be completed within 24 hours per the instructions located on the backside of the manifest.

3.7 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

- .1 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION