PROJECT TITLE Gereaux Island, Ontario
Walkway Improvements and Soil Removal

PROJECT NUMBER R.073170.001

PROJECT DATE 2015-09-18

END OF SECTION

DESIGN ENGINEER: Brian Riggs P.Eng., Riggs Engineering Ltd.

END OF SECTION

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Contract Method.

.2 Cost Breakdown.

.3 Work sequence.

.4 Contractor use of premises.

1.2 PRECEDENCE

.1 For Federal Government projects, Division 01 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 CONTRACT METHOD

.1 Construct work under combined price contract.

1.4 COST BREAKDOWN

.1 Schedule of Prices as listed on the Price Form - Schedule of Prices shall include all labour, materials and equipment necessary to complete the work as specified and as indicated on the drawings.

.2 Within 48 hours of acceptance of bid submit a list of subcontractors of all subcontractors and a detailed break down of all cost associated with the lump sum arrangement.

1.5 WORK SEQUENCE

.1 Work of this Contract shall commence in a logical sequence in accordance with the approved construction schedule.

.2 Be responsible for the sequencing and schedule of the work. And for all work restrictions, including inclement weather and associated downtime for all construction activities.

.3 Maintain fire access/control.

1.6 CONTRACTOR USE OF PREMISES

.1 Contractor has unrestricted use of site until Substantial Performance.

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 MINIMUM STANDARDS

.1 Execute work to meet or exceed:

.1 National Building Code of Canada 2010, National Fire Code of Canada 2010, Ontario Building Code 2012 and any other code of provincial or local application, including all amendments up to project date, provided that in any case of conflict or discrepancy, the more stringent requirements shall apply as directed by the Departmental Representative.

.2 Rules and regulations of authorities having jurisdiction.

.3 Treasury Board of Canada Secretariat, Fire Protection Standard, April 1, 2010.

.4 Observe and enforce construction safety measures required by National Building Code 2010, Part 8 Safety Measures at Construction and Demolition Sites, Occupational Health and Safety Act and Regulations for Construction Projects, Revised Statutes of Ontario 1990, Chapter O.1 as amended, O. Reg. 213/91 as amended by O. Reg. 631/94, O. Reg. 143/99, O. Reg. 571/99, O. Reg. 145/00, O. Reg. 527/00, R.R.O. 1990, Reg. 834, O. Reg. 278/05 (Asbestos), Workplace Safety and Insurance Board and municipal statutes and authorities.

.5 Environmental Protection Act, O. Reg. 102/94 and O. Reg. 103/94.

.6 Ontario Regulation 634/86 for Diving Operations.

1.2 TAXES

.1 Pay applicable Federal, Provincial and Municipal taxes.

1.3 FEES, PERMITS AND CERTIFICATES

.1 Provide authorities having jurisdiction with information requested.

.2 Pay fees and obtain certificates and permits required.

.3 Furnish certificates and permits when requested.

1.4 EXAMINATION

.1 Before submitting tender, examine existing conditions and determine conditions affecting work.

.2 Obtain all information which may be necessary for proper execution of Contract.

1.5 EXISTING CONDITIONS

.1 Be familiarized with all available data and scope, and price accordingly.

.2 Soil bag stabilization summary report for Gereaux Island light station is bound to the specification in Appendix A.

.3 The snake mitigation measures is bound to the specification in Appendix B.

.4 Soil chemistry is bound to the specification in Appendix C.

.5 Access to the island may be by helicopter or small craft. There is a small floating dock in shallow water that is available for use.

1.6 SITE

.1 Confine work, including temporary structures, plant, equipment and materials to established limits of site.

.2 Locate temporary buildings, roads, walks, drainage facilities, services as directed and maintain in clean and orderly manner.

1.7 CONSTRUCTION & STORAGE AREA

.1 The limits of the Construction and Storage Area will be designated by the Departmental Representative prior to commencement of work unless otherwise shown on the Drawings.

1.8 DOCUMENTS

.1 Keep on site, one copy of each of the following:
- .1 Contract documents.
- .2 Contract drawings.
- .3 Specifications.
- .4 Amendments and addenda.
- .5 Change orders.

.6 Other modifications to Contract.

.2 Maintain documents in clean, dry, legible condition.

.3 Make documents available at all times for inspection by Departmental Representative.

.4 Specifications shall govern over Drawings.

1.9 MEASUREMENT PROCEDURES

.1 Items measured for payment are in metric (SI) units.

.2 Submit requests for payment in metric units corresponding with items on the Unit Price Table.

.3 Submit supporting documents in metric units. Perform all necessary conversions required.

1.10 AS-BUILT RECORD DRAWINGS

.1 As work progresses, neatly record significant deviations from the Contract drawings using fine, red marker on full size white prints.

.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 RECORD".

.3 Record following significant deviations:
.1 Depths of various elements and foundations.
.2 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
.3 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
.4 Field changes of dimension.
.5 Other significant deviations which are concealed in construction and can not be identified by visual inspection.

.4 Turn one set of As-Built Record Drawings over to Departmental Representative on completion of work.

.5 If project is completed without significant deviations from contract drawings declare this in writing and submit to Departmental Representative in lieu of As-Built Record Drawings.

1.11 ADDITIONAL DRAWINGS

.1 Departmental Representative may furnish additional drawings to clarify work.

.2 Such drawings become part of Contract Documents.

1.12 LAYOUT OF WORK

.1 Immediately upon entering site for purpose of beginning work on this project, locate all general reference points and take proper action necessary to prevent their disturbance.

.2 Supply stakes and other survey markers required for this work. Employ competent personnel to lay out work in accordance with lines and grades provided.

.3 Maintain all reference points and markers for duration of contract.

1.13 CO-OPERATION & PROTECTION

.1 Execute work with minimum disturbance to normal use of site and work area. Make arrangements with Departmental Representative to facilitate execution of work.

.2 Maintain access and exits.

.3 Provide necessary barriers, warning lights and signs. Protect work from damage. Repair and clean existing structures, roads or other facilities damaged or foul by the work. Replace damaged existing work with material and finish to match original or better. Complete repairs and clean up at no additional cost to Contract.

.4 Maintain all reference points and markers for duration of contract.

1.14 EXISTING UTILITIES

.1 Establish location, protect and maintain existing utility lines.

.2 Connect to existing utilities with minimum disturbance to pedestrian and vehicular traffic.

.3 Make good damage to existing utility line resulting from work.

1.15 OVERLOADING

.1 No part of Work shall be loaded with load which will endanger its safety or will cause permanent deformation.

.2 Repair to original condition any part of work damaged due to overloading at no additional cost to Contract.

1.16 MATERIAL AND EQUIPMENT

.1 Use new products unless otherwise specified.

.2 Deliver and store material and equipment to manufacturer's instructions with manufacturer's labels and seals intact.

.3 When material or equipment is specified by standard or performance specifications, upon request of Departmental Representative, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

1.17 INSPECTION AND TESTING

.1 The Departmental Representative may employ an Inspection and Testing company to ensure work conforms with Contract Documents.

.2 When initial tests and inspections reveal work not to contract requirements, pay for tests and inspections required by Departmental Representative on corrected work.

1.18 SCHEDULING OF WORK

.1 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion.

.2 When schedule has been reviewed by the Departmental Representative take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.

1.19 PROJECT MEETING

.1 Departmental Representative will arrange project meetings, set times, record and distribute minutes. Attend these meetings.

1.20 FIRES AND TEMPORARY HEATERS

.1 Burning of rubbish on site not permitted.

.2 Only fires for temporary heaters are permitted on site.

.3 Maintain temperature required to prevent frost damage to work.

1.21 PROGRESS PHOTOGRAPHS

.1 As soon as work commences, take weekly progress photographs.

.2 View points, which will best illustrate progress of work, will be selected by Departmental Representative.

.3 Digital progress photographs shall be sent to the Departmental Representative on a weekly basis.

1.22 DEMOBILIZATION

.1 Complete demobilization of equipment no later than two weeks after receiving Departmental Representative's written release from work. Do not leave equipment on job site.

END OF SECTION

PART 1 - GENERAL

1.1 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 review is complete.

.3 Present shop drawings, product data and samples 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.

.11 Submit number of hard copies specified for each type and format of submittal and also submit in electronic format as pdf files. Forward pdf, and AutoCad dwg files on USB compatible with PWGSC encryption requirements or through email or alternate electronic file sharing service such as ftp, as directed by Departmental Representative.

1.2 SHOP DRAWINGS AND PRODUCT DATA

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

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario of 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 3 working days for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings 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 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, in duplicate, containing:
- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions shall include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit three hard copies and one electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit three hard copies and one electronic copy 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 three hard copies and one electronic copy 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 contract award for project.

.13 Submit three hard copies and one electronic copy 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 project contract complete with project name.

.14 Submit three hard copies and one electronic copy of manufacturers 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 Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit three hard copies and one electronic copy 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 three hard copies and one electronic copy 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.

.21 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

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

1.3 SAMPLES

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's business address.

.3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Adjustments made on samples 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.

.5 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Safety and Insurance Board Experience Report.

.2 Submit transcription of insurance immediately after award of Contract.

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): Canada
.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 5 Hazardous Processes and Operations, subsection 5.6.1.3 Fire Safety Plan.

.4 Province of Ontario:
.1 Occupational Health and Safety Act Revised Statutes of Ontario 1990, Chapter O.1 as amended, and Regulations for Construction Projects, O. Reg. 213/91 as amended.
.2 O. Reg. 490/09, Designated Substances.
.3 Workplace Safety and Insurance Act, 1997.
.4 Municipal statutes and authorities.

.5 Treasury Board of Canada Secretariat (TBS):
.1 Treasury Board, Fire Protection Standard April 1, 2010 www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text.

.6 Fire Commissioner of Canada (FCC):
.1 FC-301 Standard for Construction Operations, June 1982.
.2 FC-302 Standard for Welding and Cutting, June 1982.

Human Resources and Social Development Canada
Labour Program
Fire Protection Engineering Services
4900 Yonge Street 8th Floor
North York, Ontario M2N 6A8

and copies may be obtained from:

Human Resources and Social Development Canada
Labour Program
Fire Protection Engineering Services
Ottawa, Ontario K1A 0J2

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety Plan: Within 5 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
.1 Results of site specific safety hazard assessment.
.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
.3 Measures and controls to be implemented to address identified safety hazards and risks.

.3 Provide a Fire Safety Plan, specific to the work location, in accordance with NBC, Division B, Article 8.1.1.3 prior to commencement of work. Deliver two copies of the Fire Safety Plan to the Departmental Representative not later than 14 days before commencing work.

.4 Contractor's and Sub-contractors' Safety Communication Plan.

.5 Contingency and Emergency Response Plan addressing standard operating procedures specific to the project site to be implemented during emergency situations.

.6 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 3 three (3) days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within three (3) days after receipt of comments from Departmental Representative.

.7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.8 Submit names of personnel and alternates responsible for site safety and health.

.9 Submit records of Contractor's Health and Safety meetings when requested.

.10 Submit two (2) copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, when requested.

.11 Submit two (2) copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, when requested.

.12 Submit copies of orders, directions or reports issued by health and safety inspectors of the authorities having jurisdiction.

.13 Submit copies of incident and accident reports.

.14 Submit Material Safety Data Sheets (MSDS).

.15 Submit Workplace Safety and Insurance Board (WSIB)- Experience Rating Report.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to commencement of Work.

1.4 WORK PERMIT

.1 Obtain building permits related to project prior to commencement of Work.

1.5 SAFETY ASSESSMENT

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

1.6 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.7 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.

1.8 PROJECT/SITE CONDITIONS

.1 Work at site will involve contact with:
.1 Silica in concrete.
.2 Lead and PCBs in paints and metals and PAHs in soils.
.3 Work at or near water.

.2 Site has no road access from mainland.

.3 Uneven rocky terrain with no established roads.

1.9 GENERAL REQUIREMENTS

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

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns either accepting or requesting improvements.

.3 Relief from or substitution for any portion or provision of minimum Health and Safety standards specified herein or reviewed site-specific Health and Safety Plan shall be submitted to Departmental Representative in writing.

1.10 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990 Chapter 0.1, as amended.

1.11 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

.3 Where applicable the Contractor shall be designated "Constructor", as defined by Occupational Health and Safety Act and Regulations for Construction Projects for the Province of Ontario.

1.12 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.

1.13 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
.1 Have site-related working experience specific to activities associated with nature of site work.
.2 Have working knowledge of occupational safety and health regulations.
.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
.5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.14 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.

1.15 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.

1.16 BLASTING

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

1.17 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 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.

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 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 humans; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.

.3 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues 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 training site personnel.
.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 indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.

.1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.7 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.8 Hazardous and Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.9 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.10 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.

.11 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

.12 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

1.3 FIRES

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

1.4 DRAINAGE

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

.2 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.5 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties as indicated.

.2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
.1 Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

.5 Protect vegetation that does not have to be removed.

.6 Operate construction machinery in a manner that minimizes damage to adjacent vegetation.

1.6 WORK ADJACENT TO WATERWAYS

.1 Construction equipment to be operated on land only.

.2 Waterways to be kept free of excavated fill, waste material and debris.

.3 Do not skid logs or construction materials across waterways.

.4 Do not use water from waterways.

1.7 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

.3 Prevent extraneous materials from contaminating air and waterways beyond application area.
.1 Provide temporary enclosures where necessary to achieve this control.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

.5 Abide by local noise by-laws.

.6 Spills of deleterious substances:
.1 Immediately contain, limit spread and clean up in accordance with provincial regulatory requirements.
.2 Report immediately to Ontario Spills Action Centre: 1-800-268-6060.
.3 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 1-613-996-6666 collect.

.7 Re-fueling of machinery must take place at a safe distance from the waterways as designated by the Departmental Representative.

.8 Machinery to arrive on site in a clean, washed condition and maintained free of leaks.

.9 Wash, refuel, and service machinery and store fuel and other materials for the machinery away from water to prevent any deleterious substance from entering the water.

.10 Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.

1.8 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 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.

1.9 NOTIFICATION

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, 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 Take action only 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.

1.10 MIGRATORY BIRDS/WILDLIFE HABITAT

.1 Disturbance and destruction of habitat should be timed outside of breeding season of mid-April to end of July.

.2 Ensure all works are in compliance with the Migratory Birds Convention Act.

.3 Restrict vehicle movements to construction areas and access roads and avoid harassment of animals.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 CLEANING

.1 Leave Work area clean at end of each day.

.2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

.4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 20.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

PART 1 - GENERAL

1.1 CONSTRUCTION & DEMOLITION WASTE

.1 Carefully deconstruct and source separate materials/equipment and divert, from D&C waste destined for landfill to maximum extent possible. On site sales are not permitted.

.2 Source separate waste and maintain waste audits in accordance with the Environmental Protection Act, Ontario Regulation 102/94 and Ontario Regulation 103/94.
- .1 Provide facilities for collection, handling and storage of source separated wastes.
- .2 Source separate the following waste:
  - .1 Brick and portland cement concrete.
  - .2 Paper products.
  - .3 Wood.
  - .4 Steel.

.3 Submit a waste reduction workplan indicating the materials and quantities of material that will be recycled and diverted from landfill.
- .1 Indicate how material being removed from the site will be reused and recycled.

.4 Submit proof that all waste is being disposed of at a licensed land fill site or waste transfer site. A copy of the disposal/waste transfer site's license and a letter verifying that said landfill site will accept the waste must be supplied to Departmental Representative prior to removal of waste from the demolition site.

1.2 WASTE PROCESSING SITES

.1 Province of: Ontario.
- .1 Ministry of Environment, Public Information Centre, 2nd Floor - Macdonal Block, Suite M2-22 - 900 Bay Street, Toronto, ON, M7A 1N3.
- .2 General Inquiry: 416-325-4000 or 1-800-565-4923 TTY (for persons who are deaf, deafened or hard of hearing).
- .3 Telephone: 416-326-9236 or 1-800-515-2759.
- .4 Fax: 416-323-4682.

.2 Recycling Council of Ontario: 215 Spadina Avenue, #225, Toronto, ON, M5T 2C7.
- .1 Telephone: 416-657-2797.
- .2 Fax: 416-960-8053.

.3 Email: rco@rco.on.ca.
.4 Internet: http://www.rco.on.ca/.

1.3 STORAGE, HANDLING AND PROTECTION

.1 Unless specified otherwise, materials for removal become Contractor's property.

.2 Protect, stockpile, store and catalogue salvaged items.

.3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.4 Protect structural components not removed for demolition from movement or damage.

.5 Support affected structures.

.6 Protect surface drainage, mechanical and electrical from damage and blockage.

.7 Separate and store materials produced during dismantling of structures in designated areas.

.8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
.1 On-site source separation is recommended.
.2 Remove co-mingled materials to off-site processing facility for separation.
.3 Provide waybills for separated materials.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste, volatile materials,mineral spirits, oil, paint thinner, into waterways, onto ground, storm, or sanitary sewers, or in other location where it will pose health or environmental hazard.

.3 All waste materials shall be disposed of in a legal manner at a site approved by Local Authorities.

.4 Provide acceptable containers for collection and disposal of waste materials, debris and rubbish.

.5 Do not allow deleterious substances to enter the waterway.

.6 Keep records of construction waste including:
- .1 Number and size of bins.
- .2 Waste type of each bin.
- .3 Total tonnage generated.
- .4 Tonnage reused or recycled.
- .5 Reused or recycled waste destination.

.7 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.8 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.9 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.10 All waste materials including containers and waste fluids associated with vehicle maintenance shall be disposed of in a legal manner at a site approved by Local Authorities.

.11 Divert unused metal materials from landfill to metal recycling facility as approved by Engineer.

.12 Fold up metal banding, flatten and place in designated area for recycling.

.13 Divert unused concrete materials form landfill to local quarry approved by Engineer.

.14 Divert unused admixtures and additive materials from landfill to official hazardous material collections site as approved by Engineer.

.15 Unused admixtures and additive materials must not be disposed of into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

.16 Prevent admixtures and additive materials from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with inert, noncombustible material and remove for disposal. Dispose of waste in accordance with applicable local, Provincial and National regulations.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 APPLICATION

.1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.3 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Engineer, and consistent with applicable fire regulations.
- .1 Mark containers or stockpile areas.
- .2 Provide instruction on disposal practices.

.2 Divert unused paint/coating materials from landfill to official hazardous material collections site approved by Engineer.

.3 Divert unused metal and wiring materials from landfill to metal recycling facility approved by Engineer.

3.4 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Government Chief Responsibility for the Environment.

Province	Address	General Inquiries	Fax
Ontario	Ministry of Environment Public Information Centre 2nd Floor - Macdonal Block, Suite M2-22 900 Bay St., M7A 1N3	(416) 325-4000 (800) 565-4923 (416) 326-9236 (800) 515-2759	(416) 325-3159

END OF SECTION

PART 1 - GENERAL

1.1 EXISTING CONDITIONS

.1 Part of the existing structure to be removed has sustained a partial failure.

1.2 PROTECTION

.1 Prevent movement, settlement or damage of adjacent parts of existing structure to remain. Make good damage and be liable for injury caused by demolition and removal.

1.3 MEASUREMENT PROCEDURES

.1 Demolition, removals and disposal of existing rail and removal and disposal of unbagged construction debris as indicated on drawings will be measured as part of the Lump Sum Arrangement.

1.4 WORK

.1 Dispose legally off the site all demolished materials.

1.5 SAFETY CODE

.1 Unless otherwise specified, carry out demolition work in accordance with Section 01545 and CSA S350-M1980.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Do not disrupt active power and service lines entering existing buildings and wharf outlets as per rules and regulations of authorities having jurisdiction. Post warning signs on electrical lines and equipment which must remain energized to serve navigational equipment during period of demolition and removal.

3.2 DEMOLITION, REMOVAL AND DISPOSAL

.1 Cut-off existing vertical pipes of railing along walkway flush with the concrete surface. Remove and dispose of existing broken steel railing at locations indicated on drawings.

.2 Remove and dispose of unbagged construction debris at locations indicated on drawings.

.3 All removed railing and construction debris shall be disposed off site in a legal manner and to Section 01 74 20.

.4 Disposal in the lake is not permitted.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Work Includes:

.1 Provision and installation of materials and equipment necessary to remediate site.

.2 Implementation of safety work zones, site Health and Safety Plans and Emergency Response Plans.

.3 Transportation of bags of contaminated soil and waste remaining on site from 2013/14 remediation project.

.4 Manual excavation and disposal of scattered amounts of soil remaining in three zones of 2013/14 remediation project.

1.2 REFERENCES

.1 Applicable environmental and health and safety laws and regulations for Province of Ontario, Municipal by-laws.

.2 National Building Code 2010.

.3 CCME (Canadian Council of Ministers of the Environment) Contaminated Sites, Contaminated Soil and Groundwater, and Remediation of Contaminated Sites most current publications.

.4 National Fire Code 2010.

1.3 MEASUREMENT PROCEDURES

.1 Include all costs associated with mobilization and demobilization in the lump sum arrangement.

.2 Disposal of bags of contaminated soil and bagged debris from the 2013/14 remediation project will be measured by each bag removed and transported to a waste disposal facility. Disposal fees charged by the waste disposal facility will be paid as a separate item.

.3 Manual excavation and disposal of non-hazardous lead-contaminated soil remaining in three zones of the 2013/2014 remediation project will be measured by the kilogram (kg) for all soil excavated and transported to a waste disposal facility. Measurement will made by weigh scales at waste disposal facility. Disposal fees charged by the waste disposal facility will be paid as a separate item.

.4 Disposal fees paid to a licensed waste disposal facility will be measured by the tonne based on weigh bills from the waste disposal facility.

1.4 SUBMITTALS

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

.2 Quality Assurance and Quality Control Submittals:

.1 Provide Quality Assurance and Quality Control Submittals in accordance with section 01 33 00 as follows:

.1 Description of emergency plans in case of breakdown, spill or other problem.

.2 Waste management plan and complete list of wastes, including waste registration numbers as required by provincial regulations, that will be generated by activities.

.3 Closeout Submittals:

.1 Provide Closeout Submittals as follows:

.1 Provide written proof (weigh scale tickets) that contaminated soil has been sent to centre authorized by MOECC for Province of Ontario.

.4 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; health and safety; transportation; waste management;.

.2 WHMIS.

.3 Canadian Environmental Assessment Act.
.4 Canadian Environmental Protection Act (New Substance Notification Regulations).
.5 Transportation of Dangerous Goods Act.
.6 National Building Code of Canada.
.7 National Fire Code of Canada.
.8 The Fisheries Act.
.9 Migratory Birds Convention Act.
.10 Migratory Birds Regulations.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Contaminated Soil:
.1 Store excavated, contaminated soil in drums or water-tight temporary storage cells. Transport and dispose of contaminated soil according to current provincial regulations.

PART 2 - PRODUCTS

2.1 EQUIPMENT

.1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.

.2 Trucks:
.1 Cleaned meticulously between loads of contaminated soil and clean fill.
.2 Cleaned meticulously at end of work day.
.3 Cover truck bodies with tarpaulins during transportation.
.4 Use watertight truck bodies for transporting contaminated soil.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Protection:
.1 Provide safety measures to ensure worker and public safety.

3.2 EXCAVATION

.1 Excavate existing soils at locations within three previous remediation zones. Departmental Representative will identify specific area within three zones at initial site meeting.

.2 Depth of soil to be excavated is typically 200 mm or less.

.3 Store excavated material on site for a period of 7 days prior to shipping from the island. Departmental Representative will analyze the soil and confirm it as non-hazardous prior to shipping.

.4 Transport excavated soil and dispose at licenced waste disposal facility.

3.3 Bag Disposal

.1 Transport excavated soil and debris in existing bags and dispose at licenced waste disposal facility.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA International):
.1 CSA W47.1-R2014, Certification of Companies for Fusion Welding of Steel.
.2 CSA W59-13, Welded Steel Construction (Metal Arc Welding).

1.2 WELDER QUALIFICATIONS

.1 Use only welders qualified under CSA W47.1.

.2 Make available to Departmental Representative currently valid Canadian Welding Bureau Qualification Certificate for each welder employed on the work.

1.3 MEASUREMENT PROCEDURES

.1 Welding will not be measured separately for payment but is considered included in the paid items as specified and indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Welding materials to CSA W59.

.2 Weld electrodes: E49XX.

PART 3 - EXECUTION

3.1 WELDING GENERAL

.1 Welding: CSA W59.

.2 Do not deviate the size, length and location of welds from the design or from details shown on reviewed shop drawings without approval of Departmental Representative.

.3 Grind flush all butt welds.

3.2 PREPARATION

.1 Surfaces to be welded shall be smooth, uniform and free from fins, tears and other defects which would adversely affect the quality of the weld.

.2 Ensure areas within 50 mm of the weld are free from loose scale, slag, rust, grease, moisture, paint or other matter which would impair the quality of the weld.

.3 Remove slag before welding over previously deposited metal and brush clean weld and adjacent base. This requirement applies to successive layers, successive beads and to crater area when welding is resumed after any interruption.

.4 Before welding is started from the second side remove to sound metal the root of the initial weld of all butt welds except when produced with the aid of backing. Thoroughly fuse the weld metal with the backing in all butt welds made with the use of backing of the same material as the base metal.

3.3 ASSEMBLY

.1 Bring members to be welded into correct alignment and hold securely in position until the joint has been welded.

.2 Carefully align abutting parts joined by butt welds.

.3 Weld in a sequence that will balance the effects of applied heat of welding on various sides as the welding progresses.

3.4 WELD QUALITY

.1 Weld metal to be sound throughout with no porosity or cracks on the surface of any weld or weld pass.

.2 Ensure complete fusion between the weld metal and the base metal and between successive passes throughout the joint.

.3 Welds shall be free from overlap and the base metal free from undercutting.

.4 Fill all craters to the full cross section of the welds.

.5 Fill and grind to profile any craters at the extreme ends of fillet welds.

3.5 TESTING

.1 Give Departmental Representative 48 hours notice of when work is ready for inspection.

.2 All welds will be subject to visual inspection requirements of CSA W59.

.3 Welds which fail the visual inspection will be subject to further nondestructive testing. This testing may be either radiographic or ultrasonic. The full length of the weld will be examined.

.4 If more than 50% of the welds fail the visual inspection requirements all welds will be tested by nondestructive testing methods.

.5 Pay all costs for nondestructive testing resulting from visual inspection failure.

.6 Departmental Representative will not approve any weld until all required inspection is completed, found acceptable and marked as such.

3.6 ACCEPTANCE REQUIREMENTS

.1 Welds subject to nondestructive testing unacceptable if:
.1 There is any imperfection within 25 mm from the beginning or end of a butt weld.
.2 There is any type of crack, tear, zone of incomplete fusion or incomplete penetration regardless of size and location.
.3 Inclusion:
.1 Occurs in any 25 mm of a welded joint containing two or more inclusions where the sum of the greatest dimensions of those inclusions exceed 5 mm;
.2 Is greater that one-third the joint thickness but in no case larger than 19 mm.

.2 Repair defective welds by chipping, air-arc gouging or grinding out from one side or both sides. Remove all traces of defects before rewelding. Remove all traces of oxidation after air-arc gouging.

.3 Resubmit all repaired welds to nondestructive testing.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 ASTM International
.1 ASTM A123/A123M-13, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
.2 ASTM A307-12, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.

.2 CSA International
.1 CSA G40.20-04(R2009)/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, pipe, tubing, anchor bolts, carriage bolts, stainless steel screws and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.3 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 WELDER QUALIFICATIONS

.1 To Section 05 12 35.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 20.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Replace defective or damaged materials with new.

1.7 MEASUREMENT PROCEDURES

.1 Supply and installation of guard rail Type 1 to details indicated on drawings will be measured by the linear metre of module width and shall include all labour, materials and equipment necessary to complete the work. Galvanizing all components of the guard rail Type 1 including welding is considered included in the work and will not be measured separately for payment.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Steel hollow structural sections: to CSA G40.20/ G40.21, Grade 350W, minimum 30% recycled content, galvanized.

.2 Steel plates and bars: to CSA G40.20/ G40.21, Grade 300W, minimum 30% recycled content, galvanized.

.3 Welding materials: to Section 05 12 35.

.4 Welding electrodes: to Section 05 12 35.

.5 Threaded rods, nuts and washers: to ASTM A307, galvanized.

.6 Epoxy adhesive for threaded rods: 2 component, solvent free, high modulus, moisture insensitive, high strength structural epoxy suitable for use in cracked or uncracked concrete and capable at a minimum embedment depth of 125 mm to develop a ultimate tensile of 90 kN minimum for a 16 mm diameter rod set in 28 MPA concrete.

.7 Non-shrink grout: composition of non metallic aggregate Portland cement with sufficient water for mixture to retain its shape when made into ball by hand and capable of developing compressive strength of 50 MPa at 28 days.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Where possible, fit and shop assemble work, ready for erection.

.3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2, Coating Grade 85, to ASTM A123/A123M.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 ERECTION

.1 Do welding work in accordance with Section 05 12 35.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
.1 Primer: maximum VOC limit 250 g/L.

3.3 GUARD RAIL TYPE 1

.1 Fabricate and install guard rail Type 1 modules in manner and location indicated on drawings.

.2 Build work square, true, straight and accurate to the required dimensions, free from twists, bends, open joints, sharp corners and sharp edges.

.3 Install posts with threaded rods set into concrete with epoxy adhesive as indicated and specified.

.3 Grout under guardrail post base plates and provide level surface and full contact between base plates and concrete. Hardened concrete is to be roughened prior to application of grout.

3.4 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

.3 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 American Wood-Preservers' Association (AWPA)
- .1 AWPA M2-15, Standard for Inspection of Treated Wood Products.
- .2 AWPA M4-15, Standard for the Care of Preservative-Treated Wood Products.

.2 Canadian Standards Association (CSA International)
- .1 CAN/CSA O80 Series-08(R2012), Consolidated - Wood Preservation.
- .2 CSA O322-02(R2012), Procedure for Certification of Pressure-Treated Wood Materials for Use Preserved Wood Foundations.

1.2 SUBMITTALS

.1 Submit Submittal submissions: in accordance with Section 01 33 00.

.2 Quality assurance submittals:
- .1 Submit certificates in accordance with Section 01 33 00.
- .2 For products treated with preservative submit following information certified by authorized signing officer of treatment plant:
  - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
  - .2 Moisture content after drying following treatment with water-borne preservative.

1.3 DELIVERY, STORAGE, AND HANDLING

.1 Waste Management and Disposal:
- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Preservative: to CSA O80 Series, water-borne, alkali-based (amine/ammonia).
- .1 Category Type: UC3.2.

PART 3 - EXECUTION

3.1 APPLICATION: PRESERVATIVE

.1 Treat all timber materials to CSA O80 Series with retention as specified for Category Type UC3.2.

.2 Following water-borne preservative treatment, dry material to maximum moisture content of 19% or the percentage permitted by the National Lumber Grades Authority's Standard Grading Rules for Canadian Lumber for the applicable species and size.

3.2 APPLICATION: FIELD TREATMENT

.1 Comply with AWPA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.2 Remove chemical deposits on treated wood to receive applied finish.

3.3 HANDLING OF PRESERVATIVE

.1 Prior to use in field treatment, instruct personnel using material in its proper care and handling.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 National Lumber Grades Authority (NLGA)
.1 NLGA Standard Grading Rules for Canadian Lumber 2010.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for all timber components and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit two copies of WHMIS MSDS.

.3 Certifications: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect timber products from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 00.

1.6 MEASUREMENT PROCEDURES

.1 Supply and installation of timber boardwalk includes timber posts, cross beams, stringers, decking, support posts, pickets, vertical top rail, horizontal top rail and all associated hardware will be measured by the square metre of boardwalk installed and shall include all labour, materials and equipment necessary to complete the work.

.2 Supply and installation of guard rail-Type 2 includes timber posts, cross beams and pickets and all associated hardware will be measured by the linear metre of guard rail installed and shall include all labour, materials and equipment necessary to complete the work.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 To NLGA standard Grading Rules for Canadian Lumber, species and grade category as follows:
.1 Species: S-P-F.
.2 Grade: No. 2 or better.
.3 Grading authority: NLGA.
.4 Materials to be new. 100% of lumber to be grade specified.
.5 Preservative treatment to be in accordance with Section 06 05 73.

.2 Post anchor brackets: shall be galvanized, dimension to details indicated on drawings.

.3 Hurricane ties: shall be galvanized and to details indicated on drawings.

.4 Screws: to AISI, Stainless steel, Type 305.

.5 Anchor bolts, nuts and washers: to ASTM A307, galvanized.

.6 Carriage bolts, nuts and washers: to ASTM A307, galvanized.

.7 Epoxy adhesive: to Section 05 50 00.

.8 Galvanizing: to Section 05 50 00.

.9 Non-shrink grout: to Section 05 50 00.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Install timber boardwalk and guard rail Type 2 to details indicated on drawings.

.2 Space decking 3 mm apart. Secure decking to underlying stringers by means of screws. Install two screws at each point of contact. Counter sink heads of screws 3 mm below top of deck, so that top of screws is flush with top of deck.

.3 Apply preservative to end cuts of pressure treated lumber.

3.2 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion remove surplus materials, rubbish, tools and equipment.

.3 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

3.3 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by installation.

END OF SECTION

APPENDIX A

SUMMARY REPORT FOR GEREAUX ISLAND LIGHT STATION (DFRP# 11506)

SOIL BAG STABILIZATION

GEREAUX ISLAND, ONTARIO

15 December 2014

TC140128

Public Works and Government Services Canada
4900 Yonge Street, 11th Floor
Toronto, Ontario M2N 6A6

Attention: Mr. Scott Thompson
Senior Environmental Specialist

Dear Mr. Thompson:

Re: Summary Report for Gereaux Island Light Station (DFRP# 11506)
Soil Bag Stabilization
Gereaux Island, Ontario

AMEC Environment & Infrastructure, a division of AMEC Americas Limited ("AMEC"), is pleased to provide Public Works and Government Services Canada (PWGSC) on behalf of Fisheries and Oceans Canada (DFO) with the following summary report of the Soil Bag Stabilization activities at the Gereaux Island Light Station, located on Gereaux Island, Ontario (the "Site"). The PWGSC project no. is R.073170.003.

The Gereaux Island Light Station is located on Gereaux Island off the north shore of Georgian Bay, approximately 70 kilometers north of Parry Sound, Ontario (refer to Figure 1). Gereaux Island is approximately 200 m by 150 m in size and consists of a lighthouse building, a helicopter pad, a concrete dyke and a residence.

1.0 BACKGROUND

Previous environmental investigations were completed at the Site between 2001 and 2011 by various parties. Results indicated the presence of various metals, petroleum hydrocarbons and polycyclic aromatic hydrocarbons in the soil at concentrations in excess of the applicable CCME Canadian Environmental Quality guidelines at the time. Site Specific Human Health and Ecological Risk Assessments have been completed for the Site and a Site Specific Target Level (SSTL) of 1,737 mg/kg for lead has been developed. Areas of contaminated soils at the Site have been approximated (based on the SSTL). A soil remediation and lead paint abatement program of the station buildings were started by Parton and Son Construction and KGS Group Consulting Engineers (KGS) in the fall of 2013. A reported total of 58 tonnes of non-hazardous and 34 tonnes of hazardous impacted soils were disposed of. However, neither the abatement program nor the soil remediation were finished prior to island access being restricted due to deteriorating weather conditions.

Approximately 86 soil bags were reported to be left on the Site at the end of the 2013 season. These soil bags contain various items including contaminated soil, dumpsite debris and structural debris. Nine (9) of these bags were previously reported by KGS as containing suspect hazardous waste soils, which were field marked with orange paint or flag tape. It is noted that although KGS indicated that there were nine (9) bags containing potentially hazardous waste

soils, only eight (8) bags containing soils and one (1) empty bag were identified by AMEC at the Site.

This report documents the efforts to inventory all of the remaining bags at the Site, secure and stabilize them prior to the upcoming 2014-2015 winter season and the collection of samples for waste classification of the nine (9) bags suspected of containing hazardous waste soils. This work was conducted at three (3) of the identified Federal Contaminated Sites Inventory (FCSI) sites on Gereaux Island: 00012239, 00013238 and 00013239.

2.0 SCOPE OF WORK

The scope of work for the investigation consisted of the follow tasks:

- Developed a Site-specific Health and Safety Plan for the work at the Site;
- Retained a water taxi from Wrights Marina in Byng Inlet to provide access to the Site;
- Performed a Site reconnaissance and inventoried all soil bags present on the Site for their position and condition. The inventory included collecting photographs and GPS data;
- Used hand sample collection methods to collect a soil sample from each of the eight (8) bags suspected of containing hazardous soils and submitted three (3) composite soil samples for laboratory analysis for waste classification purposes;
- Submitted three (3) composited soil samples to laboratory for toxicity characteristic leaching procedure (TCLP) analysis for metals, inorganics and benzo(a)pyrene parameters;
- Evaluated results of the chemical analyses against the applicable leachate criteria; and
- Prepared a report documenting the findings of the investigation.

3.0 METHODOLOGY

AMEC travelled to the Site daily by water taxi from Wrights Marina, located in Britt, Ontario, between 21 and 23 October 2014. Upon arrival at the Site on 21 October 2014, the field team conducted an inspection of the Site to determine the location of the bags at the Site. During the completion of all Site activities, each work area was inspected for the potential presence of the Species at Risk (SAR) noted to frequent the Site, namely, the Eastern Fox Snake and the Massasauga Rattle Snake.

The Site was then divided into six (6) Areas, as shown in Figure 2, in which bags had been grouped together for storage in order to conduct a detailed, itemized inventory. Starting with Area 1, a GPS coordinate was collected and each bag was numbered and described for content, fullness level and condition. Numerous photographs were collected at each Area. The bags were labelled with either with small white numbered tags or with black marker on a piece of flagging tape.

A stainless steel spoon was utilized to collect soil samples from the eight (8) bags found in Area 1 that were thought to potentially contain hazardous waste soils. Three (3) composite samples from the bags were submitted to an accredited laboratory for TCLP analysis.

Once the inventory and sampling activities were completed, each of the bags at the Site were covered in standard duty blue plastic tarps, either in groups or individually, depending on their position relative to neighbouring bags. Tarps were secured in place using rocks from the Site. Tarps were positioned to prevent the infiltration of precipitation into the bags so as to impede potential for leaching and cross contamination with surrounding soils. Where possible and deemed necessary, bags were further stabilized by being wrapped in 80 gauge clear plastic film.

4.0 RESULTS

A total of 92 soil bags were found at the Site located in six (6) Areas. The majority contained sandy soils and peat-like organic soils mixed with varying amounts of garbage debris such as metal and glass. Most of these bags also included vegetation such as small shrubs which were assumed to have been growing on the original excavation locations at the Site. Eight (8) of the 92 bags contained construction debris such as fibre board, wood, siding and shingles and two (2) bags were described as containing potential fire pit materials. The assembled inventory of itemized information on each bag is attached as Appendix A. The approximate layout and position of each bag within each Area, relative to nearby Site structure, if any, is provided on Figures 3A to 3F.

The soil storage bags were generally observed to be in good condition with two (2) noted exceptions, bags 3 and 20, which were found partially tipped and with some soil having spilt to the ground. Both were righted and the split soil shovelled back into the bag prior to stabilization. The majority of bags were found to be between approximately 75 to 100% full.

One (1) bag, #55 in Area 5, was noted to be in close proximity (less than 1 m) to the water, as shown in Figure 3E. Partial submersion of this bag in the water might be possible with a high spring water mark; however, the concrete dock in the harbour did not indicate a much higher water mark than that already present.

Photographic documentation is attached as Appendix B. GPS coordinates were collected with an accuracy of approximately +/- 3 meters and are included on the Inventory Table in Appendix A.

A total of eight (8) bags were identified in Area 1, the Area located near burn pit 2 in which the soil was considered a potentially hazardous waste. A nearby stick with orange flagging tape was the only indication that these were the potentially hazardous bags. A ninth (9^{th}) empty bag was located in the Area. Results of the waste characterization indicate that the soil in bags 1-8 would be considered non-hazardous for disposal purposes. Results are provided in Table 1, attached

No SAR were observed at the Site during any of the Site activities.

5.0 RECOMMENDATIONS FOR FUTURE SITE WORK

According to the Canadian Transportation of Dangerous Goods (TDG) Regulations, in regards to marine transport states that: *A person who handles, offers for transport or transports dangerous goods by ship between two points in Canada… must comply with these Regulations.* However, as the soil analyzed was deemed non-hazardous for disposal purposes, its transport does not fall under the TDG Regulations. Therefore, there are no applicable contaminated soil transportation regulations with regards to transport over open water. Placards and training are specific to TDG.

The methodology previously employed by the remedial contractor at the Site is considered appropriate for future removal of the remaining soil bags: retain a contractor who can provide and operate a barge and request that the locally retained waste contractor travel onboard to the Island to provide input and guidance on loading. The waste contractor would then travel with the wastes to the mainland prior to the loading and transport of the waste materials to the appropriate waste receiving facility.

The cost estimate, excluding PWGSC fees and applicable taxes, for completion of the removal of the soil bags for disposal from the Site is approximately **$44,000**. This includes the collection of the bags by a contractor from the Areas around the Site, moving and loading the bags onto a barge for transit to the mainland, transferring the bags to a truck and transporting them for disposal at an appropriately licensed facility. The approximate estimate break-down is as follows:

Task	Estimate
Transportation of bags from current locations on Gereaux Island to barge, loading onto barge and transport across the Bay to the mainland	$20,000
Transport of bags from mainland to landfill for disposal	$8,000
Contractor's mobilization fee and mark-up	$16,000
Total estimated cost:	**$44,000**

It is AMEC's understanding that further remediation work is required at the Site, based on the report issued by KGS Group regarding the remediation status as of November 2013. Therefore, it would be recommended that the soil bag removal from the Island be completed once the remediation is complete as a cost-savings measure, providing this is to occur in the spring of 2015.

6.0 CONCLUSIONS

A total of 92 soil bags were inventoried over three (3) days on Gereaux Island. The bags were generally found to be in good condition, generally between 75 and 100% full and were comprised of the following:

- 82 of the 92 bags were described to contain a mix of organic peat-like soils, sandy soils, vegetation and/or metal and glass debris;
- Eight (8) of the 92 bags were found to contain construction debris such as shingles, wood, fibre board and siding;
- Two (2) of the bags contained potential burned materials from the fire pit; and,
- Eight (8) bags were sampled for TCLP analysis and were found to be non-hazardous for disposal purposes

A full inventory is provided in Appendix A. The Site was subdivided into six (6) Areas to describe the storage locations of the bags on the Island. GPS coordinates and photographic documentation (Appendix B) were collected from each of the six (6) Areas. Bags were stabilized using standard duty blue plastic tarps and/or 80 gauge plastic film wrap to prevent leaching or cross contamination with surrounding soils over the coming 2014-2015 winter season. It is recommended that the soil bags be disposed of as soon as possible in the spring of 2015, once remediation activities on-Site are completed.

7.0 CLOSURE

This report was prepared for the exclusive use of PWGSC and DFO and is intended to provide a summary of Site activities involving the stabilization of the soil bags on Gereaux Island in Ontario. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from AMEC will be required. With respect to third parties, AMEC has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The investigation undertaken by AMEC with respect to this report and any conclusions or recommendations made in this report reflect AMEC's judgment based on the Site conditions observed at the time of the Site inspection on the date(s) set out in this report and on information available at the time of preparation of this report. This report has been prepared for specific application to this Site and it is based, in part, upon visual observation of the Site and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Site which were unavailable for direct investigation, locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. AMEC has used its professional judgment in analysing this information and formulating these conclusions.

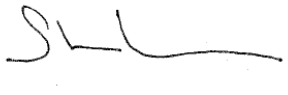
AMEC makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth

herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This Report is also subject to the further Standard Limitations provided in Appendix C.

We trust that this report is sufficient for your needs. AMEC appreciates the opportunity to perform this work for EHM. If you have any questions or concerns regarding this report described above, please do not hesitate to contact the undersigned.

Yours truly,
AMEC Environment & Infrastructure
a Division of AMEC Americas Limited



Megan Russell, M.Env.Sc.
Environmental Scientist

Steven W. Gable, P.Eng., MBA, rmc
Associate Environmental Engineer

Attachments: Figure 1 – Site Location Plan
Figure 2 – Site Plan
Figure 3A-E – Bag Layout Areas 1-6
Table 1 – Ontario Regulation 347 Leachate Analyses for Waste Classification
Appendix A – Soil Bag Inventory
Appendix B – Site Photographs
Appendix C – Limitations

FIGURES

CLIENT LOGO PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	DWN BY: ZF CHK'D BY: MR DATUM: PROJECTION: SCALE: AS SHOWN	PROJECT SUMMARY REPORT FOR GEREAUX ISLAND LIGHT STATION (DFRP# 11506) SOIL BAG STABILIZATION GEREAUX ISLAND, ONTARIO	REV. NO.: A DATE: DECEMBER 2014 PROJECT NO: TC140128
AMEC Environment & Infrastructure 160 Traders Boulevard, Unit #110, Mississauga, Ontario L4Z 3K7	amec	TITLE SITE LOCATION MAP	FIGURE No. 1

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PROJECT

SUMMARY REPORT FOR GEREAUX ISLAND
LIGHT STATION (DFRP# 11506)
SOIL BAG STABILIZATION
GEREAUX ISLAND, ONTARIO

TITLE

SITE PLAN

DATE:	DECEMBER 2014
PROJECT NO:	TC140128
REV. NO.:	A
FIGURE No.	2

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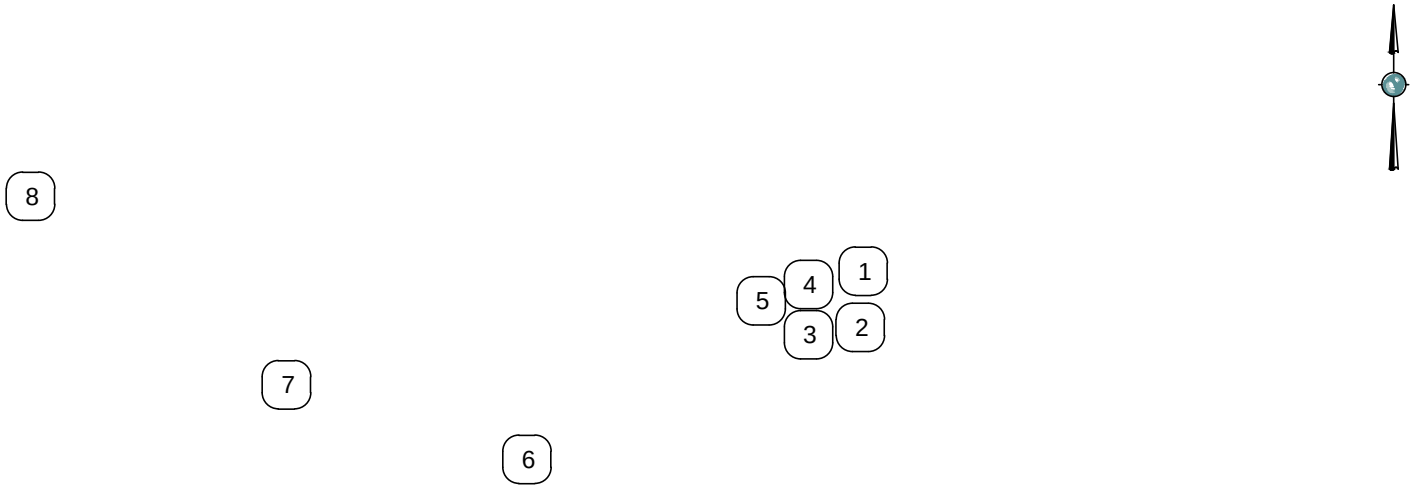

LEGEND:

1 SOIL BAG LOCATION

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SCALE: NTS

PROJECT
SUMMARY REPORT FOR GEREAUX ISLAND
LIGHT STATION (DFRP# 11506)
SOIL BAG STABILIZATION
GEREAUX ISLAND, ONTARIO

TITLE
AREA 1 SITE PLAN

REV. NO.: A
DATE: DECEMBER 2014
PROJECT NO: TC140128
FIGURE No. 3A

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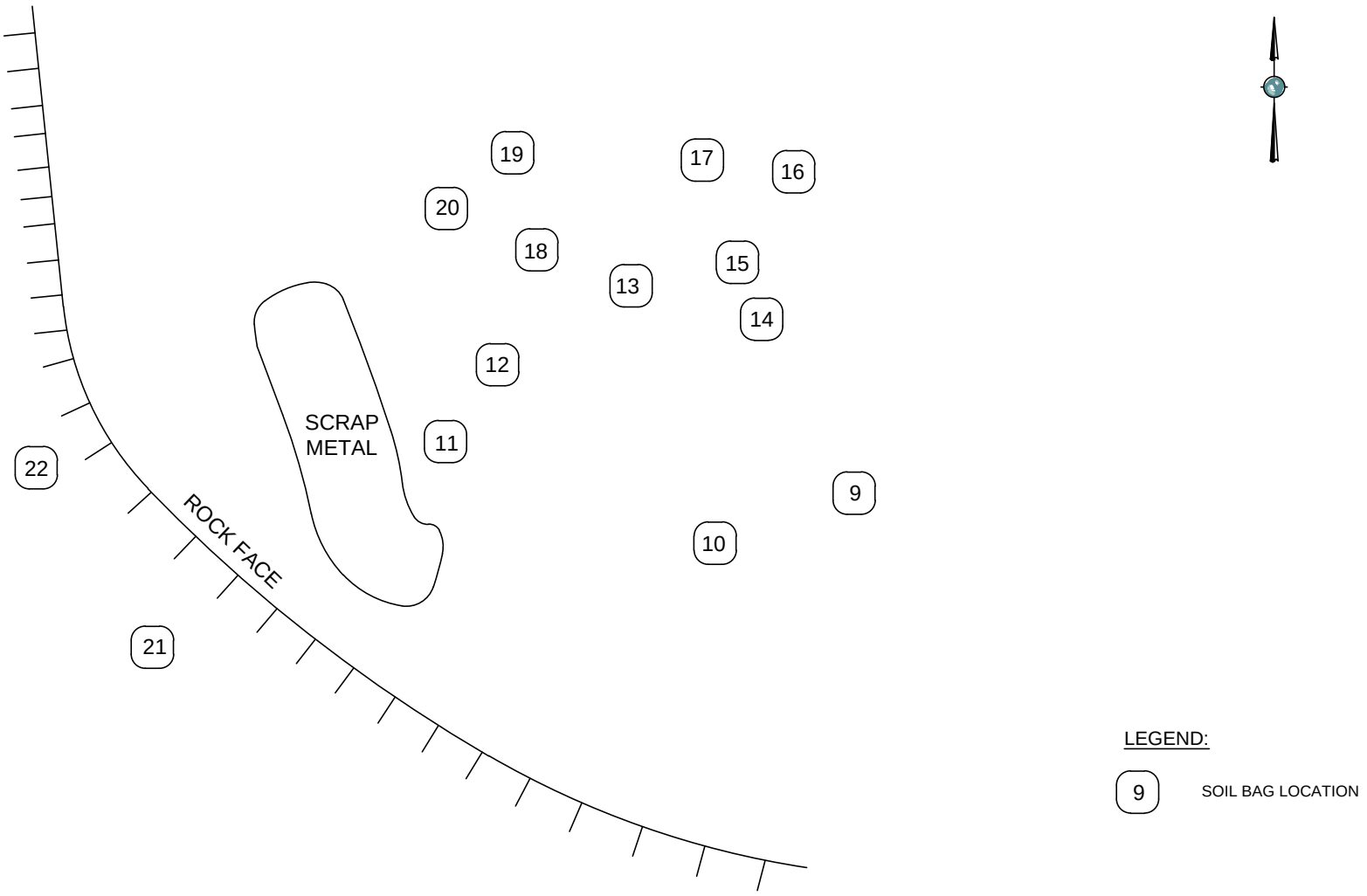

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PROJECT
SUMMARY REPORT FOR GEREAUX ISLAND
LIGHT STATION (DFRP# 11506)
SOIL BAG STABILIZATION
GEREAUX ISLAND, ONTARIO

TITLE
AREA 2 SITE PLAN

REV. NO.: A
DATE: DECEMBER 2014
PROJECT NO: TC140128
FIGURE No. 3B

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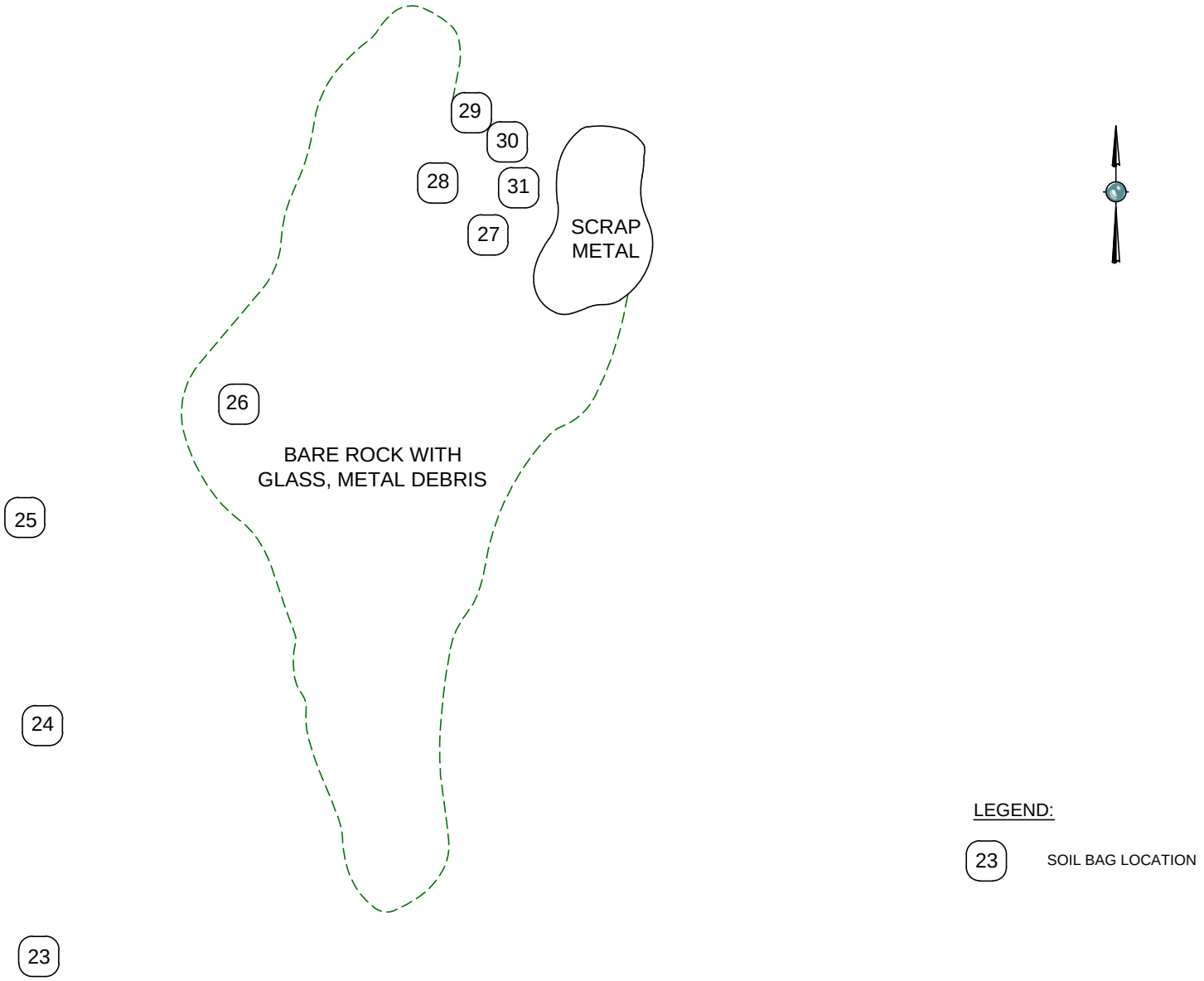

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SCALE: NTS

PROJECT
SUMMARY REPORT FOR GEREAUX ISLAND
LIGHT STATION (DFRP# 11506)
SOIL BAG STABILIZATION
GEREAUX ISLAND, ONTARIO

TITLE
AREA 3 SITE PLAN

REV. NO.: A
DATE: DECEMBER 2014
PROJECT NO: TC140128
FIGURE No. 3C

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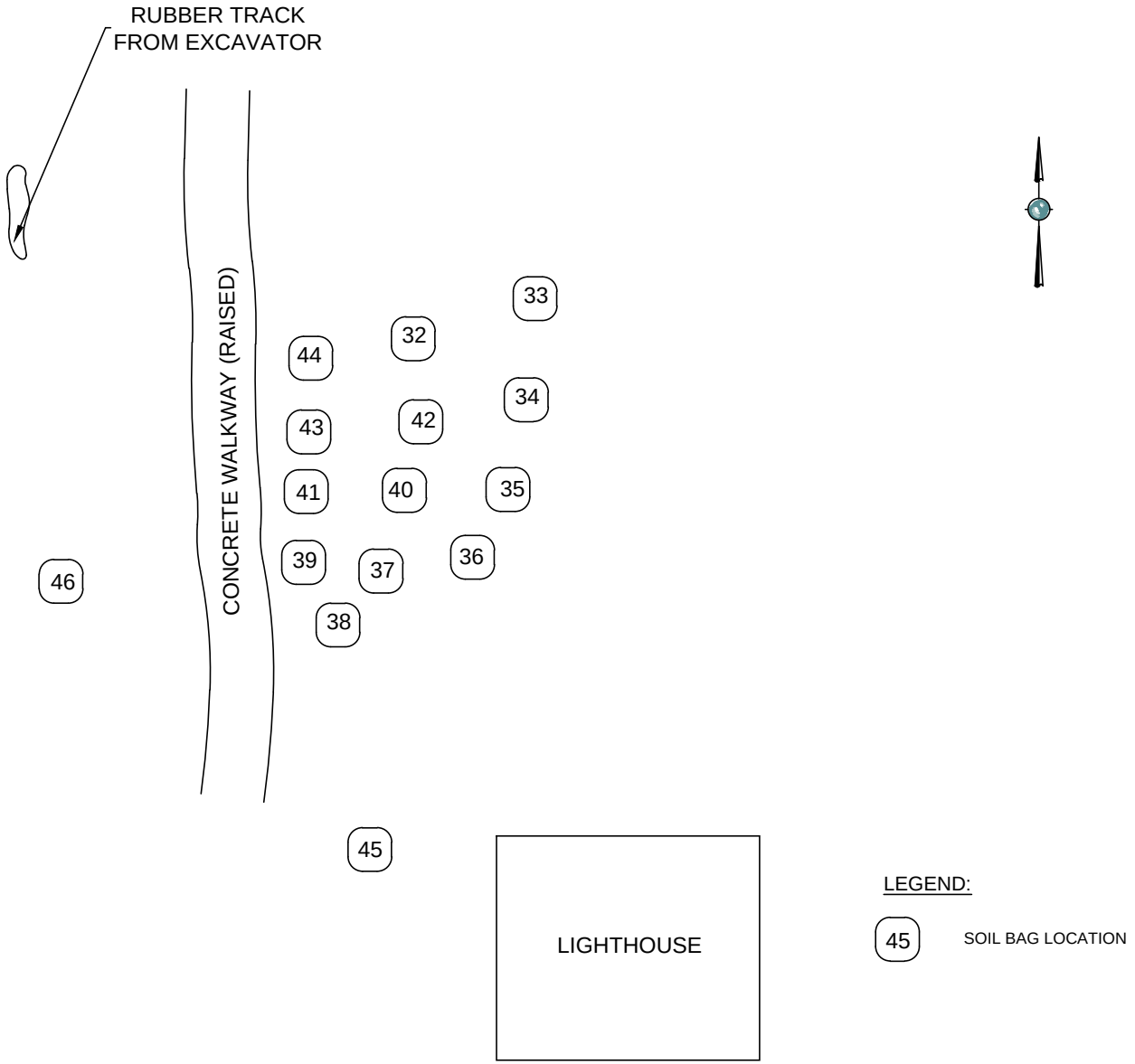

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SCALE:	NTS

PROJECT
SUMMARY REPORT FOR GEREAUX ISLAND
LIGHT STATION (DFRP# 11506)
SOIL BAG STABILIZATION
GEREAUX ISLAND, ONTARIO

TITLE
AREA 4 SITE PLAN

REV. NO.:	A
DATE:	DECEMBER 2014
PROJECT NO:	TC140128
FIGURE No.	3D

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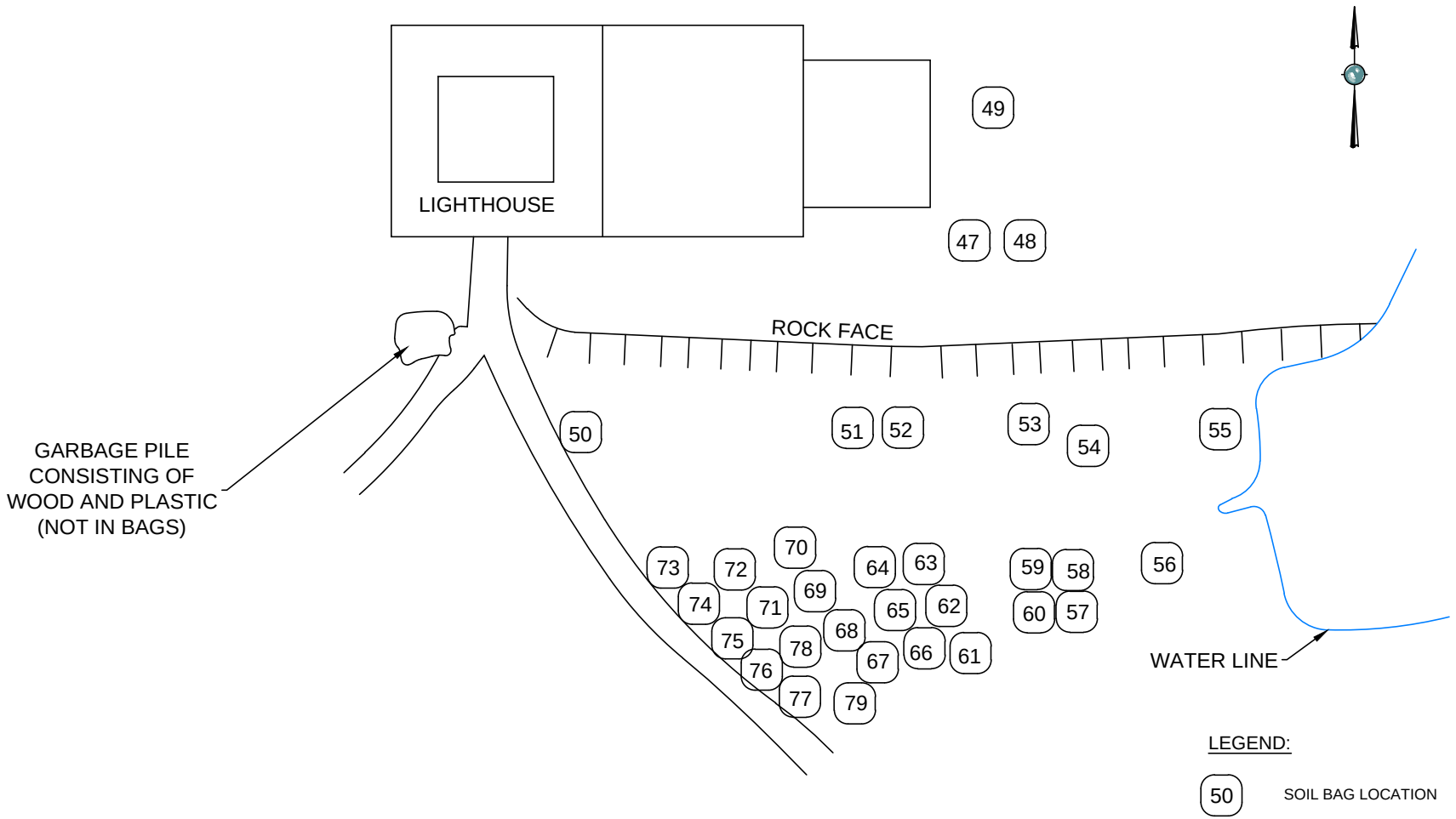

CLIENT LOGO PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	DWN BY: ZF CHK'D BY: MR DATUM: PROJECTION: SCALE: NTS	PROJECT SUMMARY REPORT FOR GEREAUX ISLAND LIGHT STATION (DFRP# 11506) SOIL BAG STABILIZATION GEREAUX ISLAND, ONTARIO	REV. NO.: A DATE: DECEMBER 2014 PROJECT NO: TC140128
AMEC Environment & Infrastructure 160 Traders Boulevard, Unit #110, Mississauga, Ontario L4Z 3K7		TITLE AREA 5 SITE PLAN	FIGURE No. 3E

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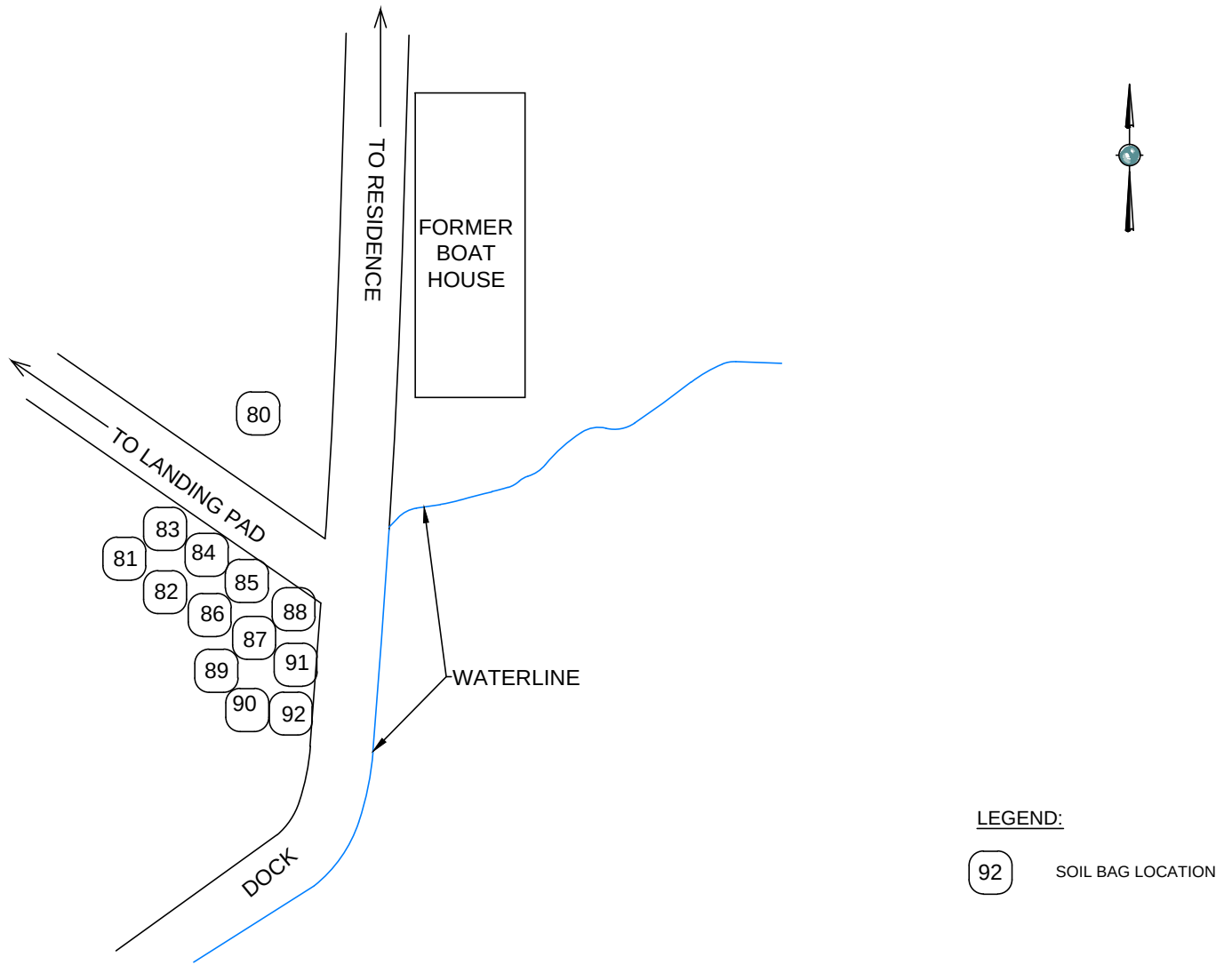

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PROJECTION:	
SCALE:	NTS

PROJECT
SUMMARY REPORT FOR GEREAUX ISLAND LIGHT STATION (DFRP# 11506)
SOIL BAG STABILIZATION
GEREAUX ISLAND, ONTARIO

TITLE
AREA 6 SITE PLAN

REV. NO.:	A
DATE:	DECEMBER 2014
PROJECT NO:	TC140128
FIGURE No.	3E

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TABLE

Table 1 - Ontario Regulation 347
Leachate Analyses for
Waste Classification

Sample Location Laboratory ID Sample ID Sampling Date			TCLP 78 YD9975 TCLP 78 24-Oct-14	TCLP 123 YD9973 TCLP 123 24-Oct-14	TCLP 456 YD9974 TCLP 456 24-Oct-14
TCLP Leachate	**RDL**	**Schedule 4 Leachate Criteria**			
Leachable Fluoride (F-)	0.1	150	0.1	0.1	0.1
Leachable Free Cyanide	0.002	20	<0.0020	<0.0020	<0.0020
Leachable Nitrite (N)	0.1	NA	0.3	0.8	0.3
Leachable Nitrate (N)	1	NA	1	2	2
Leachable Nitrate + Nitrite	1	1000	2	3	2
Final pH	NA	NA	4.94	4.96	4.96
Initial pH	NA	NA	4.30	4.10	4.37
Leachable Mercury (Hg)	0.001	0.1	<0.0010	<0.0010	<0.0010
Leachable Arsenic (As)	0.2	2.5	<0.20	<0.20	<0.20
Leachable Barium (Ba)	0.2	100	<0.20	<0.20	<0.20
Leachable Boron (B)	0.1	500	0.26	0.41	0.27
Leachable Cadmium (Cd)	0.05	0.5	<0.050	<0.050	<0.050
Leachable Chromium (Cr)	0.1	5	<0.10	<0.10	<0.10
Leachable Lead (Pb)	0.1	5	0.54	0.53	0.32
Leachable Selenium (Se)	0.1	1	<0.10	<0.10	<0.10
Leachable Silver (Ag)	0.01	5	<0.010	<0.010	<0.010
Leachable Uranium (U)	0.01	10	<0.010	<0.010	<0.010
Leachable Benzo(a)pyrene	0.0001	0.001	<0.0001	<0.0001	<0.0001

Notes: Ontario Regulation 558/00, Schedule 4 Leachate Criteria. All results reported in mg/L except for Ignitability and flammability which have no units. "RDL" means reportable detection limit. "<" indicates not detected above RDL as shown. Schedule 4 exceedances indicated in **BOLD**. "NV" means no value. "NA" means not applicable.

APPENDIX A

SOIL BAG INVENTORY

Appendix A
Soil Bag Inventory

Bag ID No.	Fullness Level	Bag Contents	Bag Condition Notes	Photo No.		GPS: UTM NAD83	
				Before	After	Northing	Easting
Area 1							
1	Full	Organics, soil, vegetation	Good	2	16	526492	5064604
2	1/2	Organics, soil, vegetation	Good	2	16	526492	5064604
3	3/4	Organics, soil, metal, glass	Fair; partially tipped over	1	15, 16	526492	5064604
4	Full	Organics, soil, metal, glass	Good	2	16	526492	5064604
5	Full	Organics, soil, metal, glass	Good	2	16	526492	5064604
6	1/2	Organics, soil, vegetation	Good	2	16	526492	5064604
7	1/2	Organics, soil, metal	Good	2	16	526492	5064604
8	Full	Organics, soil, vegetation	Good	2	16	526492	5064604
Area 2							
9	Full	Organics, soil, glass, bottles, vegetation	Good	3	17	526456	5065637
10	3/4	Organics, soil, glass, cans, vegetation	Good	3	17	526456	5065637
11	3/4	Organics, metal, glass, vegetation,	Good	3	17	526456	5065637
12	Full	Organics, metal, bottles, vegetation	Good	3	17	526456	5065637
13	Full	Organics, metal, glass, vegetation	Good	3	17	526456	5065637
14	Full	Organics, metal, glass, bottles, vegetation	Good	3	17	526456	5065637
15	Full	Organics, metal, glass, vegetation	Good	3	17	526456	5065637
16	Full	Organics, metal, glass, vegetation	Good	3	17	526456	5065637
17	Full	Organics, metal, glass, vegetation	Good	3	17	526456	5065637
18	Full	Organics, metal, glass, vegetation	Good	3	17	526456	5065637
19	Full	Organics, metal, glass, vegetation	Good	3	17	526456	5065637
20	Full	Organics, soil, metal, glass, bottles, vegetation	Fair; tipped over with small amount spilt	3	17	526456	5065637
21	Full	Organics, metal, glass, vegetation,	Good	3	-	526456	5065637
22	3/4	Organics, soil, metal, glass	Good	3	-	526456	5065637
Area 3							
23	1/2	Organics, soil, metal, glass, vegetation	Good	4	-	526475	5065659
24	3/4	Organics, soil, metal, glass	Good	4	-	526475	5065659
25	Full	Organics, soil, metal, glass	Good	4	18	526475	5065659
26	1/2	Organics, soil, metal, glass	Good	4, 7	18	526475	5065659
27	Full	Organics, soil, metal, glass	Good	4, 6	18	526475	5065659
28	1/2	Organics, soil, metal, glass, wood	Good	4, 6	18	526475	5065659
29	Full	Organics, soil, metal, glass, wood	Good	4, 6	18	526475	5065659
30	1/2	Organics, soil, metal, glass	Good	4, 6	18	526475	5065659
31	Full	Organics, soil, metal, glass	Good	4, 5, 6	18	526475	5065659
Area 4							
32	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
33	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
34	Full	Organics, soil, vegetation	Good	8	19	526504	5065715
35	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
36	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
37	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
38	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
39	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
40	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
41	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
42	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
43	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
44	3/4	Organics, soil, vegetation	Good	8	19	526504	5065715
45	Full	Construction debris (wood, siding, etc.)	Good	9	-	526504	5065715
46	1/2	Construction debris (wood, siding, etc.)	Good	9	19	526504	5065715

Appendix A
Soil Bag Inventory

Bag ID No.	Fullness Level	Bag Contents	Bag Condition Notes	Photo No.		GPS: UTM NAD83	
				Before	After	Northing	Easting
Area 5							
47	Full	Construction debris (wood, siding, etc.)	Good	10	20	526504	5065715
48	Full	Construction debris (wood, siding, caulking tubes, paint can)	Good	10	20	526504	5065715
49	Full	Construction debris (wood, siding, caulking tubes)	Good	10	20	526504	5065715
50	1/4	Organics, soil	Good	-	12, 20	526538	5065703
51	Full	Organics, soil, vegetation	Good	10	12, 20	526538	5065703
52	3/4	Organics, soil, vegetation	Good; partially tipped over but not spilling	10	12, 20	526538	5065703
53	3/4	Organics, soil, vegetation	Good	10	12, 20	526538	5065703
54	1/4	Organics, soil	Good	10	-	526538	5065703
55	3/4	Organics, soil	Good	-	12, 20	526538	5065703
56	3/4	Organics, soil, vegetation	Good	-	12, 20	526538	5065703
57	3/4	Organics, soil	Good	-	12, 20	526538	5065703
58	1/2	Organics, soil	Good	-	12, 20	526538	5065703
59	1/4	Organics, soil	Good	-	12, 20	526538	5065703
60	1/2	Organics, soil	Good	-	12, 20	526538	5065703
61	3/4	Organics, soil	Good	-	12, 20	526538	5065703
62	3/4	Organics, soil	Good	-	12, 20	526538	5065703
63	3/4	Organics, soil	Good	-	12, 20	526538	5065703
64	3/4	Organics, soil	Good	-	12, 20	526538	5065703
65	3/4	Organics, soil	Good	-	12, 20	526538	5065703
66	3/4	Organics, soil	Good	-	12, 20	526538	5065703
67	3/4	Organics, soil	Good	-	12, 20	526538	5065703
68	3/4	Organics, soil	Good	-	12, 20	526538	5065703
69	3/4	Organics, soil	Good	-	12, 20	526538	5065703
70	3/4	Organics, soil	Good	-	12, 20	526538	5065703
71	3/4	Organics, soil	Good	-	12, 20	526538	5065703
72	3/4	Organics, soil	Good	-	12, 20	526538	5065703
73	3/4	Organics, soil	Good	-	12, 20	526538	5065703
74	3/4	Organics, soil	Good	-	12, 20	526538	5065703
75	3/4	Organics, soil	Good	-	12, 20	526538	5065703
76	3/4	Organics, soil	Good	-	12, 20	526538	5065703
77	3/4	Organics, soil	Good	-	12, 20	526538	5065703
78	3/4	Organics, soil	Good	-	12, 20	526538	5065703
79	3/4	Organics, soil	Good	-	12, 20	526538	5065703
Area 6							
80	1/2	Organics, soil, vegetation	Good	11	21	526593	5065614
81	1/2	Organics, soil, vegetation	Good	11	21	526593	5065614
82	1/2	Organics, soil, vegetation	Good	11	21	526593	5065614
83	1/2	Organics, soil, vegetation	Good	11	21	526593	5065614
84	Full	Construction debris (Fibre board)	Good	11	21	526593	5065614
85	1/2	Construction debris (shingles, wood, fibre board)	Good	11	21	526593	5065614
86	Full	Construction debris (Fibre board)	Good	11	21	526593	5065614
87	1/2	Potential fire pit materials	Good	11	21	526593	5065614
88	1/2	Potential fire pit materials	Good	11	21	526593	5065614
89	1/2	Construction debris (shingles, wood, linoleum)	Good	11	21	526593	5065614
90	1/2	Organics, soil, vegetation	Good	11	21	526593	5065614
91	1/4	Sand	Good	11	21	526593	5065614
92	1/2	Sand	Good	11	21	526593	5065614

Notes:
Organics refers to peat-like soils
Vegetation (small shrubs) found growing in the bags that were included in excavated materials.
GPS coordinates are reported at a +/- 3m accuracy for the Area group of bags.

APPENDIX B

SITE PHOTOGRAPHS

Photo 1:
Area 1, bags 1-5 before stabilization. Bag 3 indicates fair condition (partially tipped).

Direction:
Looking north

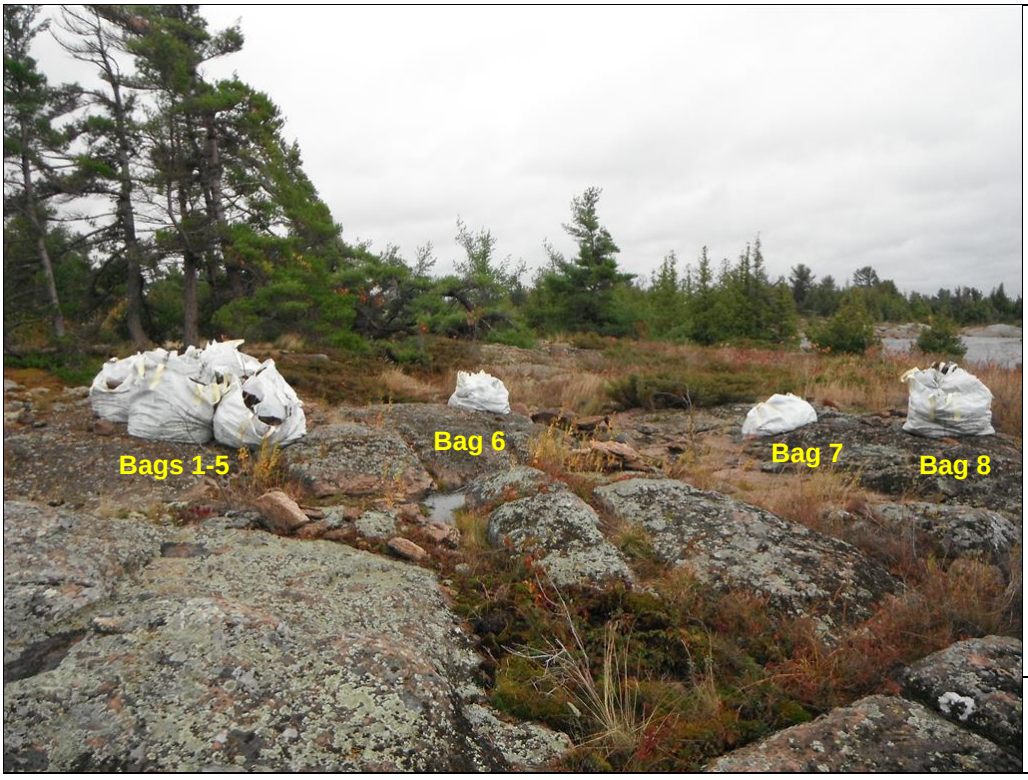

Photo 2:
Area 1, bags 1-8 before stabilization.

Direction:
Looking southwest

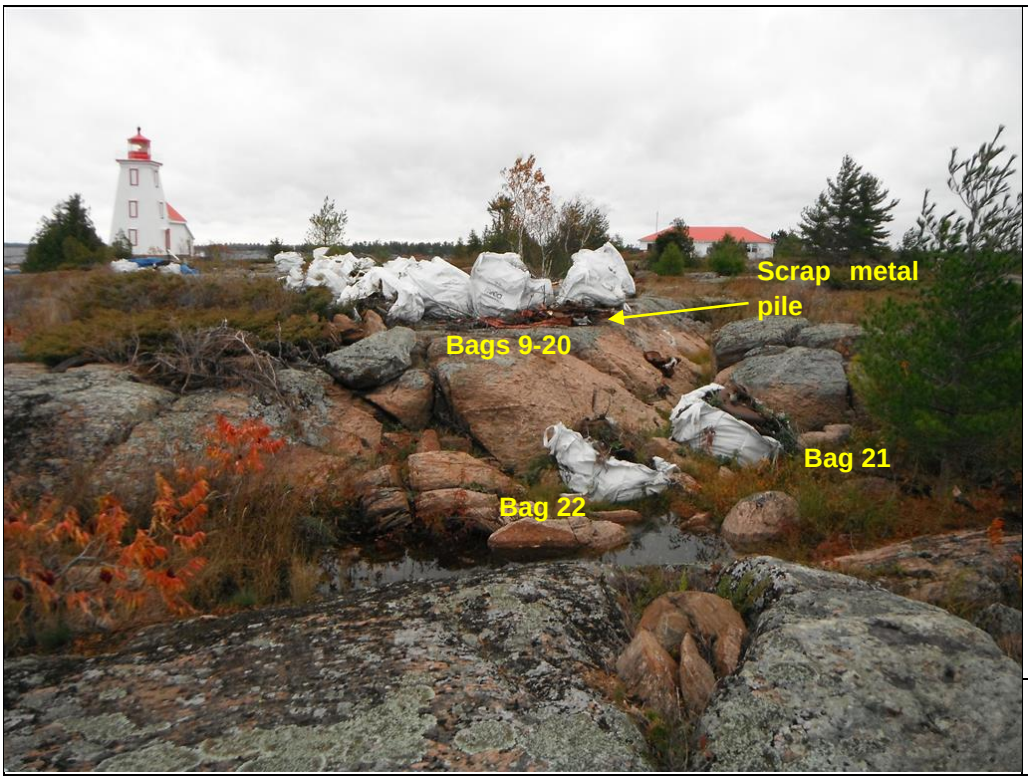

Photo 3:
Area 2, bags 9-22 before stabilization.

Direction:
Looking east

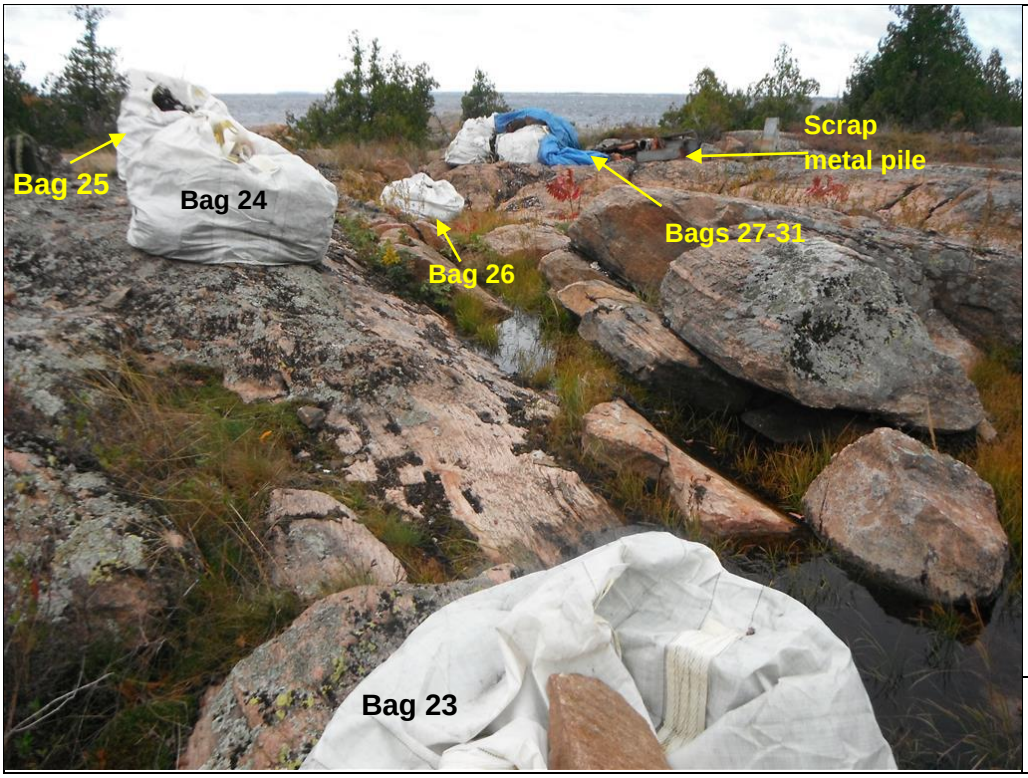

Photo 4:
Area 3, bags 23-31 before stabilization.

Direction:
Looking north

Photo 5:
Area 3, bag 31 before stabilization.
Showing numbering method with flagging tape.

Direction:
N/A

Photo 6:
Area 3 scrap metal pile.

Direction:
Looking west

Photo 7:
Area 3.
Showing ground surface covered with rusted metal and glass debris.

Direction:
N/A

Photo 8:
Area 4, bags 32-44, before stabilization.

Direction:
Looking northwest

Photo 9:
Area 4, bags 45 and 46 before stabilization.

Direction:
Looking east

Photo 10:
Area 5 before stabilization.

Direction:
Looking west

Photo 11:
Area 6, bags 80-92 before stabilization.

Direction:
Looking north

Photo 12:
Area 5, bags 50-79 with partially completed stabilization. View from Lighthouse.

Direction:
Looking south

Photo 13:
Areas 1, 2 and 3 from lighthouse.

Direction:
Looking west

Photo 14:
Area 6 from lighthouse.

Direction:
Looking south

Photo 15:
Area 1, bag 3 righted and spilled contents cleaned up.

Direction:
N/A

Photo 16:
Area 1, bags 1-8 after stabilization.

Direction:
Looking north

Photo 17:
Area 2, bags 9-20 after stabilization.

Direction:
Looking northeast

Photo 18:
Area 3, bags 25-31 after stabilization.

Direction:
Looking northeast

Photo 19:
Area 4, bags 32-44 and 46 after stabilization.

Direction:
Looking southwest

Photo 20:
Area 5, bags 47-79 after stabilization.

Direction:
Looking north

Photo 21:
Area 6, bags 80-92 after stabilization.

Direction:
Looking southeast

Photo 21:
Gereaux Island from the water.

Direction:
Looking west

APPENDIX C

LIMITATIONS

LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:

   (a) The terms of the Standing Offer Agreement (EQ447-141528/001/TOR dated September 11, 2014) between AMEC and Public Works and Government Services Canada (PWGSC);
   (b) The Scope of Services;
   (c) Time and Budgetary limitations as described in our Contract; and,
   (d) The Limitations stated herein.

2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.

3. The conclusions presented in this report were based, in part, on visual observations of the site and attendant structures. Our conclusions cannot and are not extended to include those portions of the site or structures, which were not reasonably available, in AMEC's opinion, for direct observation.

4. The environmental conditions at the site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.

5. The site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.

6. Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on site and may be revealed by different or other testing not provided for in our contract.

7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, AMEC must be notified in order that it may determine if modifications to the conclusions in the report are necessary.

8. The utilization of AMEC's services during the implementation of any remedial measures will allow AMEC to observe compliance with the conclusions and recommendations contained in the report. AMEC's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.

9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party. AMEC accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set our therein.

10. Provided that the report is still reliable, and less than 12 months old, AMEC will issue a third-party reliance letter to parties client identifies in writing, upon payment of the then current fee for such letters. All third parties relying on AMEC's report, by such reliance agree to be bound by our proposal and AMEC's standard reliance letter. AMEC's standard reliance letter indicates that in no event shall AMEC be liable for any damages, howsoever arising, relating to third-party reliance on AMEC's report. No reliance by any party is permitted without such agreement.

APPENDIX B

MITIGATION MEASURES

EASTERN FOX SNAKE AND MASSASAUGA RATTLESNAKE

GEREAUX ISLAND

MITIGATION MEASURES

Eastern Fox Snake and Massasauga Rattlesnake
Gereaux Island

Remediation of impacted soils are planned to be conducted at Gereaux Island, Georgian Bay, Ontario. The project involves lead-based paint abatement of buildings and the removal of impacted soils from areas within the vicinity of a lighthouse and associated boathouse. Potentially, suitable habitat for both the Eastern Fox Snake (*Pantherophis gloydi*) and Massasauga Rattlesnake (*Sistrurus catenatus*) may exist on-site hence there is a possibility for one or more individuals of these species to occur within the area (or the vicinity thereof) to be remediated.

The following mitigation measures are recommended in the event that these snake species are detected prior to commencement of and during remediation.

Mitigation Measures
Eastern Fox Snake and Massasauga Rattlesnake at Gereaux Island

The arrival and mere presence of workers on-site as well as the ignition and movement of equipment should alarm any wildlife (including snakes) and cause them to disperse from the work area prior to commencement of work. This is a desired effect as this will clear the area of all mobile wildlife and this should avoid any need for work stoppage.

Before commencement of work on each day, a trained biologist will visually search and sweep the areas to be remediated to ensure that no snakes or other wildlife are present. As well, color photos of both snake species will be circulated to the workers prior to remediation. This will familiarize them with the physical characteristics of the snakes. Workers will be instructed to alert other colleagues and the Departmental Representative (DR) of any detected snakes' presence and location.

In the event any snake is detected within or in close proximity to the work area, the following steps are recommended:

- The snake's presence should simply be acknowledged and the DR notified;
- It should be allowed to retreat or move away from the work area and vicinity on its own;
- If it is in close proximity to the work area such that there may be risk of inadvertently harming the snake, work can continue in another section of the work area; or,
- Work can stop temporarily and the workers can wait for a short duration (approximately 1/2 hour) and then re-commence work after the snake is a safe distance away from the work area;
- The biologist can casually observe its movements as it retreats and update the workers accordingly;
- The snake (or any wildlife) must ***never*** be touched or picked up. ***All*** wildlife species will potentially bite when cornered and/or picked up. The Massasauga Rattlesnake is venomous.

Upon completion of remediation, the area will be re-seeded and a few trees and shrubs planted and vegetation will be allowed to regenerate naturally. The site will be left in the same physical condition as it currently now except that impacted soil will be replaced with clean soil. The rocks will remain in place. There would be no reduction of suitable habitat for both snake species as a result of this project.

Figure 1: Eastern Fox Snake

Source: Nature Conservancy

Figure 2: Massasauga Rattlesnake

Source: Species-at-Risk Public Registry, Government of Canada

Figure 3: Northern Water Snake

Source: Michigan Society of Herptologists

Key distinguishing Characteristics

Eastern Fox Snake

Length: large 91 – 137 cm. Patterned with bold dark brown or black blotches on a yellowish background with alternating smaller blotches on the sides. Adults lack any distinct patterns or conspicuous markings on the head. Can be mistaken for the Massasauga, however the Massasaugas has darker coloration and lighter brown blotches and vertical eye pupil.

Massasauga Rattlesnake

Length: medium 50 – 70 cm long. Stout-bodied snake. Triangular head. Tail ends in a rattle. Sides and back is typically grey to dark brown with a row of dark brown blotches down the centre of the back alternating with rows of smaller lateral spots. Eye pupil is vertical.

Northern Water Snake

Length: large 61 – 140 cm. Color may be brown, tan or gray. Back and sides have a variable pattern of black, dark brown, or reddish brown cross bands and blotches that alternate and may merge. The blotched pattern may become obscured by dark pigment over time and older adults can appear solid brown or black, especially when their skin is dry.

Note: this species is not an at-risk species but is included since individuals can be mistaken for a Massasauga.

APPENDIX C

SOIL CHEMISTRY

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: DST CONSULTING ENGINEERS
1351 - E KELLY LAKE ROAD
SUDBURY, ON P3E5P5
(705) 523-6680

ATTENTION TO: Curtis Schmidt

PROJECT: OE-SD-020980

AGAT WORK ORDER: 15U987061

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

DATE REPORTED: Jun 25, 2015

PAGES (INCLUDING COVER): 9

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-25

SAMPLE DESCRIPTION:				B2		B10		B16		CH4
SAMPLE TYPE:				Soil		Soil		Soil		Soil
DATE SAMPLED:				6/9/2015		6/9/2015		6/9/2015		6/9/2015
Parameter	Unit	G / S	RDL	6671692	RDL	6671701	RDL	6671704	RDL	6671709
Antimony	µg/g		0.8	1.0	0.8	1.8	0.8	4.4	0.8	1.2
Arsenic	µg/g		1	11	1	24	1	10	1	10
Boron	µg/g		5	<5	5	5	5	10	5	<5
Barium	µg/g		2	54	2	167	2	505	2	71
Beryllium	µg/g		0.5	<0.5	0.5	0.9	0.5	<0.5	0.5	<0.5
Cadmium	µg/g		0.5	1.0	0.5	2.3	0.5	1.5	0.5	<0.5
Chromium	µg/g		2	9	2	45	2	36	2	11
Cobalt	µg/g		0.5	3.0	0.5	19.2	0.5	24.2	0.5	6.7
Copper	µg/g		1	63	1	230	1	261	1	107
Lead	µg/g		1	194	1	679	10	2830	1	1100
Molybdenum	µg/g		0.5	1.4	0.5	3.4	0.5	2.3	0.5	1.6
Nickel	µg/g		1	39	1	75	1	42	1	51
Selenium	µg/g		0.4	3.1	0.4	4.1	0.4	1.0	0.4	1.9
Silver	µg/g		0.2	0.2	0.2	0.5	0.2	0.5	0.2	0.2
Thallium	µg/g		0.4	<0.4	0.4	<0.4	0.4	<0.4	0.4	<0.4
Uranium	µg/g		0.5	0.8	0.5	3.0	0.5	0.7	0.5	0.7
Vanadium	µg/g		1	22	1	44	1	42	1	35
Zinc	µg/g		5	47	50	3400	5	1800	5	117

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

6671701-6671704 Elevated RDL indicates the degree of sample dilution prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument.

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil) - Pb

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-25

		SAMPLE DESCRIPTION:		B7	B12	B12D	B14	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	
		DATE SAMPLED:		6/9/2015	6/9/2015	6/9/2015	6/9/2015	
Parameter	Unit	G / S	RDL	6671700	6671702	6671703	6671713	
Lead	µg/g		1	80	358	344	925	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - ORPs (Soil) - CrVI & Hg

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-25

		SAMPLE DESCRIPTION:		B2	B10	B16	CH4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/9/2015	6/9/2015	6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671692	6671701	6671704	6671709
Chromium VI	µg/g		0.2	<0.2	<0.2	<0.2	<0.2
Mercury	µg/g		0.10	0.32	0.90	0.31	0.20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-25

		SAMPLE DESCRIPTION:		TCLP 83	TCLP 88
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671705	6671707
Arsenic Leachate	mg/L	2.5	0.010	<0.010	<0.010
Barium Leachate	mg/L	100	0.100	0.510	1.03
Boron Leachate	mg/L	500	0.050	<0.050	0.102
Cadmium Leachate	mg/L	0.5	0.010	<0.010	<0.010
Chromium Leachate	mg/L	5.0	0.010	<0.010	0.011
Lead Leachate	mg/L	5.0	0.010	0.083	1.35
Mercury Leachate	mg/L	0.1	0.01	<0.01	<0.01
Selenium Leachate	mg/L	1.0	0.010	<0.010	<0.010
Silver Leachate	mg/L	5.0	0.010	<0.010	<0.010
Uranium Leachate	mg/L	10.0	0.050	<0.050	<0.050
Fluoride Leachate	mg/L	150	0.05	<0.05	<0.05
Cyanide Leachate	mg/L	20.0	0.05	<0.05	<0.05
(Nitrate + Nitrite) as N Leachate	mg/L	1000	0.70	<0.70	3.34

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Regulation 558

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Jun 25, 2015			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Comprehensive) (Soil)															
Antimony	6671704	6671704	4.4	4.2	4.7%	< 0.8	85%	70%	130%	86%	80%	120%	87%	70%	130%
Arsenic	6671704	6671704	10	10	0.0%	< 1	102%	70%	130%	101%	80%	120%	101%	70%	130%
Boron	6671704	6671704	10	10	0.0%	< 5	89%	70%	130%	107%	80%	120%	85%	70%	130%
Barium	6671704	6671704	505	441	13.5%	< 2	98%	70%	130%	99%	80%	120%	96%	70%	130%
Beryllium	6671704	6671704	<0.5	<0.5	0.0%	< 0.5	83%	70%	130%	99%	80%	120%	90%	70%	130%
Cadmium	6671704	6671704	1.5	1.4	6.9%	< 0.5	102%	70%	130%	98%	80%	120%	96%	70%	130%
Chromium	6671704	6671704	36	36	0.0%	< 2	89%	70%	130%	103%	80%	120%	95%	70%	130%
Cobalt	6671704	6671704	24.2	24.3	0.4%	< 0.5	98%	70%	130%	104%	80%	120%	93%	70%	130%
Copper	6671704	6671704	261	288	9.8%	< 1	85%	70%	130%	98%	80%	120%	87%	70%	130%
Lead	6671704	6671704	2830	2630	7.3%	< 1	103%	70%	130%	96%	80%	120%	88%	70%	130%
Molybdenum	6671704	6671704	2.3	2.1	9.1%	< 0.5	104%	70%	130%	98%	80%	120%	101%	70%	130%
Nickel	6671704	6671704	42	42	0.0%	< 1	96%	70%	130%	104%	80%	120%	92%	70%	130%
Selenium	6671704	6671704	1.0	0.9	10.5%	< 0.4	98%	70%	130%	94%	80%	120%	97%	70%	130%
Silver	6671704	6671704	0.5	0.5	0.0%	< 0.2	95%	70%	130%	107%	80%	120%	102%	70%	130%
Thallium	6671704	6671704	<0.4	<0.4	0.0%	< 0.4	89%	70%	130%	101%	80%	120%	92%	70%	130%
Uranium	6671704	6671704	0.7	0.6	15.4%	< 0.5	100%	70%	130%	93%	80%	120%	89%	70%	130%
Vanadium	6671704	6671704	42	42	0.0%	< 1	87%	70%	130%	100%	80%	120%	92%	70%	130%
Zinc	6671704	6671704	1800	1760	2.2%	< 5	96%	70%	130%	97%	80%	120%	97%	70%	130%
O. Reg. 153(511) - ORPs (Soil) - CrVI & Hg															
Chromium VI	6678869		<0.2	<0.2	0.0%	< 0.2	95%	70%	130%	96%	80%	120%	99%	70%	130%
Mercury	6671704	6671704	0.31	0.35	12.1%	< 0.10	115%	70%	130%	94%	80%	120%	87%	70%	130%
O. Reg. 558 Metals and Inorganics															
Arsenic Leachate	6668607		<0.010	<0.010	0.0%	< 0.010	96%	90%	110%	99%	80%	120%	101%	70%	130%
Barium Leachate	6668607		0.511	0.516	1.0%	< 0.100	96%	90%	110%	100%	80%	120%	101%	70%	130%
Boron Leachate	6668607		<0.050	<0.050	0.0%	< 0.050	94%	90%	110%	99%	80%	120%	85%	70%	130%
Cadmium Leachate	6668607		<0.010	<0.010	0.0%	< 0.010	93%	90%	110%	99%	80%	120%	101%	70%	130%
Chromium Leachate	6668607		<0.010	<0.010	0.0%	< 0.010	100%	90%	110%	102%	80%	120%	92%	70%	130%
Lead Leachate	6668607		<0.010	<0.010	0.0%	< 0.010	93%	90%	110%	89%	80%	120%	88%	70%	130%
Mercury Leachate	6668607		<0.01	<0.01	0.0%	< 0.01	105%	90%	110%	89%	80%	120%	86%	70%	130%
Selenium Leachate	6668607		<0.010	<0.010	0.0%	< 0.010	91%	90%	110%	93%	80%	120%	95%	70%	130%
Silver Leachate	6668607		<0.010	<0.010	0.0%	< 0.010	92%	90%	110%	97%	80%	120%	100%	70%	130%
Uranium Leachate	6668607		<0.050	<0.050	0.0%	< 0.050	100%	90%	110%	92%	80%	120%	91%	70%	130%
Fluoride Leachate	6668607		0.32	0.32	0.0%	< 0.05	97%	90%	110%	98%	90%	110%	87%	70%	130%
Cyanide Leachate	6668607		<0.05	<0.05	0.0%	< 0.05	100%	90%	110%	102%	90%	110%	100%	70%	130%

Certified By:

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Quality Assurance

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Jun 25, 2015			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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Method Summary

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987061

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Barium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Boron Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Cadmium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Chromium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Lead Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Mercury Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Selenium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Silver Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Uranium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Fluoride Leachate	INOR-93-6018	EPA SW-846-1311 & SM4500-F- C	ION SELECTIVE ELECTRODE
Cyanide Leachate	INOR-93-6052	EPA SW-846-1311 & MOE 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
(Nitrate + Nitrite) as N Leachate	INOR-93-6053	EPA SW 846-1311 & SM 4500 - NO3- I	LACHAT FIA

AGAT Laboratories

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Chain of Custody Record

Laboratory Use Only
Arrival Temperature: 4.8 / 5.2 / 4.7
AGAT WO #: 15V987061
Lab Temperature:
Notes:

Client Information
Company: DST Consulting Engineers Inc.
Contact: Curtis Schmidt
Address: 885 Regent St. Suite 3-1B
Sudbury ON P3E 5M4
Phone: 705 523 6680 Fax:
Project: OE-SD-020980 PO:
AGAT Quotation #: See Rigg's
Please note, if quotation number is not provided, client will be billed full price for analysis.

Regulatory Requirements
- ☐ Regulation 153/04 (reg. 511 Amend.) — Table ____ (Indicate one) — ☐ Ind/Com ☐ Res/Park ☐ Agriculture
- Soil Texture (check one): ☒ Coarse ☐ Fine
- ☐ Sewer Use — Region ____ (Indicate one) — ☐ Sanitary ☐ Storm
- ☒ Regulation 558 (for TCLP) ☒ CCME ☐ Other (specify) ☐ Prov. Water Quality Objectives (PWQO) ☐ None

Turnaround Time Required (TAT) Required*
Regular TAT
☒ 5 to 7 Working Days
Rush TAT (please provide prior notification)
Rush Surcharges Apply
☐ 3 Working Days ☐ 2 Working Days ☐ 1 Working Day
OR
Date Required (Rush surcharges may apply):
*TAT is exclusive of weekends and statutory holidays

Invoice To
Same: Yes ☐ No ☒
Company: Rigg's Engineering
Contact: Brian Riggs
Address: 205 - 1240 Commissioners Rd. W. London, ON

Is this a drinking water sample? (potable water intended for human consumption) ☐ Yes ☒ No
If "Yes", please use the Drinking Water Chain of Custody Form

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Legend Matrix
GW Ground Water · O Oil · SW Surface Water · P Paint · SD Sediment · S Soil

Report Information – reports to be sent to:
1. Name: Curtis Schmidt
Email: cschmidt@dstgroup.com
2. Name:
Email:

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics: Metal Scan (incl. Hg and Cr6)	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC ☐ FOC ☐ Cr+6- ☐ SAR ☐ NO_3/NO_2 ☐ N- Total ☐ Hg ☐ pH	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3/NO_2	VOC: ☐ VOC ☐ THM ☐ BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	Lead (Pb) Only
B2	Jun 9/15		S	1		X													X
B7	"		"	1															
B10	"		"	1		X													
B12	"		"	1															X
B12 D	"		"	1															X
B16	"		"	1		X													
CH1	"		"	1	Pb only	X													X
TCLP B3	"		"	2														X	
TCLP B8	"		"	2														X	
CH4	"		"	1		X													
B14	"		"	1															X

Samples Relinquished By (Print Name and Sign): Curtis Schmidt — Date/Time: Jun 18/15 1355
Samples Received By (Print Name and Sign): — Date/Time: June 18/15
Samples Relinquished By (Print Name and Sign): — Date/Time:
Samples Received By (Print Name and Sign): — Date/Time: Jun 19 9:20

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 1 of 1
N°: 53200

Document ID: DIV-78-1511.006
Date Issued: May 31, 2013

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CLIENT NAME: DST CONSULTING ENGINEERS
1351 - E KELLY LAKE ROAD
SUDBURY, ON P3E5P5
(705) 523-6680

ATTENTION TO: Curtis Schmidt

PROJECT: OE-SD-020980

AGAT WORK ORDER: 15U987062

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Jun 26, 2015

PAGES (INCLUDING COVER): 17

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

SAMPLE DESCRIPTION:				LH1		LH11	LH15		LH18	LH18D	LH23
SAMPLE TYPE:				Soil		Soil	Soil		Soil	Soil	Soil
DATE SAMPLED:				6/9/2015		6/9/2015	6/9/2015		6/9/2015	6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671511	RDL	6671520	6671527	RDL	6671530	6671532	6671546
Antimony	µg/g		0.8	8.0	0.8	<0.8	<0.8	0.8	1.6	2.3	2.0
Arsenic	µg/g		1	37	1	6	4	1	10	13	10
Boron	µg/g		5	18	5	5	5	5	6	6	<5
Barium	µg/g		20	5850	2	173	368	2	679	784	189
Beryllium	µg/g		0.5	0.9	0.5	<0.5	<0.5	0.5	0.7	<0.5	<0.5
Cadmium	µg/g		0.5	1.2	0.5	1.4	1.5	0.5	3.4	3.9	0.6
Chromium	µg/g		2	63	2	15	42	2	27	33	28
Cobalt	µg/g		0.5	17.0	0.5	8.8	11.5	0.5	10.1	8.7	2.5
Copper	µg/g		1	328	1	143	93	1	122	139	377
Lead	µg/g		10	18900	1	932	1860	10	4130	5100	2670
Molybdenum	µg/g		0.5	19.9	0.5	0.9	1.2	0.5	1.0	1.3	1.1
Nickel	µg/g		1	27	1	33	34	1	32	39	15
Selenium	µg/g		0.4	1.0	0.4	1.5	0.6	0.4	1.5	1.5	1.6
Silver	µg/g		0.2	0.4	0.2	0.3	0.4	0.2	0.4	0.4	0.3
Thallium	µg/g		0.4	<0.4	0.4	<0.4	<0.4	0.4	<0.4	<0.4	<0.4
Uranium	µg/g		0.5	0.8	0.5	0.8	0.6	0.5	0.7	0.6	0.8
Vanadium	µg/g		1	29	1	35	35	1	50	28	26
Zinc	µg/g		50	10400	5	480	684	5	1610	1750	176

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

		SAMPLE DESCRIPTION:		LH28		LH34	LH34D
		SAMPLE TYPE:		Soil		Soil	Soil
		DATE SAMPLED:		6/9/2015		6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671548	RDL	6671555	6671560
Antimony	µg/g		0.8	2.3	0.8	2.9	2.2
Arsenic	µg/g		1	9	1	13	11
Boron	µg/g		5	8	5	<5	<5
Barium	µg/g		2	1120	2	1790	1810
Beryllium	µg/g		0.5	<0.5	0.5	<0.5	<0.5
Cadmium	µg/g		0.5	1.4	0.5	3.6	4.7
Chromium	µg/g		2	29	2	32	29
Cobalt	µg/g		0.5	5.9	0.5	9.9	10.6
Copper	µg/g		1	105	1	114	123
Lead	µg/g		10	13900	10	8570	8620
Molybdenum	µg/g		0.5	2.0	0.5	1.9	1.9
Nickel	µg/g		1	36	1	53	53
Selenium	µg/g		0.4	1.7	0.4	1.7	1.7
Silver	µg/g		0.2	0.3	0.2	0.4	0.3
Thallium	µg/g		0.4	<0.4	0.4	<0.4	<0.4
Uranium	µg/g		0.5	0.6	0.5	0.9	0.9
Vanadium	µg/g		1	22	1	24	21
Zinc	µg/g		50	2780	5	1290	1690

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

6671511 Elevated RDL indicates the degree of sample dilution prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument.

6671530-6671548 Elevated RDL indicates the degree of sample dilution prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil) - Pb

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

		SAMPLE DESCRIPTION:		LH4		LH13		LH14		LH19	LH20
		SAMPLE TYPE:		Soil		Soil		Soil		Soil	Soil
		DATE SAMPLED:		6/9/2015		6/9/2015		6/9/2015		6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671514	RDL	6671525	RDL	6671526	RDL	6671536	6671538
Lead	µg/g		100	22900	10	5670	1	265	10	2820	3250

		SAMPLE DESCRIPTION:	LH22	LH33	
		SAMPLE TYPE:	Soil	Soil	
		DATE SAMPLED:	6/9/2015	6/9/2015	
Parameter	Unit	G / S	RDL	6671542	6671552
Lead	µg/g		1	683	1520

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

6671514-6671525 Elevated RDL indicates the degree of sample dilution prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument.

6671536 Elevated RDL indicates the degree of sample dilution prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - ORPs (Soil) - CrVI & Hg

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

		SAMPLE DESCRIPTION:		LH1	LH11	LH15	LH18	LH18D	LH23	LH28	LH34
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671511	6671520	6671527	6671530	6671532	6671546	6671548	6671555
Chromium VI	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury	µg/g		0.10	<0.10	0.33	0.52	1.09	1.17	1.50	0.43	0.61

		SAMPLE DESCRIPTION:		LH34D
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		6/9/2015
Parameter	Unit	G / S	RDL	6671560
Chromium VI	µg/g		0.2	<0.2
Mercury	µg/g		0.10	0.61

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

		SAMPLE DESCRIPTION:		LH28
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		6/9/2015
Parameter	Unit	G / S	RDL	6671548
Arsenic Leachate	mg/L	2.5	0.010	<0.010
Barium Leachate	mg/L	100	0.100	1.04
Boron Leachate	mg/L	500	0.050	<0.050
Cadmium Leachate	mg/L	0.5	0.010	<0.010
Chromium Leachate	mg/L	5.0	0.010	<0.010
Lead Leachate	mg/L	5.0	0.010	13.5
Mercury Leachate	mg/L	0.1	0.01	<0.01
Selenium Leachate	mg/L	1.0	0.010	<0.010
Silver Leachate	mg/L	5.0	0.010	<0.010
Uranium Leachate	mg/L	10.0	0.050	<0.050
Fluoride Leachate	mg/L	150	0.05	<0.05
Cyanide Leachate	mg/L	20.0	0.05	<0.05
(Nitrate + Nitrite) as N Leachate	mg/L	1000	0.70	<0.70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Regulation 558

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

		SAMPLE DESCRIPTION:		LH1	LH18	LH18D	LH19	LH20	LH22	LH23	LH28
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015	6/9/2015
Parameter	Unit	G / S	RDL	6671511	6671530	6671532	6671536	6671538	6671542	6671546	6671548
Naphthalene	µg/g		0.05	<0.05	0.05	0.06	<0.05	<0.05	<0.05	<0.05	0.09
Acenaphthylene	µg/g		0.05	<0.05	1.8	1.7	<0.05	<0.05	<0.05	0.30	0.88
Acenaphthene	µg/g		0.05	<0.05	0.07	0.10	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g		0.05	<0.05	0.19	0.24	<0.05	<0.05	<0.05	<0.05	0.15
Phenanthrene	µg/g		0.05	0.07	4.6	4.3	0.06	<0.05	0.07	0.64	4.7
Anthracene	µg/g		0.05	<0.05	2.0	1.8	<0.05	<0.05	<0.05	0.21	1.8
Fluoranthene	µg/g		0.05	0.20	20	16	0.10	0.06	0.16	2.3	23
Pyrene	µg/g		0.05	0.23	18	14	0.10	0.06	0.15	2.2	19
Benz(a)anthracene	µg/g		0.05	0.11	9.8	8.1	<0.05	<0.05	0.05	1.1	11
Chrysene	µg/g		0.05	0.13	10	8.2	<0.05	<0.05	0.06	1.6	10
Benzo(b)fluoranthene	µg/g		0.05	0.13	11	9.3	0.06	0.06	0.06	1.9	11
Benzo(k)fluoranthene	µg/g		0.05	0.06	5.5	3.8	<0.05	<0.05	<0.05	0.71	4.3
Benzo(a)pyrene	µg/g		0.05	0.09	8.2	6.0	<0.05	<0.05	<0.05	0.87	8.6
Indeno(1,2,3-cd)pyrene	µg/g		0.05	0.05	4.0	3.3	<0.05	<0.05	<0.05	0.54	4.4
Dibenz(a,h)anthracene	µg/g		0.05	<0.05	0.84	0.70	<0.05	<0.05	<0.05	0.11	1.0
Benzo(g,h,i)perylene	µg/g		0.05	0.06	4.4	3.4	<0.05	<0.05	<0.05	0.63	4.9
2-and 1-methyl Naphthalene	µg/g		0.05	<0.05	0.05	0.08	<0.05	<0.05	<0.05	<0.05	0.05
Moisture Content	%		0.1	8.0	46.9	46.5	30.4	50.2	31.8	39.2	48.3
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		88	81	97	93	85	107	118	94

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6671511	Results are based on the dry weight of the soil. Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
6671530-6671532	Results are based on the dry weight of the soil. Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column. Due to the high moisture content of the sample it was air dried prior to extraction.
6671536	Results are based on the dry weight of the soil. Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
6671538	Results are based on the dry weight of the soil. Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column. Due to the high moisture content of the sample it was air dried prior to extraction.
6671542-6671546	Results are based on the dry weight of the soil. Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
6671548	Results are based on the dry weight of the soil. Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column. Due to the high moisture content of the sample it was air dried prior to extraction.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

ON Regulation 558 Benzo(a) pyrene

DATE RECEIVED: 2015-06-18

DATE REPORTED: 2015-06-26

				SAMPLE DESCRIPTION:	LH28
				SAMPLE TYPE:	Soil
				DATE SAMPLED:	6/9/2015
Parameter	Unit	G / S	RDL	6671548	
Benzo(a)pyrene	mg/L	0.001	0.001	1.2	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Regulation 558

6671548 The sample was leached according to Regulation 558 protocol. Analysis was performed on the leachate.

Certified By:

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Guideline Violation

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

CLIENT NAME: DST CONSULTING ENGINEERS

ATTENTION TO: Curtis Schmidt

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
6671548	LH28	Regulation 558	O. Reg. 558 Metals and Inorganics	Lead Leachate	5.0	13.5
6671548	LH28	Regulation 558	ON Regulation 558 Benzo(a) pyrene	Benzo(a)pyrene	0.001	1.2

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Quality Assurance

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Jun 26, 2015			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Comprehensive) (Soil)															
Antimony	6671530	6671530	1.6	2.1	27.0%	< 0.8	82%	70%	130%	88%	80%	120%	87%	70%	130%
Arsenic	6671530	6671530	10	10	0.0%	< 1	102%	70%	130%	99%	80%	120%	104%	70%	130%
Boron	6671530	6671530	6	8	28.6%	< 5	78%	70%	130%	98%	80%	120%	99%	70%	130%
Barium	6671530	6671530	679	687	1.2%	< 2	95%	70%	130%	98%	80%	120%	96%	70%	130%
Beryllium	6671530	6671530	0.7	0.7	0.0%	< 0.5	81%	70%	130%	100%	80%	120%	96%	70%	130%
Cadmium	6671530	6671530	3.4	3.2	6.1%	< 0.5	102%	70%	130%	97%	80%	120%	111%	70%	130%
Chromium	6671530	6671530	27	28	3.6%	< 2	88%	70%	130%	98%	80%	120%	98%	70%	130%
Cobalt	6671530	6671530	10.1	10.1	0.0%	< 0.5	98%	70%	130%	98%	80%	120%	101%	70%	130%
Copper	6671530	6671530	122	113	7.7%	< 1	86%	70%	130%	97%	80%	120%	90%	70%	130%
Lead	6671530	6671530	4130	3940	4.7%	< 1	99%	70%	130%	96%	80%	120%	87%	70%	130%
Molybdenum	6671530	6671530	1.0	1.0	0.0%	< 0.5	100%	70%	130%	97%	80%	120%	103%	70%	130%
Nickel	6671530	6671530	32	30	6.5%	< 1	94%	70%	130%	99%	80%	120%	98%	70%	130%
Selenium	6671530	6671530	1.5	1.4	6.9%	< 0.4	99%	70%	130%	92%	80%	120%	97%	70%	130%
Silver	6671530	6671530	0.4	0.3	28.6%	< 0.2	101%	70%	130%	107%	80%	120%	103%	70%	130%
Thallium	6671530	6671530	<0.4	<0.4	0.0%	< 0.4	88%	70%	130%	102%	80%	120%	95%	70%	130%
Uranium	6671530	6671530	0.7	0.6	15.4%	< 0.5	95%	70%	130%	93%	80%	120%	88%	70%	130%
Vanadium	6671530	6671530	50	48	4.1%	< 1	85%	70%	130%	97%	80%	120%	93%	70%	130%
Zinc	6671530	6671530	1610	1560	3.2%	< 5	94%	70%	130%	96%	80%	120%	107%	70%	130%
O. Reg. 153(511) - ORPs (Soil) - CrVI & Hg															
Chromium VI	6671511	6671511	<0.2	<0.2	0.0%	< 0.2	95%	70%	130%	97%	80%	120%	99%	70%	130%
Mercury	6671530	6671530	1.09	0.81	29.5%	< 0.10	108%	70%	130%	93%	80%	120%	88%	70%	130%
O. Reg. 558 Metals and Inorganics															
Arsenic Leachate	6668607		< 0.010	< 0.010	0.0%	< 0.010	96%	90%	110%	99%	80%	120%	101%	70%	130%
Barium Leachate	6668607		0.511	0.516	1.0%	< 0.100	96%	90%	110%	100%	80%	120%	101%	70%	130%
Boron Leachate	6668607		< 0.050	< 0.050	0.0%	< 0.050	94%	90%	110%	99%	80%	120%	85%	70%	130%
Cadmium Leachate	6668607		< 0.010	< 0.010	0.0%	< 0.010	93%	90%	110%	99%	80%	120%	101%	70%	130%
Chromium Leachate	6668607		< 0.010	< 0.010	0.0%	< 0.010	100%	90%	110%	102%	80%	120%	92%	70%	130%
Lead Leachate	6668607		< 0.010	< 0.010	0.0%	< 0.010	93%	90%	110%	89%	80%	120%	88%	70%	130%
Mercury Leachate	6668607		< 0.01	< 0.01	0.0%	< 0.01	105%	90%	110%	89%	80%	120%	86%	70%	130%
Selenium Leachate	6668607		< 0.010	< 0.010	0.0%	< 0.010	91%	90%	110%	93%	80%	120%	95%	70%	130%
Silver Leachate	6668607		< 0.010	< 0.010	0.0%	< 0.010	92%	90%	110%	97%	80%	120%	100%	70%	130%
Uranium Leachate	6668607		< 0.050	< 0.050	0.0%	< 0.050	100%	90%	110%	92%	80%	120%	91%	70%	130%
Fluoride Leachate	6668607		0.32	0.32	0.0%	< 0.05	97%	90%	110%	98%	90%	110%	87%	70%	130%
Cyanide Leachate	6668607		< 0.05	< 0.05	0.0%	< 0.05	100%	90%	110%	102%	90%	110%	100%	70%	130%
(Nitrate + Nitrite) as N Leachate	6668607		< 0.70	< 0.70	0.0%	< 0.70	93%	80%	120%	98%	80%	120%	95%	70%	130%

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Quality Assurance

CLIENT NAME: DST CONSULTING ENGINEERS
AGAT WORK ORDER: 15U987062
PROJECT: OE-SD-020980
ATTENTION TO: Curtis Schmidt
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Jun 26, 2015			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:

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Quality Assurance

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Jun 26, 2015			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	6671997		< 0.05	< 0.05	0.0%	< 0.05	111%	50%	140%	82%	50%	140%	84%	50%	140%
Acenaphthylene	6671997		< 0.05	< 0.05	0.0%	< 0.05	105%	50%	140%	81%	50%	140%	82%	50%	140%
Acenaphthene	6671997		< 0.05	< 0.05	0.0%	< 0.05	110%	50%	140%	84%	50%	140%	85%	50%	140%
Fluorene	6671997		< 0.05	< 0.05	0.0%	< 0.05	104%	50%	140%	80%	50%	140%	82%	50%	140%
Phenanthrene	6671997		< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	80%	50%	140%	82%	50%	140%
Anthracene	6671997		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	91%	50%	140%	94%	50%	140%
Fluoranthene	6671997		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	78%	50%	140%	82%	50%	140%
Pyrene	6671997		< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	79%	50%	140%	84%	50%	140%
Benz(a)anthracene	6671997		< 0.05	< 0.05	0.0%	< 0.05	87%	50%	140%	67%	50%	140%	75%	50%	140%
Chrysene	6671997		< 0.05	< 0.05	0.0%	< 0.05	103%	50%	140%	87%	50%	140%	95%	50%	140%
Benzo(b)fluoranthene	6671997		< 0.05	< 0.05	0.0%	< 0.05	107%	50%	140%	65%	50%	140%	70%	50%	140%
Benzo(k)fluoranthene	6671997		< 0.05	< 0.05	0.0%	< 0.05	129%	50%	140%	77%	50%	140%	84%	50%	140%
Benzo(a)pyrene	6671997		< 0.05	< 0.05	0.0%	< 0.05	121%	50%	140%	76%	50%	140%	82%	50%	140%
Indeno(1,2,3-cd)pyrene	6671997		< 0.05	< 0.05	0.0%	< 0.05	117%	50%	140%	65%	50%	140%	76%	50%	140%
Dibenz(a,h)anthracene	6671997		< 0.05	< 0.05	0.0%	< 0.05	113%	50%	140%	63%	50%	140%	74%	50%	140%
Benzo(g,h,i)perylene	6671997		< 0.05	< 0.05	0.0%	< 0.05	127%	50%	140%	65%	50%	140%	83%	50%	140%
2-and 1-methyl Naphthalene	6671997		< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	83%	50%	140%	83%	50%	140%
ON Regulation 558 Benzo(a) pyrene															
Benzo(a)pyrene	6671548	6671548	1.2	1.4	15.4%	< 0.001	125%	70%	130%	91%	70%	130%	80%	70%	130%

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Method Summary

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Barium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Boron Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Cadmium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Chromium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Lead Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Mercury Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Selenium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Silver Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Uranium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Fluoride Leachate	INOR-93-6018	EPA SW-846-1311 & SM4500-F- C	ION SELECTIVE ELECTRODE
Cyanide Leachate	INOR-93-6052	EPA SW-846-1311 & MOE 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
(Nitrate + Nitrite) as N Leachate	INOR-93-6053	EPA SW 846-1311 & SM 4500 - NO3- I	LACHAT FIA

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Method Summary

CLIENT NAME: DST CONSULTING ENGINEERS

AGAT WORK ORDER: 15U987062

PROJECT: OE-SD-020980

ATTENTION TO: Curtis Schmidt

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5114	EPA SW846 3540 & 8270	GC/MS

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Chain of Custody Record

Laboratory Use Only
Arrival Temperature:
AGAT WO #:
Lab Temperature: 15U987062
Notes:

Client Information
Company: DST Consulting Engineers Inc.
Contact: Curtis Schmidt
Address: 885 Regent St Suite 3-1B Sudbury ON P3E5M4
Phone: 705 523 6680 Fax:
Project: OE-SD-020980 PO:
AGAT Quotation #: See Riggs
Please note, if quotation number is not provided, client will be billed full price for analysis.

Regulatory Requirements
☐ Regulation 153/04 (reg. 511 Amend.) Table ____ (Indicate one) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (check one) ☒ Coarse ☐ Fine
☐ Sewer Use Region ____ (Indicate one) ☐ Sanitary ☐ Storm
☒ Regulation 558 (for TCLP) ☒ CCME ☐ Other (specify) ____
☐ Prov. Water Quality Objectives (PWQO) ☐ None

Turnaround Time Required (TAT) Required*
Regular TAT
☒ 5 to 7 Working Days
Rush TAT (please provide prior notification)
Rush Surcharges Apply
☐ 3 Working Days ☐ 2 Working Days ☐ 1 Working Day
OR
Date Required (Rush surcharges may apply): ____
*TAT is exclusive of weekends and statutory holidays

Invoice To
Same: Yes ☐ No ☒
Company: Riggs Engineering
Contact: Brian Riggs
Address: 205-1240 Commissioners Rd. W. London ON

Is this a drinking water sample? (potable water intended for human consumption) ☐ Yes ☒ No
If "Yes", please use the *Drinking Water Chain of Custody Form*

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Legend Matrix
GW Ground Water · O Oil · SW Surface Water · P Paint · SD Sediment · S Soil

Report Information – reports to be sent to:
1. Name: Curtis Schmidt
   Email: cschmidt@dstgroup.com
2. Name:
   Email:

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics: Metal Scan (incl. Hg)	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC ☐ FOC ☐ Cr+6 ☐ SAR ☐ Hg ☐ pH ☐ NO_3/NO_2 ☐ N-Total	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3/NO_2	VOC: ☐ VOC ☐ THM ☐ BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics +B(a)P	Sewer Use	Lead Only (Pb)
LH1	Jun 9/15		S	3	Watch hold time on PAHs	X								X					
LH2					Not included														X — No Sample.
LH4				1															X
LH 11				1		X													
LH 13				1															X
LH 14				1															X
LH15				1		X													
LH18				2	Watch PAH Hold time	X								X					
LH18D				2		X								X					
LH19				2										X					X
LH20				2										X					X
LH22				2										X					X

Samples Relinquished By (Print Name and Sign): Curtis Schmidt — Date/Time: Jun 18/15 1355
Samples Relinquished By (Print Name and Sign): — Date/Time:
Samples Received By (Print Name and Sign): — Date/Time: Jun 18/15
Samples Received By (Print Name and Sign): — Date/Time:

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

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AGAT Laboratories
5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2
www.agatlabs.com · webearth.agatlabs.com
P: 905.712.5100 · F: 905.712.5122

Chain of Custody Record

Laboratory Use Only
Arrival Temperature: 4.8/5.2/4.7
AGAT WO #:
Lab Temperature:
Notes:

Client Information
Company: DST Consulting Engineers Inc.
Contact: Curtis Schmidt
Address: 885 Regent St. Suite 3-1B Sudbury ON P3E 5M4
Phone: 705 523-8680 Fax:
Project: OE-SD-020980 PO:
AGAT Quotation #: See Riggs.
Please note, if quotation number is not provided, client will be billed full price for analysis.

Regulatory Requirements
☐ Regulation 153/04 (reg. 511 Amend.)
Table ____ Indicate one
☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (check one) ☒ Coarse ☐ Fine
☐ Sewer Use
Region ____ Indicate one
☐ Sanitary ☐ Storm
☒ Regulation 558 (for RWP) ☒ CCME ☐ Other (specify)
☐ Prov. Water Quality Objectives (PWQO) ☐ None

Turnaround Time Required (TAT) Required*
Regular TAT
☒ 5 to 7 Working Days
Rush TAT (please provide prior notification)
Rush Surcharges Apply
☐ 3 Working Days ☐ 2 Working Days ☐ 1 Working Day
OR
Date Required (Rush surcharges may apply):
*TAT is exclusive of weekends and statutory holidays

Invoice To
Same: Yes ☐ No ☒
Company: Riggs Engineering
Contact: Brian Riggs
Address: 205-1240 Commissioners Rd W. London ON

Is this a drinking water sample? (potable water intended for human consumption) ☐ Yes ☒ No
If "Yes", please use the *Drinking Water Chain of Custody Form*

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Legend Matrix
GW Ground Water · O Oil · SW Surface Water · P Paint · SD Sediment · S Soil

Report Information – reports to be sent to:
1. Name:
Email:
2. Name:
Email:

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics (incl. Hg & Cr6)	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC ☐ FOC ☐ Cr+6 ☐ SAR ☐ Hg ☐ pH ☐ N- Total ☐ NO_3/NO_2	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3/NO_2	VOC: ☐ VOC ☐ THM ☐ BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics + B(a)P	Sewer Use	Lead Only (Pb)								
LH23	Jun4/15		S	2	Watch PAH Hold time		X								X																	
~~LH27~~					No Sample																					X	No Sample					
LH28				2	Watch PAH Hold time.		X								X						X											
LH33				1																					X							
LH34				1			X																									
LH34D				1			X																									

Samples Relinquished By (Print Name and Sign): Curtis Schmidt — Date/Time: Jun 18/15 1355
Samples Relinquished By (Print Name and Sign): — Date/Time:
Samples Received By (Print Name and Sign): — Date/Time: June 18/15
Samples Received By (Print Name and Sign): — Date/Time: 9:20

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