Attachment 1

Site Photographs

Photograph 1: View of Main Site (CS-1), facing north.

Photograph 2: View of concrete dock and hoist at CS-1, facing south.

Photograph 3: View of duplex dwelling facing northwest.

Photograph 4: View of duplex dwelling facing south.

Photograph 5: View of poor condition, lead containing white paint on the exterior of the duplex dwelling, facing southwest.

Photograph 6: View of cobble stone soils near duplex dwelling, facing southeast.

Photograph 7: View of main dwelling facing northwest.

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Photograph 16: View of grassed area near the old fog alarm / generator building, and poor condition asbestos containing red and black shingles on roof, facing southeast.

Photograph 17: View of grassed area and path north of the old fog alarm/generator building, facing west.

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Photograph 22: View of paint on ceiling of old fog alarm / generator building in the machinery room found to be in poor condition.

Photograph 23: View of poor condition paint on ceiling with visible signs of water damage in old fog alarm / generator building.

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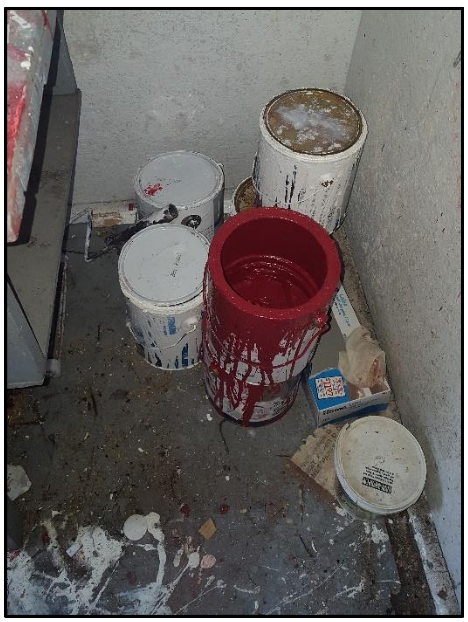
Photograph 25: View of poor condition white paint on the main level of the old for alarm / generator building.

Photograph 26: View of paint debris on the second level floor of the old for alarm / generator building.

Photograph 27: View of the attic of the old fog alarm / generator building found to have paint debris on floor and lead containing painted surfaces in poor condition.



Photograph 28: View of used paint supply debris in the paint room of the old fog alarm / generator building.

Photograph 29: View of cobble stone soil, new diesel generation building, old fog alarm / generator building and former oil house, facing northeast.

Photograph 30: View of cobble stone soil on the south side of the New Fog Alarm/Generator Building, and New Diesel Generator Building, facing west.

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Photograph 32: View of grassy areas surrounding the Former Oil House, facing northeast.

Photograph 33: View of poor condition, lead containing white and red paint on Former Oil House, facing northeast.

Photograph 34: View of poor condition, lead-containing, white paint on Outhouse at CS-1, facing northeast.

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Photograph 36: View of waste in Debris Pile 1B (East Debris Pile) containing empty oil pails, facing east.

Photograph 37: View of waste in Debris Pile 1B (East Debris Pile), facing west.

Photograph 38: View of waste in Debris Pile 1B (East Debris pile).

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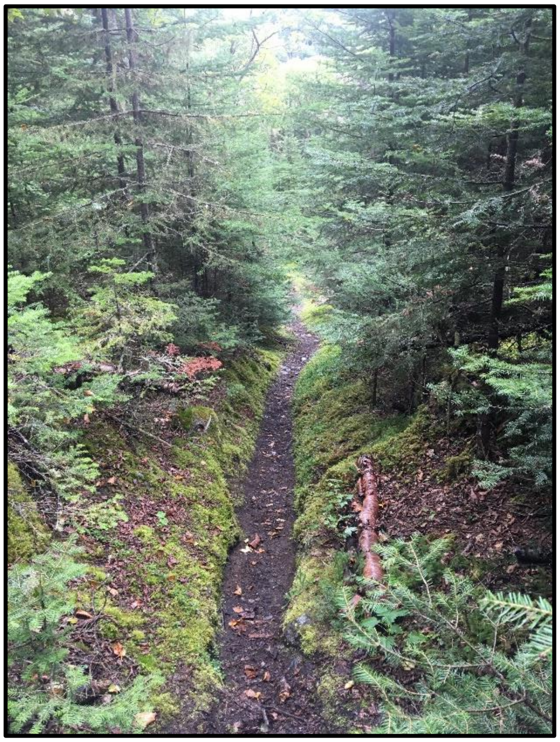
Photograph 39: View of waste in Debris Pile 1A (West Debris Pile), facing west.

Photograph 40: View of waste in Debris Pile 1A (West Debris Pile), facing west.



Photograph 41: View of foot path from CS-3 to leading to CS-2, facing south.

Photograph 42: View of foot path leading to CS-2, facing east.

Photograph 43: View of stairway from CS-2 leading to CS-1, facing south.

Photograph 44: View of Lighthouse, facing east.

Photograph 45: View of poor condition, lead-containing white paint on Lighthouse.

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Photograph 47: View of soil surrounding Lighthouse, facing west.

Photograph 48: View of soil surrounding Lighthouse, facing east.

Photograph 49: View of interior mould impacted materials on ceiling of main level of the Lighthouse building.

Photograph 50: View of poor condition grey paint on the main level floor of the Lighthouse building.

Photograph 51: View of interior poor condition white paint on the second level of the lighthouse building.

Photograph 52: View of interior of lighthouse upper level ceiling, found to have lead-containing white paint in poor condition.

Photograph 53: View of waste in Debris Pile 3A (Lighthouse).

Photograph 54: View of Old Dwelling Building, facing southeast.

Photograph 55: View of Old Dwelling at CS-3, facing west.

Photograph 56: Overview of CS-3 (Old Dwelling), facing east.

Photograph 57: View of stairs leading to the second level of the old dwelling building found to have lead-containing grey paint in poor condition.

Photographs 58: View of soil along old dwelling building perimeter, facing west.

Photograph 59: View grassed area near old dwelling buidling, facing northwest.

Photograph 60: View of waste in Debris Pile 2A, facing east.

Photograph 61: View of waste in Debris Pile 2 B.

Attachment 2

Environmental Program Report

□nvironmental Program Report
Slate Islands Coast Guard Site
Patterson Island□La□e Superior□Ontario
DFRP □o. 5□02□

March 28, 2017

P□ GSC □o. R.0□□□□□.00□ □ .00□

DST File □o.□GV□SD□02□□05

FCSI □o.□5□02□00□□5□02□002 □ 5□02□00□

Prepared for□

Public □ or□s and Government Services Canada
□nvironmental Services
□□00 □oung Street□□□th Floor
Toronto□Ontario□M2□ □□□

Prepared by:

DST Consulting □ngineers Inc.
□□5 Regent Street□Suite □□□B□Sudbur□□Ontario□P□□ 5M□
Tel□(□05) 52□□□□□0   Fa□□(□05) 52□□□□□0   □mail□sudbur□□ dstgroup.com

Distribution:

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EXECUTIVE SUMMARY

DST Consulting Engineers Inc. (DST) was retained by Public Works Government Services Canada (PWGSC, also referred to as the "Client") to carry out the following work at the Slate Islands Coast Guard Site, located on Patterson Island in Lake Superior (the "Site"):

- Review background information and previous reports;
- Complete a Designated Substance and Hazardous Materials Survey (DSHMS);
- Conduct additional soil sampling;
- Review and update the Species at Risk (SAR) survey;
- Complete an Environmental Effects Evaluation (EEE);
- Perform a structural assessment; and;
- Conduct a marine assessment.

The work was carried out in accordance with the Statement of Work (SOW) prepared by PWGSC (20□□) and the DST proposal dated July 2□, 20□□. The Site, identified as Directory of Federal Real Property (DFRP) No. 5□02□□ is Crown land under the custody of Fisheries and Oceans Canada (DFO).

The objectives of the environmental program detailed herein is to gather data and information to be used to prepare a set of specifications to remove the primary sources of soil contamination at the Site, that is to abate, remove and dispose of exterior lead-containing substances and any debris piles observed at the Site. Interior lead-based paint is also to be removed as indicated in the SOW. Soil remediation may be included in the specifications depending on Client and DFO requirements.

This environmental program report comprises the first phase of the overall project, which is broken down into two phases. The second phase consists of the development of plans and specifications which will be provided under separate cover.

Site Description

The Slate Islands Coast Guard Site is located within the Slate Islands group near the north shore of Lake Superior, approximately □□ km south of the community of Terrace Bay, Ontario. The location of the Site, illustrated on Figure □ in Appendix A, is approximately □□5 km east of Thunder Bay.

The Site occupies approximately □2.□ ha and is located on Sunday Point, Patterson Island, the largest and most southerly of the Slate Islands. The Site has been divided into three areas of interest (also referred to as contaminated sites; "CS") as described below, and illustrated on Figure 2 in Appendix A.

The Main Site (CS-1) is located on the south side of Sunday Point. The structural features of this area consist of the main Coast Guard station including the main dwelling, the duplex dwelling, the two-storey old fog alarm building, the former oil house building, the new fog alarm building, the new diesel generator building and various other structures. Most buildings on-Site are wood construction with wood cladding or shingle siding. The locations of the Main Site features are illustrated in Figure □ in Appendix A. A concrete dock is located south of the duplex dwelling. The structures on-Site are connected by concrete pathways. The Site is inhabited seasonally by private lease holders who use the Site as a seasonal home from April to October each year.

The Lighthouse Area (CS-2) is located on the rocky summit of Sunday Point. Structural features of this area consist of the three-storey lighthouse building, a helicopter pad, and a solar shed that supports several solar panels found east of the lighthouse building. The locations of the CS-2 area and structures are illustrated in Figure □ in Appendix A.

The Old Dwelling Site (CS-3) is located north of CS-1 and CS-2 in a sheltered bay within Sunday Harbour. From the water edge, CS-3 has a sand and gravel beach extending into an area covered by grass. The area surrounding the grassed area is wooded. The structural features in this area include a two-storey residential dwelling referred to as the old dwelling building, an outhouse and former boat winch. The locations of CS-3 area features are illustrated in Figure 5 in Appendix A.

The undeveloped areas of the Site consist primarily of exposed bedrock and boreal forested areas. Sunday Point is surrounded by the open water of Lake Superior to the south and west, and Sunday Harbour to the north. The Site and surrounding area is accessible only by boat or helicopter and there are no significant developments or infrastructure in other areas near the Site.

Designated Substance and Hazardous Materials

The DSHMS scope of □or□ included an assessment for the presence of the □□ Designated Substances□identified in the *Occupational Health and Safety Act*□as □ell as pol□chlorinated biphen□ls (PCBs)□halocarbons□mould□and other ha□ardous materials.

The follo□ing conclusions and recommendations are provided for asbestos and lead as per the SO□ and subse□uent communication □ith the Client.

Asbestos

The surve□ included a room□b□□room assessment of all accessible areas of the Site buildings. Site photographs and site plans sho□ing sample locations (i.e. Figures □through □□) are provided in □ppendi□B.

Based on the current scope of □or□as discussed □ith the Client□T□pe 2 asbestos abatement □ill be completed on all interior dr□□all □ith asbestos□containing □oint compound □here lead containing paint is present as outlined in Table □ in □ppendi□B. Lead precautionar□ measures should also be considered on an□removal of dr□□all □ith lead□containing paint.

Based on the current pro□ect scope□asbestos abatement follo□ing a T□pe □ □ill be completed on the follo□ing material□structure□

- Main d□elling□e□teriors basement □indo□s caul□ing and stored □indo□ □here asbestos caul□ing □as present□and□
- Old fog alarm building□roofing shingles and shingles debris.

□here painted □indo□ caul□ing is present on the main d□elling e□terior basement□ lead precautionar□measures should also be considered.

The time □eight average e□posure limit (T□ □□L) for airborne asbestos is prescribed b□Ontario Regulation □□0□0□*Designated Substances* under the *Occupational Health and Safety Act, R.S.O. 1990, c. O.1* (O. Reg. □□0□0□)□as amended. □ or□procedures and personal protective e□uipment must be used to ensure that □or□ers are not e□posed to airborne asbestos levels that e□ceed this T□ □□L.

The follo□ing recommendations appl□ to asbestos containing materials (□CMs) and assumed □CMs□

- Materials found in poor condition should be abated using appropriate precautionar□ measures□
- Materials must be maintained in good condition□
- □ppropriate □or□ procedures and precautionar□ measures must be used□as outlined in *O. Reg. 278/05, Asbestos on Construction Projects and in Buildings and* Repair Operations enabled under the *Occupational Health and Safety Act R.S.O. 1990, Chapter 1 (*O. Reg. 2□□05)□ as amended□ □hen performing □or□ that ma□ disturb □CMs or suspected □CMs□including prior to building demolition□
- Disturbance and□or removal of □CMs must be appropriatel□ recorded as part of the building's Asbestos Management Plan;
- If □CMs or suspected □CMs become damaged and □or□er e□posure to the material is li□el□ to occur□the damaged material must be repaired or removed follo□ing □or□ procedures outlined in O. Reg. 2□□05□as amended□and
- Disposal of asbestos □aste is controlled b□ Reg. □□□, as amended. This regulation re□uires that asbestos □aste be sealed in double containers resistant to puncture and tears□and appropriatel□ labelled. The □aste must be disposed of at a licensed □aste disposal site. Proper notification must be issued to the site representative prior to transportation of □aste. The transport of the □aste to the disposal site is controlled b□the federal *Transportation of Dangerous Goods Act*□□□□2 (TDG□) and Reg. □□□.

Lead

Paint samples collected b□ DST □ere confirmed to have detectable concentrations of lead. Sample location floor plans (i.e. Figures □through □□) are provided in □ppendi□B

Table □□attached in □ppendi□ B□provides a summar□ of lead□containing painted surfaces□ location and □uantities.

The follo□ing recommendations appl□to paint and surface coatings on building finishes found to contain elevated concentrations of lead□

- Paint on the e□terior of buildings should be abated using appropriate speciali□ed paint strippers (e.g. al□aline caustic or so□ gel) and po□er tools e□uipped □ith H□P□ filtered vacuums□
- Paint on interior surfaces should be abated using appropriate T□pe □ procedures as outlined in the MoL *Guideline: Lead on Construction Projects*□
- Paint debris surrounding the perimeter of the buildings and structures should be remediated scrapping top la□er of soil to a depth of up to 5 cm □here feasible. □ here debris is located on bedroc□□side□al□s or cobblestone□debris should be removed using H□P□ filtered vacuums. Debris found in the interior of buildings should be remediated follo□ing MoL precautionar□measures□outlined in the document referenced above□and□
- Based on the current scope of remediation as discussed □ith P□ GSC□the remediation of lead paint □ill be completed on all identified lead□base interior surfaces□all e□terior paint and all paint debris as noted in Table □of □ppendi□B. It should also be noted that □here lead paint remediation is to be completed on asbestos containing substrate material□the most stringent guidelines shall be applied.

If not abated□all interior paints containing elevated levels of leads□should be maintained in good condition.

Environmental Soil Investigation

DST has completed a soil investigation and additional delineation at the Site. The soil investigation of three previousl□ identified contaminated areas included field screening of soil samples and laborator□ anal□ses to identif□ and delineate contaminated areas at the Site. In addition□the investigation involved the identification and □uantification of concentrated debris piles located at and around the three developed areas of the Site.

Soil logged during the surface soil sampling activities indicated that the soil along the shoreline at CS□□ consists of cobbles □ith some gravel beach deposits□in places e□tending to the treeline. The developed grassed areas surrounding the d□ellings at CS□□ are underlain b□shallo□ soil□ consisting of topsoil □ith some sand□cobbles and gravel. In the forested areas surrounding CS□ □□soils □ere often found to have organic litter□fibric and humus (LFH) hori□ons. □nderl□ing the LFH hori□ons□mineral soils □ere found to have a coarse sand□loam te□ture □ith some gravel. □□posed bedroc□ □as observed predominantl□along the shoreline of the site □ithin the area of the littoral □one.

□t CS□2□the overburden □as found to consist of discontinuous sand□gravel □ith some cobbles in lo□□l□ing patches on the rugged bedroc□surface.

□t CS□□□soils □ere found to be a medium to coarse sand □ith some gravel□e□tending to the beach at La□e Superior. In the surrounding forested areas of CS□□□soils □ere found to have LFH hori□ons overl□ing sand and gravel.

__Contaminated Soil__

The areas of contaminated soil□separated b□ ha□ardous and non□ha□ardous conditions are summari□ed as follo□s□

- CS□□ (Main Site □rea)□ Three areas of contaminated soil covering an area of appro□imatel□ 2□□50 m^2 and an estimated volume of □00 in□situ m□ of non□ha□ardous contaminated soil and 50 in□situ m□ of solid ha□ardous □aste as defined b□ Reg. □□□□
- CS□2 (Lighthouse □rea)□contaminated soil in this area □as delineated in all directions on the summit □ith an appro□imate area of □00 m^2 and an estimated volume of □0 in□situ m□ of non□ha□ardous contaminated soil and □0 in□situ m□ of solid ha□ardous □aste as defined b□ Reg. □□□□and□
- CS□□ (Old D□elling □rea)□an area of appro□imatel□ □20 m^2 and estimated volume of 550 in□situ m□ of non□ha□ardous contaminated soil.

__Debris Areas__

The areas □here historical debris dumping □as observed in concentrated conditions are as follo□s□

- CS□□ (Main Site □rea)□T□o debris piles (□ast and □ est Dumps) □ith an area of □00 m^2 and estimated debris volume of 220 in□situ m□.
- CS□2 (Lighthouse □rea)□□ppro□imate area of □0 m^2 and estimated volume of 25 in□situ m□□and□
- CS□□ (Old D□elling □rea)□three debris dumps □ith a collective area of □5 m^2 and an estimated volume of 2□ in□situ m□ of debris.

In addition□small amounts of scattered debris □ere observed at the base of the lighthouse cliff to□ards the south and east. The debris □as not concentrated into an□one area□rather appeared to have been historicall□thro□n from the top of the cliff.

It is recommended that all identified debris be removed from the Site as per the SO□ . This debris should be e□cavated□removed and placed into suitable bul□ bags □ith suitable liners and carr□ straps. The debris should be sorted as indicated in Section □ to separate□and appropriatel□ containeri□e□the debris for disposal. □fforts should be made to decrease the volume of the debris prior to containeri□ation. The containeri□ed debris should be transported from the Site to the appropriatel□ licensed □aste receiver for disposal. During□and upon completion of debris removal□inspections are recommended to be completed b□ an environmental consultant to confirm □aste removal and to collect confirmator□samples□as re□uired.

□lso□it is recommended that a ne□ human health and ecological site specific ris□assessment be completed for the Site. □fter the ris□ assessment and confirmator□ sampling recommended above□ the areas and volumes of contaminated soil can be refined□ based on the ris□ management□remediation recommendations □ithin the ris□assessment.

<u>Species At Risk Survey Update</u>

It □as determined b□the Client that an updated S□R surve□ report □as re□uired to develop a comprehensive set of mitigation measures to be implemented during the construction phase of this pro□ect. These mitigation measures have been developed to minimi□e impacts to potential S□Rs at the Site during the abatement and debris removal activities planned.

□o S□R listed as endangered or threatened under the Species at Ris□ □ct (S□R□) □ere observed on□Site during the Site visit and field investigation. Potential evidence of □inter caribou foraging □as observed at CS□□ and the Site in general provides attributes supporting its function as a □ inter □se □rea for Boreal □ oodland Caribou□although this function is not confirmed. Mitigation measures related to avoidance of □inter □or□ periods□minimi□ation of the intensit□□spatial and temporal e□tent of on□Site activities□as □ell as restricting remediation activities to disturbed areas to the e□tent practical□□ill li□el□ prevent an□ meaningful impacts to Boreal □ oodland Caribou and□or their habitat at and in the vicinit□of the Site.

Four bird SAR (Canada Warbler, Common Nighthawk, Eastern Whip-poor-will and Olive Sided Flycatcher) were identified by Environment and Climate Change Canada (ECCC) as having the potential to be present on or near the Site. SARO indicated the potential presence of the Barn Swallow. Surveys for these five avian species were not conducted as the Site visit was completed outside the seasons for the appropriate surveys. However, by observing the following mitigation measures during the planned abatement and debris clean-up work, no impacts to these bird SAR are anticipated: nesting sweeps by a qualified avian biologist in potentially impacted areas; implementation of buffer zones if/where bird SARs are encountered; restrictions of remediation activities to disturbed areas of ground to the extent practical; and, minimization of spatial and temporal extent of work.

Three species of bats (Northern Myotis, Little Brown Myotis, and Tri-colored Bat) were identified by ECCC as having the potential to occur at the Site. Building demolition is not proposed as part of the designated substance removal portion of the remedial program, though the replacement of roofing materials is to be completed. Therefore, bat roosting habitat in buildings is unlikely to be impacted. If/where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to the Ontario Ministry of Natural Resources and Forestry (MNRF, 20[illegible]) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical. Where these mitigation measures are observed, no impacts to bat SAR are anticipated as a result of the proposed work.

Two aquatic SAR were identified as having the potential to occur around the Slate Islands. Both species, the Upper Great Lakes Kiyi and Deepwater Sculpin (Great Lakes – Western St. Lawrence population) are listed as 'special concern' under Schedule 1 of the SARA. Therefore, neither receives individual or habitat protection. However, prohibitions under the Fisheries Act prohibit causing 'serious harm' to these species. Through the application of appropriate mitigation measures, no impacts to either of these species is anticipated.

Overall, so long as the aforementioned mitigation measures are implemented, it is unlikely that the abatement and debris removal activities will have any meaningful impact to SAR.

Environmental Effects Evaluation

DST completed an □nvironmental □ffects □valuation (□□□) in accordance □ith Section □□ of the *Canadian Environmental Assessment Act* 20□2 to determine □hat□if an□□environmental effects the proposed pro□ect might have on the environment. The □□□ report□based on a template provided b□P□ GSC□is presented in □ppendi□□.

□s part of the □□□□DST revie□ed available information regarding the proposed pro□ect□revie□ed Site information□completed a Site visit□consulted □ith various directl□ affected agencies and conducted research to determine potential effects and provide mitigation measures that □ould help to avoid causing an□negative impacts to the environment.

Follo□ing the completion of the □□□□ it □as determined that□ to mitigate an□ potential environmental impacts the pro□ect ma□incur□consideration □ill be ta□en relating to□avoidance of □inter □or□periods□nesting s□eeps b□a □ualified avian biologist□implementation of buffer □ones if□□here bird S□R are encountered□and□minimi□ation of the intensit□□spatial and temporal e□tent of on□Site activities□as □ell as restricting remediation activities to disturbed areas of ground to the e□tent practical.

It is reasonable to conclude that □ith appropriate mitigation measures included in the □or□ specifications and as summari□ed in Section C□Tables 2.□□2.□ of the □□□ (□ppendi□ □)□an□ potential environmental effects □ill be of short duration and the □one of influence□if an□□□ill be confined to the immediate vicinit□of the Site. Further□the removal of the lead impacted materials and debris piles currentl□at the Site are e□pected to have a positive effect on an□environmental receptors present at the Site or nearb□areas.

Structural Assessment

DST retained □ML □ngineering (□ML) of Thunder Ba□□Ontario□to conduct a Level II building inspection in order to evaluate the current conditions of the buildings on the Slate Island Coast Guard Site □ith commentar□on the need for a repair□replacement program and associated costs. The □ML report is provided in □ppendi□F of this report.

□ML provided recommendations to ensure that the structures and their s□stems □ill reach their ma□imum life e□pectanc□□and maintain the re□uired health and safet□levels. The findings of the report recommended □□0□000.00 in short term (□5 □ears) e□penditures and □2□□000.00 in long term (□25 □ears) e□penditures. □dditional details can be found in the □ML Structural attached as □ppendi□F of this report.

It □as indicated that each structure included in the report can □ithstand the recommended abatement activities and there are no health and safet□concerns □ith contractors accessing the structures.

Marine Assessment

Public □ or□s and Government Services Canada□on behalf of DFO□re□uested DST to conduct an environmental program on the Slate Islands Coast Guard Site (GC □□□□)□La□e Superior. The program □as intended to identif□the needs for an□structural repairs or soil remediation at the site.

DST retained Riggs □ngineering Ltd. (Riggs) to conduct a marine assessment as a component of its overall program. The ob□ective of the marine assessment is to evaluate access options for the scope of the remedial □or□s re□uired at the Slate Islands Coast Guard Site.

PWGSC's requirements for the assessment are as follows:

- Conduct a revie□ of available Canadian H□drographic Surve□(CHS) charts for the area□
- □valuate methods of access to Patterson Island considering no current infrastructure (doc□or □harf) is available□and provide a recommendation for the most feasible and cost effective option□
- Determine t□pe(s) of vessel that could meet the needs of the pro□ect (e□cavation and disposal of contaminated soil and possibl□building materials) including access to and from the Site□and□
- □ report detailing observations made on site□including recommendations and cost estimates for site access options during remediation.

It □as advised that bidding contractors inspect the potential marine access areas at the Site including soundings to determine landing locations and approaches□the t□pes and combinations of vessels to use□and □hich mainland port to utili□e in order to set a □or□able marine servicing plan and cost.

Marine Servicing the Main Site

The Main Site □ill re□uire marine servicing to mobili□e□demobili□e e□uipment and supplies to the Site and to transfer the containeri□ed □aste off□Site.

The Main Site is full□ e□posed to open La□e Superior and sub□ect to □ind and □aves from all directions e□cept north and north□est. Safe access to the Main Site landing □ill be limited to da□s □hen □inds and □aves are light. Locals indicate that the best season providing calm conditions is in late spring (late□Ma□ through □une).

Landing at the Main Site doc□ can onl□ be achieved □ith narro□ beam□shallo□ draft□and maneuverable vessels. The flat□bottomed barges carried b□ Coast Guard suppl□ vessels to suppl□ the Site □hile it □as manned are an e□ample of vessel t□pes needed to service remediation activities from the Main Site doc□. The capacit□ of this si□e of vessel □ill be less than □2 tonnes. Mobili□ing and demobili□ing mobile e□uipment and removing containeri□ed □aste from the Site to a larger support vessel □ill involve □0 trips or more for a vessel of this si□e. □dditional trips □ill be re□uired should soil remediation activities be added to the □or□ scope.

It is assumed that □aste from the Lighthouse □rea □ill be consolidated and containeri□ed along □ith Main Site □aste for removal off□Site. Transportation of e□uipment□materials and □aste to and from the Lighthouse □rea □ill li□el□ be via helicopter.

The Main Site cannot be accessed b□ mobile e□uipment overland from the Old D□elling Site.

Marine Servicing the Old Dwelling Site

The Old D□elling Site is not as e□posed to open la□e conditions as is the Main Site location. The Sunda□ Harbour doc□ is accessible under □ind and □ave conditions from all directions e□cept those from the north□est. Safe access to the doc□ during north□est □ind and □aves □ill be limited to da□s □hen □inds are light. The approach is deep and the sand beach can provide alternate landing. There are no vessel restrictions at Sunda□ Harbour.

Mainland Ports

The closest mainland landing area to the Slate Island light station is Terrace Ba□□2□ □m to the north. The marine facilities there are limited and suited for pleasure craft and light vessels onl□.

The adjacent beach is protected and could provide a landing for front loading (landing craft type) vessels. The landing has road access through Town to Highway [illegible].

Other small mainland ports include Rossport and Redrock. These are small scale facilities serving pleasure craft and light commercial fishing vessels only.

The closest industrial sized mainland port is at Peninsula Harbour at Marathon [illegible] km east of the light station. This deep water harbour that served the Marathon paper mill is currently closed but contractors can negotiate its use with the owner, Tembec Inc.

Other large mainland ports include Thunder Bay [illegible] km west of the light station and Sault Ste. Marie [illegible]5 km east of the Site. These are active industrial/commercial ports having a wide range of marine services that could provide suitable vessels and manpower and other marine support to service the proposed work.

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LIST OF APPENDICES

1 INTRODUCTION

DST Consulting □ngineers Inc. (DST) □as retained b□ Public □ or□s Government Services Canada (P□ GSC□also referred to as the “Client”) to carr□ out the follo□ing □or□ at the Slate Islands Coast Guard Site, located on Patterson Island in Lake Superior (the “Site”):

- Revie□ bac□ground information and previous reports□
- Complete a Designated Substance and Ha□ardous Materials Surve□(DSHMS)□
- Conduct additional soil sampling□
- Revie□ and update the Species at Ris□(S□R) surve□□
- Complete an □nvironmental □ffects □valuation (□□□)□
- Perform a structural assessment□and□
- Conduct a marine assessment.

The □or□□as carried out in accordance □ith the Statement of □ or□(SO□) prepared b□P□ GSC (20□□) and the DST proposal dated □ul□2□□20□□. The Site□identified as Director□of Federal Real Propert□ (DFRP) □o. 5□02□□is Cro□n land under the custod□ of Fisheries and Oceans Canada (DFO).

1.1 Environmental Program Objectives

The ob□ectives of the environmental program detailed herein is to gather data and information to be used to prepare a set of specifications to remove the primar□sources of soil contamination at the Site□that is to abate□remove and dispose of e□terior lead□containing substances and an□ debris piles observed at the Site. Interior lead□based paint is also to be removed as indicated in the SO□ . Soil remediation ma□be included in the specifications depending on Client and DFO re□uirements.

The pro□ect is bro□en do□n into t□o phases. The first phase consists of the preparation of this □nvironmental Program report □hich includes the results of the □or□items detailed above. The second phase consists of the development of plans and specifications □hich □ill be provided under separate cover.

2 SITE DESCRIPTION

The Slate Islands Coast Guard Site is located within the Slate Islands group near the north shore of Lake Superior, approximately □□ km south of the community of Terrace Bay, Ontario. The location of the Site, illustrated on Figure □ in Appendix A, is approximately □□5 km east of Thunder Bay.

The Site occupies approximately □2.□ ha and is located on Sunday Point, Patterson Island, the largest and most southerly of the Slate Islands. The Site has been divided into three areas of interest (also referred to as contaminated sites; “CS”) as described below, and illustrated on Figure 2 in Appendix A.

The Main Site (CS□□FCSI No. □5□02□00□) is located on the south side of Sunday Point. The structural features of this area consist of the main Coast Guard station including the main dwelling, the duplex dwelling, the two-storey old fog alarm building, the former oil house building, the new fog alarm building, the new diesel generator building and various other structures. Most buildings on-Site are wood construction with wood cladding or shingle siding. The locations of the Main Site features are illustrated in Figure □ in Appendix A. A concrete dock is located south of the duplex dwelling. The structures on-Site are connected by concrete pathways. The Site is inhabited seasonally by private lease holders who use the Site as a seasonal home from April to October each year.

The Lighthouse Area (CS□2□FCSI No. □5□02□002) is located on the rocky summit of Sunday Point. Structural features of this area consist of the three-storey lighthouse building, a helicopter pad, and a solar shed that supports several solar panels found east of the lighthouse building. The locations of the CS□2 area and structures are illustrated in Figure □ in Appendix A.

The Old Dwelling Site (CS□□FCSI No. □5□02□00□) is located north of CS□□ and CS□2 in a sheltered bay within Sunday Harbour. From the water edge, CS□□ has a sand and gravel beach extending into an area covered by grass. The area surrounding the grassed area is wooded. The structural features in this area include a two-storey residential dwelling referred to as the old dwelling building, an outhouse and former boat winch. The locations of CS□□ area features are illustrated in Figure 5 in Appendix A.

The undeveloped areas of the Site consist primaril□ of e□posed bedroc□ and boreal forested areas. Sunda□Point is surrounded b□the open □ater of La□e Superior to the south and □est□and Sunda□ Harbour to the north. The Site and surrounding area is accessible onl□ b□ boat or helicopter and there are no significant developments or infrastructure in other areas near the Site.

3 PREVIOUS INVESTIGATIONS

The follo□ing subsections summari□e relevant information from previous environmental investigations completed for the Site□and provided to DST b□the Client for revie□.

3.1 Enhanced Phase I ESA – XCG Consultants Ltd., 2001

□n □nhanced Phase I □S□ □as carried out b□ □CG Consultants Ltd. (□CG) at the Site□□hich included the revie□ of historical information and databases□the completion of intervie□s□and a Site visit to identif□ areas of potential environmental concern (□P□Cs). The assessment also included sampling and confirmator□testing. The ob□ectives □ere to identif□and document actual or potential contamination□and develop a □ational Classification S□stem (□CS) score for the Site□ □here re□uired.

The lighthouse □as constructed at this Site in □□0□ to assist transport ships and commercial fishing vessels destined for Terrace Ba□. The old fog alarm building (□hich also housed generators) and original dwelling (Sunday Harbour) was constructed in the early 1900's. The main d□elling □as constructed on the south shore in □□5□and the duple□d□elling in □□□5. The ne□ generator□fog alarm buildings □ere constructed in 1970's.

The Slate Island lighthouse □as revie□ed b□the federal Heritage Buildings Revie□ Office in □□□0 and □as not recommended for a designation as a heritage site.

Several plant species belonging to the □rctic □lpine Basic Bedroc□ Shoreline group □ere identified on Patterson Island in the area of the sub□ect propert□.

Soil sample anal□tical results for pol□c□clic aromatic h□drocarbons (P□Hs) □ere compared to the residential□par□land land use in the Canadian Council of Ministers of the □nvironment (CCM□) Canadian □nvironmental □ualit□Guidelines Canadian Soil □ualit□Guidelines (□□□□) and Table F criteria for all other land use of the Ontario Ministr□ of the □nvironment and Climate Change (MO□CC□ □□□□□ name and acron□m used to refer to organi□ation under previous names throughout this report) *Guideline for Use at Contaminated Sites in Ontario* (□□□□). The MO□CC Table F □as used because the overburden at the Site is less than 2 m. Soil sampling in the vicinit□of the diesel tan□pad□diesel tan□d□□e□the former oil house□ne□ diesel generator building and furnace oil tan□ pad indicated that petroleum h□drocarbons concentrations e□ceeded acceptable values outlined in the *Guideline for Use at Contaminated Sites in Ontario* (□□□□) □ Table □ criteria for residential□par□land for coarse grained soil authored b□ □hat is no□ the MO□CC. In this report□a comparison □as also made to the □□□□ MO□CC Table □ guidelines□ though the□do not appl□given the shallo□ depth of overburden□the□ma□still be considered to be protective of human health provided that contaminant leaching to ground□ater can be eliminated as a path□a□of concern.

Results from the 200□ □CG report□and other historical reports□have also been compared to the site specific target levels (SSTLs) and ma□imum □no□n concentrations that do not pose unacceptable ris□s for human health and ecological receptors at the Site. These □ere derived from the site specific ris□ assessment for human health (SSR□□HH) and ecological receptors (SS□R□) completed b□DST (DST□2005) and form the basis of the current applicable comparative frame□or□ (refer to section 5.□). The federal frame□or□ used to compared the historical results to current standards are as follo□s.

- CCM□ (20□0) *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* factsheet□ Table 2 Soil □ualit□ Guidelines for Carcinogenic and Other P□Hs□for residential land use□
- 200□ Canadian Council of Ministers of the □nvironment (CCM□) *Canada-Wide Standards for Petroleum Hydrocarbons in Soil, Technical Supplement* document□Table □ path□a□ specific Tier □ levels for PHCs in coarse□grained surface soils and residential land use
- *Canadian Environmental Quality Guidelines (CEQG) Canadian Soil Quality Guidelines (SQGs) for the Protection of Environmental and Human Health* for coarse grained soils in residential land use□and□
- *CEQC SQGs for the Protection of Environmental and Human Health* for coarse grained soils in residential land

The 200□ □CG assessment identified the follo□ing□

- Concentrations of metals in t□o soil samples□collected from the burn pit area at the Main Site and from the vicinit□ of the lighthouse building□e□ceeded the MO□CC (□□□□) Table F guidelines□and some also e□ceeded Table □ and CCM□ criteria. The burn pit sample failed the SSTLs (DST□2005) or current applicable CCM□ for naphthalene antimon□□ arsenic□cadmium□mercur□□copper□lead and □inc. The lighthouse sample failed to meet the SSTLs for lead□vanadium and □inc.

- One soil sample collected from the earthen floor of the Former Oil House (note□although this structure is referred to as the Former Oil House□the structure still e□ists on the Site at the time of this report□and is understood to be formerl□ used as an oil house□no□ a storage shed) □as anal□□ed for P□Hs and several parameters □ere found to e□ceed the MO□CC Table F guidelines. □aphthalene□ phenanthrene□ fluorine□ total petroleum h□drocarbons (TPH) (gas□diesel) and TPH (heav□ oils) failed to meet the SSTLs (DST□ 2005) or current applicable CCM□ guidelines.
- Si□samples collected from the vicinit□of the diesel tan□pad□diesel tan□d□□e□the Former Oil House□□e□ Diesel Generator building□and furnace oil tan□pad at the Main Site □ere anal□□ed for total petroleum h□drocarbons (TPH) (gas□diesel)□□hich e□ceeded MO□CC Table □ guidelines. Of the si□samples□three samples also e□ceeded the MO□CC Table □ guideline for TPH (heav□oil). Four of the soil samples failed to meet the SSTLs (DST□ 2005) for h□drocarbon parameters.

The □ational Contaminated Site Classification S□stem (□CSCS) □as applied to t□o contaminated areas at the Site (Petroleum Storage □reas□Burn Pit and the Lighthouse □rea). Scores for the contaminated areas indicated that action is li□el□ re□uired (Class 2). The contaminated areas□ their associated contaminants of concern (COCs) and □CSCS ran□ing are summari□ed belo□.

Table 3.1: Contaminated Areas identified by XCG (2001)

Contaminated Areas	Contaminants of Concern	NCSCS Class/ Ranking
Petroleum Storage □reas and burn pit	TPH□P□Hs and Metals	2
Lighthouse area	Metals	2

□CG recommended that a Screening Level Ris□ □ssessment (SLR□) be performed to determine □hether potential e□posures to the contaminants found at the Site are □ithin acceptable limits□ and thus □hether remedial action is re□uired.

□CG also completed paint sampling as part of the 200□ investigation. Lead based paint is present as the e□terior red and □hite paint (205□□□□ ppm respectivel□) of the old fog alarm building. It □as assumed that the e□terior red and □hite paint of the lighthouse□former oil house□old d□elling□ main d□elling and the duple□ d□elling □ere also lead based. It □as also assumed that the gre□ paint on the floors of the ne□ fog alarm and ne□ diesel generator buildings □ere lead based.

Painted surfaces □ere generall□in good condition according to □CG. □ppropriate precautionar□ measures □ere recommended to be implemented during an□future painting activities to ensure metallic elements present in paint applications do not contaminate soils. Other issues identified b□ □CG (200□) included asbestos containing materials□potential presence of pol□chlorinated biphen□ls (PCBs) and o□one depleting substances (ODSs).

3.2 Screening Level Risk Assessment – XCG Consultants, 2003

□CG conducted a Screening Level Ris□ □ssessment (SLR□) at the Site (□CG□200□). The ris□ assessment relied on previousl□collected data and additional soil samples collected b□ □CG in 200□. The SLR□ □as conducted to investigate the ris□s associated □ith the COCs identified in their 200□ □S□. Both human and ecological receptors □ere ta□en into consideration.

Based on the findings of the □nhanced Phase I □S□□and a Phase II □S□ (both completed b□ □CG in 200□□though the Phase II □S□ □as not provided to DST for revie□) three contaminated sites □ere identified at the Site. The south end of the island (i.e. the Main Site – CS□) □as identified as a contaminated site CS5□02□00□□and □as found to have metals□TPH□and P□H impacts. CS5□02□00□ □as separated into seven sub sites (CS□□(a) to CS□□(g)). The Lighthouse □rea (CS□2) □as identified as contaminated site CS5□02□002□and □as found to have metals□ impacted soil. The Old D□elling (CS□□) area at the north side of Sunda□Point □as identified as CS5□02□00□□and □as found to have metals□impacted soil.

□s part of the ris□assessment□the li□elihood and e□pected severit□of effects on potential human and ecological receptors □ere estimated□ta□ing into account receptor characteristics□the nature of the identified ha□ard□e□posure path□a□s and mitigating circumstances.

The e□posure path□a□s for humans included dermal contact □ith□and ingestion and inhalation of□impacted soil. The potential ris□ associated □ith e□posure through each of these path□a□s □as determined for the follo□ing areas□

- CS□□ – □a) burn pit□□c) former oil shed□□d) diesel tan□ d□□e□old fog alarm □generator building□ne□ diesel generator and ne□ fog alarm buildings□□e) main d□elling□□f) duple□ d□elling□and □h) ground□mounted transformer□
- CS□2 – Lighthouse □rea□and□
- CS□□ – Old D□elling Site.

T□o areas □ere not assessed for potential ris□□labelled b□ □CG as □b) diesel tan□pad and □g) furnace oil tan□pad because onl□the COC present □as TPH (gas□diesel) and it □as determined that the concentration of TPH (gas□diesel) at these locations □as lo□er than the path□a□□specific Tier □level (i.e. the soil ingestion Tier □value).

The results of the human health SLR□ determined that the presence of metals□P□H and TPH soil impacts did not pose an unacceptable ris□to DFO □or□ers □ho visit the Site on an occasional basis. Ho□ever□it □as determined that□in the absence of appropriate engineering measures□the contaminants of potential concern posed an unacceptable ris□to more sensitive visitors to the Site (i.e. children). For children□ha□ard □uotients greater than 0.2 □ere identified for the follo□ing parameters□

- CS□□□
  - □ntimon□□cadmium□copper and lead at the burn pit□
  - Lead and TPH (gas□diesel) in the areas of the former oil shed and diesel tan□ d□□e□old fog alarm building□and generator building□and□
  - Lead in the area of the main d□elling.
- CS□2□
  - Lead
- CS□□□
  - Lead

The results of the ecological SLR□ determined that potential e□posure path□a□s identified included□dermal contact□ingestion and inhalation of the soil□the movement of COCs through surface run□off or into ground□ater and movement through the food □eb. The concentrations of metals□P□Hs and TPH (gas□diesel and heav□ oil) represented a potential ris□ to ecological receptors. The potential for detrimental effect to a□uatic receptors □as considered unli□el□due to the large mi□ing capacit□of La□e Superior.

The follo□ing three remedial options □ere presented for consideration□removal and off□Site disposal of the impacted soils□completion of a site specific ris□ assessment (SSR□) and the development and implementation of a ris□management plan□including capping (soil cover).

3.3 Site Specific Risk Assessment – DST Consulting Engineers, 2005

DST in association □ith GlobalTo□ International Consultants (GlobalTo□) completed a Site Specific Human Health Ris□ □ssessment (SSR□□HH) and a Site Specific □cological Ris□ □ssessment (SS□R□) for the Site. The purpose of the SSR□□HH and SS□R□ □ere to assess and □uantif□ the ris□s posed b□ contaminants to both human and ecological receptors resulting from the historical use of the island as a light station.

□nal□tical results and data used □ithin the ris□assessments □ere compared to□

- CCM□ *Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* (□□□□□including updates up to 200□ and in part 2002)□
- CCM□ *Canada Wide Standards for Petroleum Hydrocarbons (CWS-PHC) in Soil* (200□)□ Tier □ levels for surface soil□and
- MO□CC *Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act*□March 200□□
  - Table □□Full Depth Bac□ground Site Condition Standards – Soil – □ll other t□pes of propert□ uses□Table 2□Full Depth Generic Site Condition Standards in Potable Ground□ater Condition – Soil Standards – Residential□Par□land□Intuitional Propert□ □se□
  - Table 2□Full Depth Generic Site Condition Standards in a Potable Ground□ater Condition – Soil Standards – Residential□Par□land□Institutional Propert□ □se□and
  - Table □□Soil □□tract and Ground □ater Standards to Determine □hether a Property is a "Shallow Soil Property" – Potable Ground □ater.

DST completed a sampling program to supplement the previous Phase I and II □S□s and provide ade□uate data for the SSR□. DST advanced a total of □□ shallo□ test pits var□ing in depth from 0.05 m to 0.□ m. The samples encompassing ground level to bedroc□ are referred to as 'composite samples'. The last 10 cm of each soil sample strata (soil layer closest to bedroc□) were also assigned identification numbers and were referred to as 'grab samples'. The grab samples □ere used to determine if COCs found in composite samples had migrated to the interface □ith bedroc□.

The sampling and anal□sis completed included the follo□ing□

- Si□t□t□o soil samples from CS□□□□0 grab samples from soil ad□acent to the bedroc□□and □2 composite samples from ground surface to the bedroc□. T□ent□seven samples □ere anal□□ed for metals (five grab samples and 22 composite samples)□four for P□Hs (three composite samples□one grab sample)□and □□ for PHCs (four grab samples and nine composite). Leachate testing □as completed on three soil samples□one for selected P□Hs and t□o for selected metals.
- Ten soil samples from CS□2□five grab samples and five composite samples. Five composite and t□o grab samples □ere anal□□ed for metals. Leachate testing □as completed on one grab sample for lead.
- T□ent□ soil samples at CS□□□□0 grab samples and □0 composite samples. Four soil samples □ere anal□□ed for selected metals (one grab sample and three composite samples). Leachate testing □as completed on one grab sample for lead.

Soil samples collected from CS□□ e□hibited elevated concentrations of the follo□ing metal parameters above federal and□or provincial standards□mercur□□antimon□□barium□cadmium□chromium□cobalt□copper□lead□nic□el□selenium□silver□vanadium□and □inc.

Soil samples collected from CS□2 e□hibited elevated concentrations of the follo□ing metal parameters above federal and□or provincial standards□ mercur□□ antimon□□ barium□ lead□ vanadium□and □inc.

Soil samples collected from CS□□ e□hibited elevated concentrations of the follo□ing metal parameters above federal and□or provincial standards□lead and silver.

Three samples from CS□□ □ere submitted for P□Hs. One sample ta□en from the burn pit at CS□□ e□ceeded applicable provincial standards for naphthalene and phenanthrene. It □as determined through discussions □ith P□ GSC that the burn pit □ould be remediated as a locali□ed hotspot and separated from the remainder of CS□□□and thus not included in the ris□anal□sis for CS□□.

Leachate anal□sis □as performed on grab samples collected in the vicinit□of old d□elling building□north of the old fog alarm building□and east of lighthouse building and e□ceeded MO□CC (200□) Table □ standard for lead. The results of leachate anal□sis performed on grab samples east of former oil house building and north of old fog alarm building e□ceeded the MO□CC Table □

standard for □inc. These results indicate that the Site □as considered a shallo□ soil site under the 200□ MO□CC standards.

T□o surface □ater samples □ere collected□one □as collected directl□south of contaminated site CS□□□and the other □as collected directl□ □est of contaminated site CS□□. Both □ere anal□□ed for metals□PHCs□and P□Hs. The surface □ater samples indicated no impacts due to metals□ PHC or P□H contamination.

The result of the SSR□□HH indicated that concentrations of lead in soil on the Site present potential unacceptable ris□s to seasonal residents at CS□□ and CS□2 and campers at CS□2. Toddlers and children are most susceptible to e□posure to potential health concerns via direct contact □ith soil (dermal contact and ingestion). □o unacceptable ris□s □ere identified for the DFO adult □or□ers through the inhalation of dust□ingestion of soil or through dermal contact □ith soil path□a□s□or through inhalation of indoor air path□a□s.

It □as concluded that remediation □as re□uired to reduce e□posure to lead through direct contact path□a□to the follo□ing levels□

- CS□□ and CS□□□□25 mg□□g□and□
- CS□2□□□□5□ mg□□g.

□o unacceptable ris□s □ere identified for the remaining parameters and all other path□a□s considered (i.e. outdoor air path□a□□indoor air path□a□□inhalation of fugitive dust).

□s part of this ris□ assessment□specific attention □as provided to the potential impacts to threatened species. The Boreal population of the □ oodland Caribou □as identified as a threatened species under the Species at Ris□ □ct. Other species identified in the area (i.e. on the mainland) that are listed in the Species at Ris□ □ct include the □astern □ olf□listed as a special concern□the Peregrine Falcon□listed as threatened□and□the Monarch Butterfl□□listed as special concern. □ threatened species is one that is li□el□to become an endangered species if nothing is done to reverse the factors leading to its e□tirpation or e□tinction. □ species of special concern is one that ma□become a threatened or an endangered species due to a combination of biological characteristics and identified threats. □lthough not listed under the Species at Ris□ □ct□the Bald □agle is on the Ontario Birds at Ris□ (OB□R) target list□□hich is administered b□ Bird Studies

Canada. The goal of OB□R is to □or□ to□ards the protection and recover□ of vulnerable□ threatened and endangered (VT□) and other bird species at ris□in Ontario.

The results of the ecological ris□assessment identified lead and □inc in soil as representing an unacceptable ris□ to plants and invertebrates at CS□□ and CS□2□and lead onl□ in soil at CS□□. The concentrations considered protective of the most sensitive receptors (plants and soil invertebrates) □ere lead at □□□5□ mg□□g and □inc at □□5 mg□□g. □t a human health□based lead clean□up level of □25 mg□□g at CS□□ and CS□□□no unacceptable ris□s for an□ecological receptors □ere identified. □ lead clean□up level of □□□5□ mg□□g at CS□2 resulted in conditions that are marginall□ above acceptable ris□s for birds and mammals□but given the unfavourable habitat at this location□the marginall□elevated ris□s □ere □udged not to represent a problem at a population level.

Based on the results□the clean□up levels that are considered protective of human receptors and that □ill not result in population decreases for ecological receptors are as follo□s□

- Lead□CS□□ and CS□□□□25 mg□□g□and CS□2□□□□5□ mg□□g
- □inc□CS□□ and CS□2□□□5 mg□□g

DST recommended three options for the metal contaminated soil□dilute the □inc contaminated soil□capping (soil cover)□and removal and off□Site disposal.

For the burn pit□DST recommended remediating the burnt pit area b□removing the affected soil to bedroc□ and reinstating □ith clean fill. For the PHC hot spots (t□o □ere identified)□DST recommended t□o options□capping (soil cover)□or removal and off□Site disposal.

4 DESIGNATED SUBSTANCE AND HAZARDOUS MATERIALS

DST □as retained b□ P□ GSC to conduct a Designated Substance and Ha□ardous Materials Surve□(DSHMS) of the various buildings and the surrounding areas at the Site.

The approved ob□ectives of the DSHMS □ere to□

- Collect and anal□□e representative building material samples to support the identification of select designated substances□
- Determine the e□tent and locations of designated substances and ha□ardous materials □ithin the buildings at the Site through a non□intrusive investigation□and□
- Collect sufficient information to subse□uentl□ enable DST to recommend appropriate measures to mitigate ris□s to human health and□or the environment during future management and abatement operations.

The surve□ program implemented b□ DST □as designed for consistenc□ □ith the record of materials containing the □□ designated substances listed in Section □0 of the *Ontario Occupational Health and Safety Act, R.S.O. 1990*□Chapter 0.□.

Designated substances□as identified under the *Ontario Occupational Health & Safety Act* are□

- □cr□lonitrile□
- □rsenic□
- □sbestos (both friable and non□friable)□
- Ben□ene□
- Co□e Oven □missions□
- □th□lene O□ide□
- Isoc□anates□
- Lead□
- Mercur□□
- Silica□and
- Vin□l Chloride.

Other ha□ardous materials□□hich are not classified as designated substances□but □hich are still of concern due to other regulations□best practice guidelines and□or potential ris□s to human health and□or the environment□□ere included as part of the DSHMS scope of □or□□include□

- PCBs□
- Halocarbons□
- Mould□and
- Other ha□ardous materials.

4.1 Background

□s per bac□ground information provided b□ P□ GSC (refer to section □) and Site observations□ the buildings and structures included in the scope of □or□ are as follo□s□

- Main d□elling
- Duple□ d□elling
- Old fog alarm building
- □e□ fog alarm building
- □e□ diesel generator building
- Former oil house
- Lighthouse
- Old d□elling
- Outhouses at CS□ and CS□
- Doc□s and hoists at CS□ and CS□
- Flag pole
- Boat □inch
- Helicopter pads at the CS□ and CS2
- Diesel tan□ pad
- Ground□mounted transformer
- Retaining □all
- Diesel d□□e
- Oil furnace tan□ cradle pad

□lso□□hile on□Site□DST inspected the surrounding grounds including all □no□n dump areas and burn pits for visible designated substances or ha□ardous materials in □aste piles.

□ here available□DST pro□ect personnel revie□ed documents as the□ pertained to designated substances and ha□ardous materials in the buildings at the Site. □s part of the pro□ect□DST revie□ed the follo□ing document as described in section □ of this report□

- □nhance Phase □ □nvironmental □ssessment□Slate Island Light Station□La□e Superior□ Ontario. Prepared b□ □CG Consultants Ltd.□dated □pril 2□200□.

DST referenced the identifiable past samples and anal□tical results of the above□noted past report□□here applicable. □s such□materials alread□ identified as containing ha□ardous materials or designated substances in the previous report □ere not necessaril□ re□sampled b□ DST. Furthermore□as part of the surve□□the presence□□uantit□ and condition of asbestos□containing materials were confirmed by DST. DST's field program also included the sampling of any additional □sbestos□Containing Materials (□CMs) and lead as □ell as the identification of other designated substances and ha□ardous materials not previousl□ noted. □ here applicable□a sufficient number of bul□ asbestos samples □ere collected in order to satisf□ the current bul□ sampling re□uirements of Ontario Regulation 2□□05 under the *Occupational Health and Safety Act, R.S.O. 1990, c. 01* (O. Reg. 2□□05)□as amended.

4.2 Scope of Work and Methodology

4.2.1 Quality Assurance and Quality Control

□ □ualit□ assurance□□ualit□ control (□□□C) program □as implemented for this program that included the use of duplicates□proper sample containment□handling and transportation. In addition□the use of a third□part□accredited laborator□for sample anal□sis □as emplo□ed□using detection limits appropriate for the re□uired criteria □guidelines outlined□and all necessar□health and safet□precautions □ere ta□en.

4.2.2 Site Assessment

DST performed the Site visit for the DSHMS on □ugust 2□th□and □0th□20□□. The surve□included a □al□through assessment of all accessible areas of the each of the Site buildings and structures. Intrusive□non□destructive investigations □ere performed □here possible to e□amine concealed conditions□ using e□isting openings to e□amine concealed conditions. □ henever possible samples □ere ta□en from discrete locations. □o other buildings and□or structures at the Site in addition to those listed above □ere surve□ed. □t the time of the DSHMS□the basement level of the old d□elling and the solar shed □ere inaccessible to the surve□or due to loc□ed doors.

Materials suspected of containing designated substances and other ha□ardous materials □ere visuall□ identified□based on the surve□or□s □no□ledge of the historical composition of building products. □□uipment that ma□ contain halocarbons (e.g. air conditioning and refrigeration e□uipment) or PCBs (e.g. electrical transformers and fluorescent light ballasts) can often be identified by examining manufacturer's labels. For safety reasons□DST personnel do not remove the ballast shields from fluorescent light fi□tures to e□amine the ballast codes unless the electrical circuit for the lighting has been tagged and loc□ed out b□ a □ualified electrician. Visual identification of materials suspected to contain asbestos or lead (in paint) □as supported b□the collection and anal□sis of a limited number of representative samples. Materials suspected of containing designated substances other than asbestos or lead (in paint) □ere identified b□ appearance□age□and □no□ledge of historical applications.

In Ontario□a material is defined as an □CM if the material has a minimum asbestos content of 0.5□ b□dr□□eight. □CMs can be divided into t□o categories□friable and non□friable material. □ friable □CM is a material that can be crumbled□po□dered□or pulveri□ed b□hand pressure and can readil□release fibres □hen disturbed. Common applications of friable □CMs are spra□ed or tro□elled surfacing materials (e.g. spra□ed fireproofing and te□tured coatings) as □ell as mechanical and thermal insulation. □on□friable materials are materials that □ill generall□release fibres onl□□hen cut or shaped. Common non□friable □CMs include vin□l floor products□asbestos te□tile products and asbestos cement products (Transite). Some of these products ma□become friable □ith time or □hen disturbed.

Bul□ □CM samples □ere collected in order to meet the bul□sampling re□uirements stipulated in O. Reg. 2□□05□as amended. Bul□ samples □ere submitted to and anal□□ed b□ Paracel Laboratories Ltd. (Paracel). Paracel is an accredited laborator□through the Canadian □ssociation for Laborator□□ccreditation (C□L□) and the □ational Voluntar□Laborator□□ccreditation Program (□VL□P). The bul□ samples □ere anal□□ed using polarised light microscop□ (PLM). This anal□tical method complies □ith the □nited States □nvironmental Protection □genc□(□.S. □P□) Method □00□R□□□□□□ dated □ul□□ □□□□□ □hich is the regulator□ approved protocol for bul□ asbestos anal□sis in Ontario. In accordance □ith O. Reg. 2□□05□it is not necessar□to anal□e multiple bul□material samples collected from the same area of homogeneous material if anal□sis establishes that a bul□material sample contains 0.5 per cent or more asbestos b□dr□□eight. Therefore□additional samples collected in order to satisf□the re□uirements of O. Reg. 2□□05 □ere not anal□□ed if an individual sample in a sample series □as identified as asbestos□ containing.

□ith regards to lead in paint□although the Ontario Ministr□of Labour (MoL) has published a guideline for control of lead e□posures on construction pro□ects in Ontario□it does not include criteria for the classification of lead□paint. Instead□it uses presumed airborne lead concentrations for specific tas□s as criteria for classif□ing □or□. Ho□ever□in regulations set b□the □nited States (□.S.) Department of Housing and □rban Development□lead based paint is classified as an□paint application containing at least □.0 milligrams of lead per s□uare centimetre of surface area (□.0 mg□cm^2)□or at least 0.5□ lead content b□□eight (5□000 ppm). This criterion is □idel□□although not universall□□used in Canada. In Canada□the Federal Canada Consumer Product Safety Act's

Surface Coating Materials Regulations SOR/2005-109 has lo□ered the allo□able concentration of lead in paints for ne□ consumer products to 0.00□□ lead content b□□eight (□0 ppm). For the purposes of this surve□and report□paints having a lead content of □0 ppm or more are considered to be lead□containing.

Paint chip samples □ere collected and submitted for lead content anal□sis at Paracel. Sample or representative paint applications □ere collected and subse□uentl□submitted for anal□sis of lead content to Paracel using inductivel□coupled plasma atomic emission spectroscop□.

Laborator□certificates of anal□sis and Site photographs are included in □ppendi□B.

4.3 Findings

The follo□ing sections summari□e in a narrative format the consolidated findings the DSHMS for the buildings and surrounding structures included at this Site.

4.3.1 Acrylonitrile

□cr□lonitrile □as neither observed in the buildings or surrounding structures□nor suspected of being present□in forms or □uantities that □ould either impact future □or□or pose ris□s to human health or the environment.

4.3.2 Arsenic

□rsenic □as neither observed in the buildings or surrounding structures□nor suspected of being present□in forms or □uantities that □ould either impact future □or□or pose ris□s to human health or the environment.

4.3.3 Asbestos

This section summari□es previous and current findings relating to asbestos. Results for specific buildings□structures are presented □ithin separate sub□sections. For specific information relating to sample descriptions and anal□tical results□refer to the respective laborator□ certificates of anal□sis and the *Summary of Bulk Samples Analyzed for Asbestos Content* presented in Table □ found in □ppendi□B.

The surve□ included a room□b□room assessment of all accessible areas of the Site buildings. Should an□ previousl□ unidentified suspect □CMs be encountered as part of future □or□ these materials are to be treated as □CMs and handled accordingl□□unless sampling proves other□ise. Site photographs and site plans sho□ing sample locations (i.e. Figures □through □□) are provided in □ppendi□B.

Materials that have not been anal□□ed□but are visibl□ similar to other materials identified as asbestos□containing□ must be considered asbestos□containing unless proven other□ise b□ laborator□anal□sis.

Table 2□attached in □ppendi□B□provides a summar□of asbestos□containing materials□location and □uantities.

□.□.□.□ <u>Main D□elling</u>

Based on bul□ laborator□ anal□sis results and on□Site observations□the follo□ing materials□ present at the main d□elling building□have been confirmed to contain regulated concentrations of asbestos□

- □ppro□imatel□ □□ m^2 of non□friable beige vin□l floor tiles □ith bro□n strea□s (Sample 02□□05□MD□02□□C) in good condition and confirmed to contain 0.□□□ Chr□sotile asbestos and □as observed throughout the □itchen area□
- □ppro□imatel□ □□0 m^2 of non□friable dr□□all □oint compound (Sample 02□□05□MD□0□ □□D) in good condition □as confirmed to contain □□ Chr□sotile asbestos and □as observed on the ceiling and □alls throughout the main level of the building□
- □ppro□imatel□ □.5 m of non□friable □indo□ caul□ing (Sample 02□□05□MD□0□ □□C) in fair condition on □indo□s being stored in storage room□
- □ppro□imatel□ □ m^2 of dr□□all debris □as observed in the cra□lspace□
- □ppro□imatel□ □2 m of non□friable □indo□ caul□ing (Sample 02□□05□MD□0□ □□C) in poor condition on e□terior basement □indo□s□and
- □ppro□imatel□ □ m of non□friable e□terior blac□ caul□ing on e□terior fi□tures (Sample 02□□05□MD□0□ □□C) in good condition.

In addition□the follo□ing materials are suspected or assumed to contain asbestos□

- □oints on cast iron pipe located in basement□
- Roofing materials beneath tin roof and roofing material debris on ground surrounding building□and

- Tar paper not accessible to sample □as observed under e□terior □ood siding.

Based on anal□sis of samples collected□the follo□ing materials do not contain asbestos□

- Dar□gre□vin□l floor tiles □ith blac□and □hite strea□s□
- Floor mastic on dar□gre□vin□l floor tiles□and
- Main level □hite □indo□ caul□ing.

□.□.□2 <u>Duple□D□elling</u>

Based on bul□ laborator□ anal□sis results and on□site observations□the follo□ing materials□ present at the duple□d□elling building have been confirmed to contain regulated concentrations of asbestos□

- □ppro□imatel□500 m^2 of non□friable dr□□all □oint compound (Sample 02□□05□DD□0□ □□□) in good condition □as confirmed to contain □□ Chr□sotile asbestos and □as observed on the ceiling and □alls throughout the main level of the building□

- □ppro□imatel□ □□□ m^2 of non□friable □hite vin□l floor tiles □ith bro□n strea□s and □hite vin□l floor tiles □ith green strea□s (Samples 02□□05□DD□02 □□C and 02□□05□DD□05 □□C□ respectfull□) in good condition □ere confirmed to contain 0.□5 and 0.□□□ Chr□sotile asbestos□respectivel□□and □ere observed throughout the living room areas□bathroom areas and bedrooms in both d□ellings of the duple□building□

- □ppro□imatel□ 5□ m^2 of non□friable green vin□l floor tiles □ith □hite strea□s (Sample 02□□05□DD□0□ □□C) in good condition □as confirmed to contain 2.22□ Chr□sotile asbestos and □as observed throughout the □itchen area and hall□a□ areas in both d□ellings of the duple□building□and

- □ppro□imatel□ □□0 m^2 of non□friable vin□l floor tile mastic (Samples 02□□05□DD□02 □□C□ 02□□05□DD□05 □□C□02□□05□DD□0□ □□C and 02□□05□DD□0□□ □□C) in good condition □as confirmed to contain 0.□0 to 2.□5□ Chr□sotile asbestos and □as observed in all areas of the main level of the duple□d□elling.

In addition□roofing materials beneath the tin roof are suspected or assumed to contain asbestos.

Based on anal□sis of samples collected□the follo□ing materials do not contain asbestos□

- Interior □hite caul□ing□and

- Beige vin□l floor tiles found to have asbestos containing mastic (02□□05□DD□0□□ □□C) as outlined above.

□.□.□.□ <u>Old Fog □larm Building</u>

Based on bul□ laborator□ anal□sis results and on□site observations□ the follo□ing material□ present at the old fog alarm building□ have been confirmed to contain regulated concentrations of asbestos□

- □ppro□imatel□ 250 m^2 of non□friable red and blac□ shingles (Sample 02□□05□□ S□05 □□C) in poor condition □as confirmed to contain 0.□□□ Chr□sotile asbestos and □as observed on the roof of the building.

In addition□ roofing material debris present on the ground□ surrounding the building□ is assumed to contain asbestos□ as the roofing debris is similar in appearance to sample 02□□05□□ S□05 □□ C.

Based on anal□sis of samples collected□ the follo□ing materials do not contain asbestos□

- Vin□l sheet flooring in paint room□ and
- □□terior □indo□ caul□ing.

□.□.□.□ <u>□e□ Fog □larm Building</u>

Based on bul□ laborator□ anal□sis results and on□site observations□ the follo□ing materials□ present at the ne□ fog alarm building□ have been confirmed to contain regulated concentrations of asbestos□

- □ppro□imatel□ □2 m^2 of non□friable corrugated Transite siding (Sample 02□□05□S□□0□ □□ C) in good condition □as confirmed to contain 20□ Chr□sotile asbestos and □as observed on the e□terior □alls and roof of the building□

- □ppro□imatel□ □0□ m^2 of non□friable Transite □allboard (Samples 02□□05□S□□02 □□C) in good condition □as confirmed to contain 20□ Chr□sotile asbestos and □as observed covering the building interior □alls and ceiling□ and

- □ppro□imatel□ □0 m of non□friable gre□ caul□ing (Samples 02□□05□S□□0□ □□C) in good condition at various locations on the e□terior of on e□terior doors.

□.□.□5 <u>□e□ Diesel Generator Building</u>

Based on bul□ laborator□ anal□sis results and on□site observations□the follo□ing materials□ present at the ne□ diesel generator building□have been confirmed to contain regulated concentrations of asbestos□

- □ppro□imatel□ □2 m^2 of non□friable Transite □allboard (Samples 02□□05□S2□0□ □□C) in good condition □as confirmed to contain 20□ Chr□sotile asbestos and □as observed covering the building interior □alls and ceiling□
- □ppro□imatel□ □2 m^2 of non□friable corrugated Transite siding (Sample 02□□05□S2□02 □□C) in good condition □as confirmed to contain 20□ Chr□sotile asbestos and □as observed on the e□terior □alls and roof of the building□and
- □ppro□imatel□ 20 m of non□friable gre□ caul□ing (Samples 02□□05□S2□0□ □□C) in good condition at various locations on the e□terior of the building associated □ith the e□haust□ doorframes and □oints of the Transite paneling.

□.□.□.□ <u>Former Oil House</u>

Based on bul□ laborator□ anal□sis results and on□Site observations no asbestos containing materials □ere identified.

□nal□tical results have confirmed that t□o t□pes of roof shingles do not contain asbestos.

□.□.□.□ <u>Lighthouse</u>

Based on anal□sis of samples collected□the follo□ing materials do not contain asbestos□

- □□terior and interior caul□ing located on □indo□s□and
- Cementitious parging la□er (Gre□and □ hite) on poured concrete.

□.□.□.□ <u>Old D□elling</u>

Based on bul□ laborator□ anal□sis results and on□Site observations□the follo□ing materials present at the old d□elling building have been confirmed to contain regulated concentrations of asbestos□

- □ppro□imatel□ 25 m^2 of non□friable gre□ vin□l floor tiles □ith □hite and blue spec□s (Sample 02□□05□OH□02 □□C) in good condition □as confirmed to contain 2.□□ Chr□sotile asbestos and □as observed throughout the □itchen area and entrance□

- □ppro□imatel□ □□0 m^2 of non□friable dr□□all □oint compound (Sample 02□□05□OH□□□C) in good condition □as confirmed to contain □□ Chr□sotile asbestos and □as observed on the ceiling and □alls throughout the main level of the building.

Based on anal□sis of samples collected□the follo□ing materials do not contain asbestos□

- Blac□shingles located on the roof□
- Vin□l floor tile mastic□and
- □ hite □indo□ caul□ing.

The basement area of the old d□elling building □as inaccessible (loc□ed) at the time of the DSHMS. Therefore□no information regarding the presence□t□pe and conditions of designated substances and ha□ardous materials □ithin this location □as gathered.

4.3.4 Benzene

Ben□ene is assumed to be present in the follo□ing areas□

- Minor □uantities of residual fuel □ithin five appro□imatel□ □□000 L fuel oil above□ground storage tan□s (□STs) in the main d□elling and duple□d□elling buildings□

- Various partiall□ full oil containers and spra□ oil lubricants in the main d□elling□duple□ d□elling building□old fog alarm □generator building□former oil house and lighthouse□

- Fuel associated □ith t□o □0 L □STs found partiall□full connected to the generators in the old fog alarm building□

- Minor □uantities of residual fuel □ithin a single □0 L □ST observed to be empt□in the ne□ fog alarm building□

- Fuel associated □ith a □50 L □ST and a □000 L □ST connected to diesel generators in the ne□ generator building□

- Visible fuel staining on the basement floor of the main d□elling□duple□ building□old fog alarm□generator building□ne□ generator building□former oil house and lighthouse□

- Fuel □ithin t□o □erosene lanterns observed in the basement of the duple□ d□elling building□
- □ partiall□full drip pan □ith oil or diesel in the ne□ generator building□and□
- Minor □uantities of residual fuel associated □ith t□o portable boat gasoline fuel tan□s (above□dec□st□le) found to be empt□in the old fog alarm building.

4.3.5 Coke Oven Emissions

Co□e oven emissions □ere neither observed in the buildings□nor suspected of being present□in forms or □uantities that □ould either impact future □or□ or pose ris□s to human health or the environment.

4.3.6 Ethylene Oxide

□th□lene o□ide □as neither observed in the buildings□nor suspected of being present□in forms or □uantities that □ould either impact future □or□or pose ris□s to human health or the environment.

4.3.7 Isocyanates

Isoc□anates □ere neither observed in the buildings□nor suspected of being present□in forms or □uantities that □ould either impact future □or□or pose ris□s to human health or the environment.

4.3.8 Lead

This section summari□es previous and current findings relating to lead. Table □ in □ppendi□ B summari□e the results of representative surface coating sample anal□sis for lead content for the Site buildings and structures.

Paint samples collected b□ DST □ere confirmed to have detectable concentrations of lead. Sample location floor plans (i.e. Figures □ through □□) are provided in □ppendi□B. The follo□ing sub□sections present the findings of lead□containing materials for each of the sub□ect buildings. Laborator□certificate of anal□sis□are attached as □ppendi□B (building identifiers are included in the sample IDs for reference).

Table □□attached in □ppendi□ B□provides a summar□ of lead□containing painted surfaces□ location and □uantities.

□.□.□.□ <u>Main D□elling</u>

Seven representative paint finishes □ere sampled from the building b□ DST and submitted for lead content anal□sis (e□cluding a duplicate sample). Si□ paint samples e□ceeded the □0 ppm limit established b□ the Federal Canada Consumer Product Safet□. □s such□all paints at the building □ith the e□ception of the beige paint sampled from an interior □all of the living room are considered to be lead□containing unless anal□tical results confirm other□ise.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□
- □□terior red□
- □□terior and interior gre□□
- Interior □hite□
- Interior light green□
- Interior dar□ blue□
- Interior light green□
- Interior s□□ blue□and
- Interior light blue.

□□terior paint finishes in poor condition include□

- □ppro□imatel□ □0 m^2 of □hite paint on the e□terior □ood cladding□□indo□ trim□soffits□ do□nspouts□and on poured concrete foundation and retaining □all□
- □ppro□imatel□20 m^2 of red paint on e□terior □ood trim□doors□fascia and eaves troughs□
- □ppro□imatel□ □0 m^2 of gre□ paint on e□terior stairs□and
- Paint debris found surrounding the perimeter of the building.

Interior paint finishes found in poor condition include□

- □ppro□imatel□ □0 m^2 of □hite paint found in the interior throughout the main level surfaces□
- □ppro□imatel□ □m^2 of light blue paint found on the mudroom and bedroom 2 □all surfaces□
- □ppro□imatel□ □ m^2 of light green paint found on the stair□ell □all surfaces□
- □ppro□imatel□ □ m^2 of gre□ on the basement stairs□and
- Paint debris □as observed on floor of the basement and several rooms of the main level.

Lead is also suspected to be present in the follo□ing materials□

- Solder on the □oints of copper piping□
- Paints □ithin various partiall□full cans□and
- □oints of cast iron drain pipes.

□.□.□2 <u>Duple□D□elling</u>

Five representative paint finishes □ere sampled from the building b□DST and submitted for lead content anal□sis. T□o paint samples e□ceeded the □0 ppm limit established b□ the Federal Canada Consumer Product Safet□. □s such□all paints at the building □ith the e□ception of the beige paint sampled from an interior □all of the stair□ell and □hite in the basement are considered to be lead□containing unless anal□tical results confirm other□ise.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□all paints □ithin the building are considered to be lead□containing unless future sampling confirms other□ise. These paints include□

- □□terior □hite□
- □□terior red□
- □□terior and interior gre□□
- Interior □hite□
- Interior s□□blue□and
- Interior light blue.

□□terior paint finishes in poor condition include□

- □ppro□imatel□ □0 m² of □hite paint on the e□terior □ood cladding□□indo□ trim□soffits□ eave troughs□and concrete foundation□
- □ppro□imatel□ □ m² of red paint on e□terior □ood trim□doors□fascia and eaves troughs□ and
- Paint debris found surrounding the perimeter of the building.

Interior paint finishes found in poor condition include□

- □ppro□imatel□ □ m² of □hite paint on various interior surfaces□
- □ppro□imatel□2 m² of gre□on the basement stairs□and
- Paint debris □as observed on floor of the basement and stairs.

Lead is also suspected to be present in the follo□ing materials□

- Solder on the □oints of copper piping□
- Paints □ithin various partiall□full cans□
- □oints of cast iron drain pipes□and□
- One □et cell lead acid batter□.

□.□.□.□ Old Fog □larm Building

Si□representative paint finishes □ere sampled from the building b□DST and submitted for lead content anal□sis (e□cluding a duplicate sample). □ll paint samples e□ceeded the □0 ppm limit established b□ the Federal Canada Consumer Product Safet□ □ct. □s such□all paints at the building are considered to be lead□containing unless anal□tical results confirm other□ise.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□
- □□terior red□
- □□terior and interior gre□□
- Interior light green□
- Metallic gre□□and
- Interior □hite.

□□terior paint finishes in poor condition include□

- □ppro□imatel□20 m^2 of □hite paint on the e□terior □ood shingle siding□soffits and □ood □indo□ trim□
- □ppro□imatel□ □0 m^2 of red paint on e□terior □ood trim□doors□fascia and eaves troughs□ and□
- Paint debris found surrounding the perimeter of the building.

Interior paint finishes found in poor condition include□

- □ppro□imatel□ □00 m^2 of interior paints□including gre□□□hite and light green in poor condition□and
- Paint debris □as observed throughout building.

Lead is also suspected to be present in the follo□ing materials□

- Five (5) □et cell lead acid batteries□
- Paints □ithin various partiall□full cans and on used painting supplies□and
- Solder on the □oints of copper piping.

□.□.□.□ <u>□e□ Fog □larm Building</u>

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□
- Interior gre□□and
- Interior □hite.

□□terior paint finishes in poor condition include□

- □ppro□imatel□2 m^2 of □hite paint on the e□terior metal door and trim.

Interior paint finishes found in poor condition include□

- □ppro□imatel□□ m^2 of gre□on poured concrete floor□and
- Minor paint debris observed on floor.

□.□.□.5 <u>□e□ Diesel Generator Building</u>

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□
- Interior gre□□and
- Interior □hite.

□□terior paint finishes in poor condition include□

- □ppro□imatel□2 m^2 of □hite paint on the e□terior metal door and trim.

Interior paint finishes found in poor condition include□

- □ppro□imatel□2 m^2 of gre□on poured concrete floor□and

- Minor paint debris observed on floor.

Lead is also suspected to be present in the follo□ing materials□

- One □et cell lead acid batter□□and
- Solder on the □oints of copper piping.

□.□.□.□ Former Oil House

T□o representative paint finishes □ere sampled from the building b□DST and submitted for lead content anal□sis (e□cluding a duplicate sample). □ll paint samples e□ceeded the □0 ppm limit established b□ the Federal Canada Consumer Product Safet□ □ct. □s such□all paints at the building are considered to be lead□containing unless anal□tical results confirm other□ise. Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□ as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□and
- □□terior red.

□□terior paint finishes in poor condition include□

- □ppro□imatel□□0 m^2 of □hite paint on the □ood clad siding□door and soffits□
- □ppro□imatel□□ m^2 of red of □ood trim□fascia and door□and
- Paint debris found surrounding the perimeter of the building.

Lead is also suspected to be present in the follo□ing materials□

- Paints □ithin various partiall□full cans□and
- Solder on the □oints of copper piping associated □ith stored hot □ater tan□s.

□.□.□.□ Lighthouse

Five representative paint finishes □ere sampled from the building b□DST and submitted for lead content anal□sis. □ll the paint samples e□ceeded the □0 ppm limit established b□ the Federal Canada Consumer Product Safet□ □ct. □s such□all paints at the building are considered to be lead□containing unless anal□tical results confirm other□ise. Paints □ithin the building □ere in good to poor condition at the time of the Site visit.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□
- □□terior gre□□
- □□terior red□
- Interior □hite and □hite on red□and
- Interior gre□.

□□terior paint finishes in fair to poor condition include□

- □ppro□imatel□2□0 m^2 of □hite paint on the e□terior □ood shingle siding□
- □ppro□imatel□20 m^2 of red paint on the e□terior of the upper level lantern□roof□siding□ railing and balcon□□
- □ppro□imatel□□0 m^2 of gre□e□terior paint on the e□terior door and steps□and
- Paint debris found surrounding the perimeter of the building.

Interior paint finishes found in poor condition include□

- □ppro□imatel□50 m^2 of gre□on □ood floor□metal floor and stairs□
- □ppro□imatel□50 m^2 of interior □hite paint on □ood □alls□□hite ceiling of top level and metal □indo□ trim□and□
- Paint debris found on all floor surfaces.

Lead in a □et cell acid batter□is also suspected to be present.

□.□.□.□ <u>Old D□elling</u>

Four representative paint finishes □ere sampled from the building b□DST and submitted for lead content anal□sis. □ll paint samples e□ceeded the □0 ppm limit established b□the Federal Canada Consumer Product Safet□ □ct. □s such□all paints at the building are considered to be lead□ containing unless anal□tical results confirm other□ise.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□

- □□terior red□
- □□terior gre□□
- Interior □hite□
- Interior light blue on light green□
- Interior Salmon (suspected)□and
- Interior gre□.

□□terior paint finishes in fair to poor condition include□

- □ppro□imatel□ □□ m^2 of □hite paint on the e□terior □ood shingle siding and soffits□
- □ppro□imatel□ □ m^2 of red paint on the e□terior trim and fascia□
- □ppro□imatel□ □0 m^2 of gre□ e□terior paint on the front porch□and
- Paint debris found surrounding the perimeter of the building.

Interior paint finishes in poor condition include□

- □ppro□imatel□20 m^2 of interior gre□paint on stairs□second level floors and storage room door.

Lead in solder on the □oints of copper piping is also suspected to be present.

□.□.□.□ <u>Outhouse at CS□</u>

T□o representative paint finishes □ere sampled from the building b□DST and submitted for lead content anal□sis. □ll paint samples e□ceeded the □0 ppm limit established b□the Federal Canada Consumer Product Safet□ □ct. □s such□all paints at the building are considered to be lead□containing unless anal□tical results confirm other□ise.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior □hite□
- Interior □hite□and
- Interior gre□.

□ll paint finishes □ere found in poor condition on the outhouse of the Main Site. The building has appro□imatel□ □5 m^2 of e□terior □hite paint. □s □ell□appro□imatel□ □□ m^2 of interior gre□ paint

□as found in poor condition. Paint debris □as also found on the interior floor of the outhouse. Debris □as also found surrounding the perimeter of the building.

□.□.□.□0 <u>Outhouse at CS□</u>

Paints finishes on the outhouse at CS□□having a corresponding representative paint sample or based on sampled similar finishes found to contain lead above the applicable □0 ppm limit established b□the Federal Canada Consumer Product Safet□include□

- □□terior □hite□and
- Interior □hite and gre□.

□□terior paint finishes in fair to poor condition include□

- □ppro□imatel□ □ m^2 of □hite paint on the e□terior □ood siding.

□.□.□.□□ <u>Surrounding Structures</u>

Paint finishes □ere also found on concrete and metal structures located on the Site. These structures include□

- T□o concrete helicopter pads□
- One diesel tan□d□e□
- One retaining □all□
- T□o doc□s and hoists□
- One flag pole□
- Boat □inch□
- T□o tan□cradle pads□and
- Ground□mounted transformer.

Based upon the anal□tical results available for the building as □ell as for similar paints in other buildings□as applicable□the follo□ing paints are considered to be lead□containing unless future sampling confirms other□ise□

- □□terior gre□□
- □□terior □hite□
- □□terior red□and
- □□terior forest green.

Approximately □0 m^2 of paint finishes in poor condition were found on concrete and metal structures at the Site such as the exterior of the transformer box, the boat winch, the dock hoists, flag pole, and retaining wall.

4.3.8.2 <u>Debris Sites</u>

Various debris and wastes found throughout all known dumping sites are suspected to contain lead. These materials include:

- Used paint cans;
- Wet cell lead acid batteries; and
- Wood and metal wastes with painted surfaces.

4.3.9 <u>Mercury</u>

Based on the historical composition of building materials, mercury is expected to be present in the following materials where observed within the buildings:

- Fluorescent light fixtures containing fluorescent light tubes, which contain mercury in a vapour form and in the phosphor coating on the lamp tube;
- Compact fluorescent light bulbs; and
- Thermostats.

4.3.10 <u>Silica</u>

Based on the historical composition of building materials, silica is expected to be present in the following materials where observed within the buildings:

- Concrete building elements including concrete structures such as helicopter pads, transformer pad, diesel dyke, tank cradles, base of flag pole, sidewalks and retaining wall;
- Masonry building materials and associated mortars;
- Cementitious parging generally found on building elements;
- Drywall building elements; and
- Vinyl flooring products.

4.3.11 <u>Vinyl Chloride</u>

Vinyl Chloride was neither observed in the buildings or surrounding structures, nor suspected of being present, in forms or quantities that would either impact future work or pose risks to human health or the environment.

4.3.12 <u>Polychlorinated Biphenyls</u>

Pol□chlorinated Biphen□ls□also □no□n as Chlorobiphen□ls□are ha□ardous chemicals □hich □ere used in the manufacturing of a variet□ of e□uipment□ such as electrical e□uipment□ heat e□changers□h□draulic s□stems□and for several other speciali□ed applications. Pol□chlorinated Biphen□ls are commonl□found □ithin electrical ballasts manufactured prior to □□□□□found □ithin fluorescent light fi□tures and high intensit□discharge (HID) lamps.

Light fi□tures □ith T□2 lamps are more li□el□ to contain ballasts that □ere manufactured prior to □□□□. T□ lamps are associated □ith light fi□tures that □ere manufactured after the phase□out of PCB□containing ballasts. The letter “T” denotes the shape of the light fixture (e.g. tubular) and the number □hich follo□s indicates the diameter in eights of an inch.

The ballasts of light fi□tures □ith T□2 light tubes are suspected to be present in the Duple□ D□elling building.

□lso□a ground□mounted transformer suspected to contain PCBs □as observed north of the ne□ diesel generator building.

4.3.13 <u>Halocarbons</u>

Halocarbons are a famil□of s□nthetic organic compounds that are composed of carbon and the follo□ing elements□h□drogen□chlorine□fluorine□and□or bromine. The□are inert□heat□absorbing molecules □hich are useful as refrigerants and fire suppression agents because the□ are ine□pensive□non□flammable and ver□stable.

Halocarbons are used specificall□as refrigerants in air□conditioning and refrigeration s□stems□fire e□tinguishing agents in fire e□tinguishing s□stems□blo□ing agents in the manufacture of foams□ and as solvents. Halocarbons are regulated because man□of them contribute to the depletion of the stratospheric o□one la□er.

Halocarbons are suspected to be present in the follo□ing materials observed □ithin the buildings□

- Refrigerators□and
- Free□ers.

4.3.14 Mould and Water Damage

Table 5 in □ppendi□ B provides a summar□ of locations and □uantities of mould impacted materials. DST observed the follo□ing suspected mould impacted and□or □ater damaged building materials□

- □ ater damage □as observed in multiple rooms on the first and second level of the old fog alarm building. Based on observed □ater intrusion (i.e. □ater lea□age during Site visit) and suspected mould gro□th on various surfaces (i.e. surface of table□□indo□ seals□floor □oists and ceiling materials)□appro□imatel□ less than □0 m^2 of mould□impacted building materials □ere observed in the old fog alarm building. Concealed mould is suspected to be present in □ater damaged areas of the building.
- □ ater damage □as observed on ever□ level of the lighthouse building. □ppro□imatel□ □0 m^2 of □ater damaged building materials and 2 m^2 of suspected mould impacted materials □ere observed. Based on current conditions (□ater staining) it is anticipated that concealed □building □observed mould e□ists on the □ooden mudroom floor of the main d□elling building. Based on visual observations concealed mould ma□ be present under vin□l floor tiles and subse□uent □ood subfloor.

4.3.15 Other Hazardous Materials

The follo□ing ha□ardous materials □ere observed to be present□

- □ppro□imatel□ 20 L of labelled sulfuric acid stored in a plastic bladder in a labelled bo□ □as observed in the former oil house building.

4.4 Designated Substance and Hazardous Materials Survey Conclusions and Recommendations

DST □as retained b□P□ GSC to conduct a DSHMS of the buildings□surrounding structures and grounds at the Slate Island Coast Guard Site identified □ith the Propert□ □umber 5□02□.

The DSHMS scope of □or□ included an assessment for the presence of the □□ Designated Substances□as identified in the *Occupational Health and Safety Act*□ as □ell as PCBs□ halocarbons□mould□and other ha□ardous materials.

The following recommendations apply to only designated substances and hazardous materials observed in the buildings and surrounding areas, as applicable. The handling and use of these materials should be undertaken by those with proper training (e.g. □ orkplace Hazardous Materials Information System, etc.) and adhere to any applicable guidelines and/or regulations.

4.4.1 Asbestos

The disturbance of ACMs on construction and demolition projects in the province of Ontario is governed by *O. Reg. 278/05, Asbestos on Construction Projects and in Buildings and* Repair Operations enabled under the *Occupational Health and Safety Act R.S.O. 1990, Chapter 1*. This regulation classifies all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition. The MoL must be notified of any project involving removal of more than a minor amount (e.g. typically 1 square metre) of friable asbestos material.

The transport and disposal of asbestos waste is governed by R.R.O. *Regulation 347 – General – Waste Management* under the *Environmental Protection Act R.S.O. Ch. E. 19* (Reg. 347), as amended. This regulation requires that asbestos waste be sealed in appropriately labelled, double containers resistant to puncture and tears. The waste must be disposed of at a licensed waste disposal site.

The removal of less than one square metre of drywall in which joint-filling compounds are asbestos-containing can be performed following Type 1 asbestos precautionary measures, as applicable as per O. Reg. 278/05, as amended. The removal of one square metre or more of drywall in which joint-filling compounds are asbestos-containing must be performed following Type 2 asbestos removal procedures, as a minimum.

Based on the current scope of work as discussed with the PWGSC, Type 2 asbestos abatement will be completed on all interior drywall with asbestos-containing joint compound where lead containing paint is present as outlined in Table □ in Appendix B. Lead precautionary measures should also be considered on any removal of drywall with lead-containing paint.

The breaking, cutting, drilling, abrading, grinding, sanding or vibrating of non-friable ACMs such as vinyl floor tiles, adhesives, mortars, mastics, Transite, pipe joint gaskets and caulking products can be conducted using T□pe □asbestos precautionar□measures□provided the material is □etted to control the spread of dust or fibres□and the □or□is done onl□be means of non□po□ered hand□held tools. If these conditions cannot be met□then more stringent (T□pe 2 or T□pe □) □or□procedures are re□uired (e.g. po□er tool removal).

Based on the current pro□ect scope as discussed □ith the P□ GSC□asbestos abatement follo□ing a T□pe □ □ill be completed on the follo□ing material□structure□

- Main d□elling□e□teriors basement □indo□s caul□ing and stored □indo□ □here asbestos caul□ing □as present□and□
- Old fog alarm building□roofing shingles and shingles debris.

□here painted □indo□ caul□ing is present on the main d□elling e□terior basement□lead precautionar□measures should also be considered.

Based on the revie□ of the structure report□all buildings □ere found to be structurall□sound and can □ithstand the abatement □or□. Refer to □ppendi□F for the structural report.

The time □eight average e□posure limit (T□ □□L) for airborne asbestos is prescribed b□Ontario Regulation □□0□0□*Designated Substances* under the *Occupational Health and Safety Act, R.S.O. 1990, c. O.1* (O. Reg. □□0□0□)□as amended. □ or□procedures and personal protective e□uipment must be used to ensure that □or□ers are not e□posed to airborne asbestos levels that e□ceed this T□ □□L.

DST made ever□attempt to loo□above false ceilings and into □all cavit□hatches. In spite of these efforts□some □CMs ma□be concealed and not observed at the time of the surve□. □s such□should an□previousl□unidentified suspect □CMs be encountered as part of future □or□□these materials are to be treated as □CMs and handled accordingl□□unless sampling proves other□ise. Materials that have not been anal□□ed□but are visibl□similar to other materials identified as asbestos□containing□must be considered asbestos□containing unless proven other□ise b□laborator□anal□sis.

The follo□ing recommendations appl□to □CMs and assumed □CMs□

- Materials found in poor condition should be abated using appropriate precautionar□measures□
- Materials must be maintained in good condition□

- The condition of material(s) identified in this report must be inspected at least annuall□□ and this record must be updated accordingl□□
- □ppropriate □or□ procedures and precautionar□ measures must be used□as outlined in O. Reg. 2□□05□as amended□□hen performing □or□that ma□disturb □CMs or suspected □CMs□including prior to building demolition□
- Disturbance and□or removal of □CMs must be appropriatel□ recorded as part of the building's Asbestos Management Plan;
- If □CMs or suspected □CMs become damaged and □or□er e□posure to the material is li□el□ to occur□the damaged material must be repaired or removed follo□ing □or□ procedures outlined in O. Reg. 2□□05□as amended□and
- Disposal of asbestos □aste is controlled b□ Reg. □□□, as amended. This regulation re□uires that asbestos □aste be sealed in double containers resistant to puncture and tears□and appropriatel□ labelled. The □aste must be disposed of at a licensed □aste disposal site. Proper notification must be issued to the site representative prior to transportation of □aste. The transport of the □aste to the disposal site is controlled b□the federal *Transportation of Dangerous Goods Act*□□□□2 (TDG□).

4.4.2 Benzene

There are no regulations that specificall□ govern the disturbance of ben□ene on construction pro□ects. Industrial processes involving ben□ene are regulated under O. Reg. □□0□0□. The transport of the □aste to the disposal site is controlled b□ the federal TDG□ and applicable provincial regulations (Reg. □□□).

Based on the current pro□ect scope as discussed □ith P□ GSC□the remediation of ben□ene □ill not be included in the current scheduled □or□.

4.4.3 Lead

The Occupational Health and Safet□ Branch of the Ontario Ministr□ of Labour have published *Guideline: Lead on Construction Projects*. This document classifies all lead disturbances as T□pe □□T□pe 2a□T□pe 2b□T□pe □a or T□pe □b □or□□and assigns different levels of respirator□ protection and □or□procedures for each classification.

Paint and surface coatings on various building finishes containing elevated concentrations of lead can pose a health ris□to humans if ingested or inhaled. Such lead paints are also a ris□to the environment □ith the potential to contaminate soil□ground□ater□sediments and surface □ater. Paints □ith elevated lead content can also pose a health ris□ to □or□ers □hile completing demolition activities.

The T□ □□L for airborne lead is prescribed b□ O. Reg. □□0□0□□as amended. □ or□ procedures and personal protective e□uipment must be used to ensure that □or□ers are not e□posed to airborne lead levels that e□ceed this T□ □□L.

DST recommends that an□future disturbance should avoid operations that generate high levels of dust (e.g. sanding□grinding) and that should these operations be re□uired□appropriate precautionar□measures be implemented for □or□er e□posure.

The disposal of construction □aste containing lead is governed b□Reg. □□□□as amended. The transportation of the □aste to the disposal site is controlled b□the federal TDG□ and applicable provincial regulations and licenses. Materials □ith elevated concentrations of lead should be sub□ect to anal□tical testing using the to□icit□ characteristic leaching procedure (TCLP) to determine its □aste class in accordance □ith Reg. □□□□as amended.

The follo□ing recommendations appl□to paint and surface coatings on building finishes found to contain elevated concentrations of lead□

- Paint on the e□terior of buildings should be abated using appropriate speciali□ed paint strippers (e.g. al□aline caustic or so□gel) and po□er tools e□uipped □ith H□P□ filtered vacuums□
- Paint on interior surfaces should be abated using appropriate T□pe □ procedures as outlined in the MoL *Guideline: Lead on Construction Projects*□
- Paint debris surrounding the perimeter of the buildings and structures should be remediated scrapping top la□er of soil to a depth of up to 5 cm □here feasible. □ here debris is located on bedroc□□side□al□s or cobblestone□debris should be removed using H□P□ filtered vacuums. Debris found in the interior of buildings should be remediated follo□ing MoL precautionar□measures□outlined in the document referenced above□
- Based on the current scope of remediation as discussed □ith P□ GSC□the remediation of lead paint □ill be completed on all identified lead□base interior surfaces□all e□terior paint and all paint debris as noted in Table □of □ppendi□B. It should also be noted that □here lead paint remediation is to be completed on asbestos containing substrate material□the most stringent guidelines shall be applied□and

- The structural evaluation has identified that all buildings and features/structure that are to undergo lead abatement can withstand the planned remediation work as outlined in the revised structural report located in Appendix F

If not abated, all interior paints containing elevated levels of leads should be maintained in good condition. Prior to or during demolition or renovation work, the following additional procedures should be performed with respect to other anticipated lead-containing materials:

- Copper piping solder can be cut a small distance (e.g. 50 mm) from the joints to avoid direct disturbance of the lead material; and
- Cast iron drain pipes can be cut away from the joints to avoid direct disturbance of the lead caulking in the joints.

4.4.4 Mercury

There are no regulations that specifically govern the disturbance of mercury on construction projects. However, the Occupational Health and Safety Division of the Ontario MoL has published *The Safe Handling of Mercury: A Guide for the Construction Industry*. This document provides advice on how to reduce the risk of mercury exposure, and outlines clean-up methods for spills. In the absence of specific legislation for mercury on construction projects, this guideline would serve as a reasonable, peer reviewed standard for work procedures.

When removal of the fluorescent light tubes is required, the tubes should be removed intact from the fixtures. This prevents worker exposure to mercury vapour, particularly if the tubes were energized shortly before removal. Other sources of liquid mercury should be removed in a similar fashion (intact) to prevent worker exposure.

The T□ □□L for mercury is prescribed by O. Reg. 490/09, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne mercury levels that exceed this T□ □□L.

Liquid mercury is classified as a hazardous waste under Reg. 347, as amended. The transport of the waste to a disposal site is controlled by Reg. 347 and by the federal TDGA. It is now common practice to recycle fluorescent light tubes, and other items containing mercury, recovering the component materials, and avoiding the generation of hazardous waste.

Remediation action for mercury is not required at this time, as discussed with PWGSC.

4.4.5 Silica

The Occupational Health and Safety Branch of the Ontario MoL has published *Guideline: Silica on Construction Projects*. This document classifies all silica disturbances as Type 1, Type 2 or Type 3 (or 3A) and assigns different levels of respiratory protection and work procedures for each classification. In the absence of specific legislation for silica on construction projects, this guideline would serve as a reasonable, peer reviewed standard for work procedures.

The T□ □□L for airborne silica is prescribed by O. Reg. 490/09 *Designated Substances*, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne silica levels that exceed this T□ □□L.

As a general rule, it is preferable to use more stringent dust suppression techniques and engineering controls as opposed to relying on respiratory protection to control worker exposure. Respiratory protection should only be relied on as a last resort when dust suppression techniques and engineering controls fail to control worker exposure to silica.

Disturbance of Silica is not anticipated to occur on lead containing materials scheduled for abatement.

4.4.6 Polychlorinated Biphenyls

Prior to removal or disposal, the PCB content of equipment should be confirmed to determine the proper procedures to be followed, unless conservatively assumed to contain PCBs. When the fluorescent light fixtures are taken out of service, the ballasts should be examined to determine whether they contain PCBs. This can be done by comparing the manufacturer date codes stamped on the ballasts to information contained in the document titled *Identification of Lamp Ballasts Containing PCBs*, published by Environment Canada. Ballasts that contain PCBs must be packaged, transported and disposed of in accordance with all appropriate provincial and federal regulations.

In Canada revised federal PCB Regulations came into force in September 2008. The regulations impose deadlines on the elimination of all PCBs and PCB-containing material currently in storage, and requires all other PCBs to be phased out. In general, the end-of-use deadlines imposed by this new regulation are as follows:

- December □□, 200□, all equipment containing PCBs in a concentration of 500 parts per million (ppm) or more (excluding pole-mounted equipment and light ballasts).
- December □□, 2025, all equipment containing PCBs in a concentration of 50 ppm or more (including pole-mounted equipment and light ballasts).

This regulation and end-use deadlines apply to anyone that owns, stores, manages, or disposes of PCB-containing equipment and waste. The PCBs must be destroyed at an authorized facility, and the owner of the PCBs must submit an annual report to Environment Canada, indicating the quantity of PCBs sent off-site to a transfer or destruction facility. This regulation also includes reporting requirements.

The transport of PCB waste to the disposal site is controlled by the federal TDG □□□□□2 and O. Reg. □□2□□0 – *Waste Management, PCBs,* as amended, under the *Environmental Protection Act* as well as Reg. □□□.

No immediate recommendation for remediation is anticipated based on the current project area scope.

4.4.7 Halocarbons

The handling, transport and disposal of Ozone Depleting Substances are governed by the following:

- O. Reg. □□□□0, Ozone Depleting Substances and Other Halocarbons, as amended, under the *Environmental Protection Act, R.S.O. 1990 Ch. E. 19*; and
- Federal Halocarbon Regulations, 200□.

When confirmed and/or suspected halocarbon-containing equipment is taken out of service, the halocarbon refrigerants must be captured and reclaimed by a licensed technician. The presence of halocarbon refrigerants within units no longer in service should be verified. If halocarbon refrigerants are found to be present, they must be captured and reclaimed by a licensed technician.

No immediate recommendation for remediation of halocarbons is presented based on the current scope of work.

4.4.8 Mould and Water Damage

□ ater damaged and mould□impacted building materials □ere identified. □ccess to building areas □ith significant □uantities (e.g. □□0 m^2) of suspected mould gro□th should be restricted to onl□ those e□uipped □ith appropriate personal protective e□uipment such as protective coveralls and respirator□ protection. The building should be entered b□ authori□ed personnel onl□ □hen necessar□. Mould impacted materials should not be disturbed unless b□ appropriatel□ trained personnel.

Currentl□□there are no regulations pertaining to mould on construction pro□ects. Most □urisdictions have issued alerts or bulletins concerning the ha□ard of mould in indoor environments. The Canadian Construction □ssociation (CC□) published the follo□ing document as a response to concerns in the construction industr□□ CC□ □2□200□□ *Mould Guidelines for the Canadian Construction Industry*□200□. The Guideline recommends Level I□II and III mould abatement procedures for small (□□ m^2)□medium (□m^2 to □0 m^2) and large scale (□□0 m^2) mould abatement operations that are to be determined b□professionals based on the e□tent and densit□of mould.

□ here mould□□ater impacted material is present on lead based surfaces planned for remediation such as in the old fog alarm building and in the lighthouse□proper mould precautionar□measures should be ta□en and the most stringent guideline shall be follo□ed for remediation activities.

Concealed mould ma□ be present in some locations □ithin these buildings. If further mould□ impacted materials are discovered during the remediation activities□all □or□must stop and more stringent precautionar□measures ma□be □arranted (i.e. Level III).

Mould remediation in advance of building demolition is not re□uired. If re□uired to support other □or□ operations such as salvage□the removal of suspected mould impacted building materials should follo□ the above noted guideline. □ or□ers performing such salvaging activities shall be e□uipped □ith proper respirator□protection as outline in the referenced guidelines. In the case of conflict bet□een mould and other re□uirements (e.g. asbestos)□ the more stringent precautionar□measures shall appl□.

4.4.9 Other Hazardous Materials

The handling and use of chemicals such as sulfuric acid should be underta□en b□ those □ith proper training (e.g. □ or□place Ha□ardous Materials Information S□stem□etc.) and adhere to an□

applicable guidelines and□or regulations. Prior to demolition operations□the□should be disposed of appropriatel□. The transport and disposal of chemical □aste is governed b□ Reg. □□□□as amended.

5 ENVIRONMENTAL SOIL INVESTIGATION

The results of the soil investigation is described in the follo□ing sections. □ll information□including figures□anal□tical results summar□ tables□photographs□and laborator□ certificates of anal□ses are provided in □ppendi□ C.

5.1 Scope of Work

The scope of □or□for the environmental soil investigation included the follo□ing□

- Revie□ bac□ground information□
- Carr□out complementar□soil sampling and chemical anal□sis□
- Determine the e□tents of additional soil impacts and further characteri□e impacts in areas that □ere not full□delineated as part of previous assessment □or□□and□
- Prepare a summar□report □ith the findings of the soil investigation.

The initial proposed soil investigation □as detailed in the DST proposal dated □ul□ 2□□20□□. Follo□ing the initial sampling event□it □as determined that additional soil sampling □as re□uired to achieve meaningful delineation of COCs in several areas □here ne□ sources of contamination □ere identified. This follo□ up sampling event description and □ustification □as detailed in an email to P□ GSC dated September 2□□20□□ and the additional field sampling too□ place on October □2th and □□th□20□□.

5.2 Topography and Geology

Bedroc□ geolog□ at the Site consists of felsic to intermediate metavolcanic roc□s (dacitic and andesitic flo□s□tuffs and breccias) in the southern portion of the point□and mafic and ultramafic roc□s (gabbro and anorthosite) in the northern portion of Sunda□ Point. The bedroc□ geolog□ consists primaril□ of undifferentiated igneous and metamorphic roc□□e□posed at surface or covered b□a discontinuous□thin la□er of drift (M□DM□20□□).

Based on observations of CS□□ and historical report (refer to Section □)□soils are shallo□ and discontinuous□□here present at the Site. □□posed bedroc□ is evident at the shoreline around much of the Site. Local overburden materials are predominantl□ coarse□te□tured gravel and cobbles□□ith dar□bro□n□organic□rich topsoil.

□t CS□2□the overburden □as found to consist of discontinuous sand□gravel □ith some cobbles in lo□□l□ing patches on the rugged bedroc□surface.

□t CS□□soils □ere found to be a medium to coarse sand □ith some gravel□e□tending to the beach at La□e Superior. In the surrounding forested areas of CS□□soils □ere found to have LFH hori□ons overl□ing sand and gravel.

Site topograph□is rugged and moderatel□hill□□ith a steep cliff□appro□imatel□20 m in height□ climbing up□ards from the south shore to the Lighthouse □rea on the summit of the point. There are no permanent surface □ater bodies on the Site other than the ad□acent La□e Superior. Surface runoff from Sunda□Point flo□s directl□into La□e Superior.

5.3 <u>Analytical Results Comparative Framework</u>

The follo□ing sections describe the selection of the guidelines and standards applied to the laborator□anal□tical results obtained during the investigation□in accordance □ith the SO□ .

5.3.1 <u>Determination of Most Applicable Comparative Guidelines</u>

Site specific target levels (SSTLs) and ma□imum □no□n concentrations that do not pose unacceptable ris□s for human health and ecological receptors are available for the Site. These □ere derived from the SSR□□HH and SS□R□ completed b□DST (2005) and form the basis of the comparative frame□or□ for soil contamination delineation and remediation ob□ectives. □ here available□the SSTLs (both calculated and previous ma□imums that □ere demonstrated to not pose unacceptable ris□) are considered the most applicable comparative criteria for anal□tical data in this assessment. For applicable COCs□these site specific criteria ta□e precedence over published generic guidelines.

□s a federal site□generic federal environmental guidelines are also applicable. Federal guidelines are considered the applicable criteria □here there are no human health or ecological SSTLs. □ here anal□tical parameters have no SSTLs or generic federal guidelines□a comparison is made to the provincial standards□□here available.

5.3.2 <u>Risk Assessment</u>

□s indicated in the above section□SSTLs have been developed through the ris□assessment □or□□ to □uantif□ma□imum acceptable concentrations of COCs at the Site to ensure the protection of human health (SSTL$_{HH}$) and ecological receptors (SSTL$_{\square CO}$). □here the ma□imum □no□n concentration of a contaminant characteri□ed through previous assessments □as not found to be an unacceptable ris□to human and ecological receptors□for the purpose of this assessment□the ma□imum □no□n concentration of the contaminant is considered the SSTL value.

The remedial action plan proposed b□DST (2005)□□hich included the removal of the contaminant sources from the Site follo□ed b□ remediation of contaminated soils □here lead and □inc concentrations e□ceed the SSTLs for the protection of human health□□as also considered in the selection of the comparative frame□or□.

The selection of COCs for the development of the human health and ecological SSTLs are described in Section 5.□.□.□□ and □2.□ of the DST (2005) report respectivel□. It is noted again that the COCs for input into the SSR□ □ere identified based on parameter e□ceedances of generic guidelines that have since been updated to the guidelines and standards presented in Sections 5.□.□and 5.□.□. □s a result□parameters that □ould currentl□be considered potential COCs □ere not necessaril□included in the 2005 SSR□. This ma□result in the determination of parameter concentrations as impacts that □ere deemed b□the 2005 SSR□ to not be contamination□and the identification of additional COCs based on current applicable generic guidelines. The SSTLs also need to be revisited as Health Canada guidance for specific parameters (e.g. lead) have changed since the 2005 report.

For the current investigation□shallo□ soil samples collected from the Site □ere compared to the human health ris□□based SSTL for lead of □□5□ mg□□g for CS□2□□25 mg□□g lead for CS□□ and CS□□□and an SSTL$_{\square CO}$ of □□5 mg□□g for □inc at CS□□ and CS□2. Other COCs that □ere not assigned human health and ecological SSTLs are compared to the ma□imum concentrations identified through the previous investigations completed at the Site. The other SSTLs and ma□imum □no□n concentrations applicable to the current investigation are presented in DST 2005 and indicated in the anal□tical tables in □ppendi□C.

5.3.3 Generic Federal Guidelines

There are several documents that deal □ith soil □ualit□guidelines under federal □urisdiction. The follo□ing subsections describe □hich guideline documents and path□a□s □ere used in this investigation.

5.□.□.□ □□posure Path□a□ □□clusion

For the purpose of selecting generic comparative guidelines and standards for this investigation□ the marine life contaminant e□posure path□a□s □ere e□cluded as there are no marine (i.e. salt□ater) □ater bodies near the Site. It is noted that the shallo□ ground□ater at the Site is not used as a potable □ater source□and ingestion of shallo□ ground□ater is not e□pected. Therefore□ the e□posure path□a□for the protection of potable ground□ater is also e□cluded.

5.□.□.2 □pplicable Path□a□s

Considering the e□cluded e□posure path□a□listed above and the e□posure path□a□s presented in the guideline documents referenced belo□□the follo□ing e□posure path□a□s are considered applicable for the Site□vapour inhalation□soil organism□dermal contact□soil and food ingestion□ and protection of fresh□ater life. □dditional information related to these path□a□s are provided in the follo□ing subsections. La□e Superior is e□pected to be a receptor of shallo□ ground□ater flo□ing from the Site□thus□the ground□ater path□a□ for the protection of fresh□ater life is applicable.

5.□.□.□ Federal Soil Guidelines

There □ere three documents used to determine federal generic soil anal□tical comparative guidelines used as part of this pro□ect.

Petroleum Hydrocarbons

The guidelines for petroleum h□drocarbon fractions □through □(PHC F□□F□) □ere selected from the 200□Canadian Council of Ministers of the □nvironment (CCM□) *Canada-Wide Standards for Petroleum Hydrocarbons in Soil, Technical Supplement* document□Table □ path□a□ specific Tier □ levels for PHCs in coarse□grained surface soils and residential land use (CCM□ C□ S). The lo□est value of all the path□a□s□e□cept for the protection of potable ground□ater□for each PHC fraction □as used for comparison to results.

For ben□ene□toluene□eth□lben□ene and □□lenes (BT□□)□the CCM□ (□□□□□as revised) *Canadian Environmental Quality Guidelines (CEQG) Canadian Soil Quality Guidelines (SQGs) for the Protection of Environmental and Human Health* for coarse grained soils and residential land use □ere selected as the comparative guidelines. The guideline values used for comparison to the laborator□ results are applicable for both surface soil and subsoil. The guideline for □0□5 incremental lifetime cancer ris□□as used for the ben□ene guideline.

Polycyclic Aromatic Hydrocarbons

The polycyclic aromatic hydrocarbon parameter guidelines for comparison to the soil analytical data from this investigation were derived from CCME (20□0) *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* factsheet□ Table 2 Soil Quality Guidelines for Carcinogenic and Other PAHs□for residential land use. The lowest guideline value for all pathways presented□including the Interim Soil Quality Criteria and any provisional values but excluding the protection of marine life and potable water□were applied for environmental health guidelines based on non□carcinogenic effects of PAHs. For the protection of human health based on the carcinogenic effects of PAHs□benzo(a)pyrene total potency equivalents were derived from the carcinogenic effects of PAHs□based on □ □ □0□5 incremental lifetime cancer risk. Where input values were less than the reported detection limit□half the detection limit was used in the calculation of this value.

Inorganics

For inorganic parameters□the CCME (□□□□□as revised) *CEQC SQGs for the Protection of Environmental and Human Health* for coarse grained soils in residential land use were selected as the comparative guidelines.

5.3.4 Generic Provincial Guidelines and Standards

Provincial guideline values were obtained from MOECC (20□□) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*□Table □□Full Depth Generic Site Condition Standards□Coarse□grained soil□Residential Property□Use (herein referred to as the “Table 1 SCSs”). The selection of these SCSs was based on the following Site characteristics as required by Ontario Regulation □5□0□ under the *Environmental Protection Act R.S.O. 1990, Ch. E. 19*□as ammended (O. Reg. □5□0□)□

- The groundwater under the Site is not used a potable water source and is unlikely to be in the future (water intake from Lake Superior is more practical)□
- The Site may be considered habitat for SARs□
- Determined to be an area of environmental protection by the Township of Terrace Bay (refer to Section □.□2)□
- The soil pH is generally outside of the limits (5 to □for surface soil) allowed for the use of non□background SCSs□
- The Site is within □0 m of a surface water feature□

- The Site is considered a shallo□ soil site□
- The Site is considered to have coarse□grained soils□and□
- The land use of the Site is residential.

Soil samples collected for to□icit□ characteristic leaching procedure (TCLP) anal□sis □ere compared to Schedule □of Reg. □□□to determine if the □aste material is considered ha□ardous or non□ha□ardous for disposal purposes.

5.4 <u>Field Activities and Methodologies</u>

The field activities completed as part of this pro□ect□and the associated methodologies□are presented in the follo□ing subsections.

5.4.1 <u>Field Activities</u>

Field □or□ related to the soil investigation □as completed from □ugust 2□ to September □ and October □2 to □□□20□□ b□DST personnel. The Site □as accessed b□boat via the Terrace Ba□ Public Boat Launch. Photographs of the Site conditions at the time of the field investigations are included in □ppendi□C.

5.4.2 <u>Field Screening and Soil Sampling Methodologies</u>

□t each soil sampling location□using a □iton □L Series handheld □□ra□ fluorescence (□RF) anal□□er□DST personnel conducted field screening of soil to assess the potential presence and□or absence of contamination based on lead concentration measurements provided b□ the □RF anal□□er. The lead concentration □as used as the indicator parameter based on historical soil results (refer to Section □).

□ s□stematic approach □as implemented in □hich DST commenced field screening at areas that had been previousl□ determined to be contaminated□local to the suspected sources□and then stepped out further from the source areas to identif□areas □here hori□ontal delineation ma□be achieved. Field screening using the handheld □RF anal□□er provided a relative screening□level concentration of lead in the field to help identif□potentiall□contaminated and non□contaminated soils to be chosen for laborator□anal□sis.

□t each field screening location□the surface vegetation material □ere removed b□hand to e□pose the underl□ing shallo□ soil□t□picall□ to a depth of about 5□□0 cm to avoid the inclusion of vegetation or roots. The soil □as screened in□situ using the handheld □RF anal□□er. The samples selected for laborator□anal□sis □ere collected directl□b□hand using nitrile gloves into laborator□□supplied containers. □ here re□uired□a steel shovel □as emplo□ed to retrieve the soil sample from a depth □ust belo□ the root mat □here contamination from surface sources is most li□el□to occur □ithout including e□cessive organic matter in the sample. Care □as ta□en to ensure that soil that had contacted the tro□el □as not placed into the sample container.

The laborator□□supplied sample containers □ere filled completel□ □ith the soil sample to reduce the amount of headspace vapour □ithin the □ars. Samples to be submitted to the laborator□for anal□sis of volatile compounds □ere collected using disposable soil plug collectors provided b□ the laborator□. These soil plugs □ere placed in laborator□□supplied vials charged □ith measured volumes of methanol for sample preservation. Cross□contamination bet□een samples □as avoided b□ □ashing sampling tools □ith reagent□free detergent and □ater and b□ □earing ne□ disposable nitrile gloves during field screening and sampling activities at each location.

Once collected□the soil samples □ere maintained at less than □0 □C in a cooler pac□ed □ith ice□ under a Chain of Custod□protocol until deliver□to Ma□□am □nal□tics Inc. (Ma□□am). Ma□□am is ISO□I□C □□025 certified□and is accredited b□the Standards Council of Canada and the Canadian □ssociation for Laborator□ □ccreditation Inc. □ll samples □ere delivered to the laborator□ □ithin sample holding times.

Samples □ere selected for anal□sis of the CCM□ metals suite□including lead and □inc. In addition□ selected soil samples from the area of CS□□□□here elevated concentrations of several PHCs□ VOCs and P□Hs □ere identified in the DST (2005) report□□ere submitted for laborator□anal□sis of these COCs. □lso□DST field personnel submitted 2□ shallo□ soil samples for anal□sis using the to□icit□characteristic leaching procedure (TCLP) for □aste characteri□ation purposes.

Data recorded at each soil sample location included □RF lead measurements□geographic positioning s□stem (GPS) coordinates□a soil description including colour□moisture□evidence of visual or olfactor□contamination and soil depth. GPS coordinates of all soil sample locations □ere recorded using a Trimble □H □000 GPS unit. Hori□ontal coordinates □ere recorded using the Canadian Spatial Referencing S□stem (CSRS) □orth □merican Datum □□□□ (□□D□□) □niversal Transverse Mercator (□TM) □one □□ □orth. GPS data□including the correction factor□soil sample descriptions and soil screening results are included in Table □ of □ppendi□C.

5.4.3 *Quality Assurance and Quality Control Measures*

DST maintains a standard □ualit□ □ssurance□□ualit□ Control (□□□□C) program for all field programs. The field sampling and □□□□C program □as completed in accordance □ith the sampling plan provided in the DST proposal□ *Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment Volume 1 Guidance Manual* (CCM□□20□□)□O. Reg. □5□□0□(as amended)□and *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (MO□CC□□□□□) as appropriate. □ll pro□ect documentation □as maintained and controlled under each specific □or□site and sampling area b□the appointed site supervisor. □ll soil sampling □as completed in accordance □ith industr□ standards□and applicable provincial standards□guidance. DST operates under Certificates of □uthori□ation issued b□ the Professional □ngineers of Ontario (P□O) and the □ssociation of Professional Geoscientists of Ontario (□PGO) and all □or□ □as carried out □ith due regard to P□O and □PGO standards for professional practice.

Field □□□□C samples □ere included in this investigation. Blind field duplicate soil samples □ere collected and anal□sed for metals□P□Hs□PHCs□and VOCs.

Field and laborator□ □□□□C results are described in Section 5.□.5.

5.5 Soil Investigation Results

5.5.1 *Soil Stratigraphy and Bedrock Exposure*

Soil logged during the surface soil sampling activities indicated that the soil along the shoreline at CS□□ consists of cobbles □ith some gravel beach deposits□in places e□tending to the treeline. The developed grassed areas surrounding the d□ellings at CS□□ are underlain b□shallo□ soil□ consisting of topsoil □ith some sand□cobbles and gravel. In the forested areas surrounding CS□ □□soils □ere often found to have organic litter□fibric and humus (LFH) hori□ons. □nderl□ing the LFH hori□ons□mineral soils □ere found to have a coarse sand□loam te□ture □ith some gravel. □□posed bedroc□ □as observed predominantl□along the shoreline of the site □ithin the area of the littoral □one.

□t CS□2□the overburden □as found to consist of discontinuous sand□gravel □ith some cobbles in lo□□l□ing patches on the rugged bedroc□surface.

□t CS□□□soils □ere found to be a medium to coarse sand □ith some gravel□e□tending to the beach at La□e Superior. In the surrounding forested areas of CS□□□soils □ere found to have LFH hori□ons overl□ing sand and gravel.

In general□for the purpose of this investigation□to estimate e□tents and volumes of contaminated soils□three distinct surficial geolog□t□pes are classified for the investigated areas□predominantl□ shallo□ soil areas□predominantl□ cobblestone and gravel areas□and e□posed bedroc□. The estimated coverages and depths are based on field observations□historical reports□and aerial photographs.

□reas surrounding the d□ellings at CS□□ having grass cover □ere calculated to have appro□imatel□ □5□ soil cover to 0.□ meters in depth and 5□ e□posed bedroc□. The predominantl□cobblestone and gravel areas are estimated to have □5□ soil cover up to a depth of 0.5 meters and □5□ e□posed bedroc□. The area of the south of the old fog alarm building is estimated to have appro□imatel□ □5□ soil cover up to 0.□ meters in depth and 25□ e□posed bedroc□. Figure □2 illustrates the appro□imate e□tents of the overburden □soil t□pes and bedroc□ encountered throughout CS□□.

□t CS□2 the ground cover is estimated to be □5□ soil cover up to 0.2 meters in depth and 25□ e□posed bedroc□.

The areas □ithin CS□□ is estimated to have □00□ soil cover up to a depth of 0.□m.

5.6 <u>Background</u>

Details of the bac□ground information revie□□as it pertains to the environmental □ualit□of the soil at the Site□are provided in Section □of this report.

5.6.1 <u>Identified Waste Disposal Dumps</u>

Though not included in the SO□ or identified in an□of the historical reports□DST personnel observed several areas at all three developed areas of the Site □here debris had historicall□been disposed of. These areas are summari□ed in the follo□ing subsections.

5.□.□.□ Main Site (CS□□)

T□o separate □aste debris disposal areas □ere discovered during the field program at CS□□. The □ast Debris Pile□located in a □ooded area appro□imatel□ □2 m northeast of the ne□ diesel generator building e□tends appro□imatel□ □0 m in an east□□est direction □ith an average □idth of appro□imatel□ □ m as sho□n on Figure □□. The estimated area of e□tent of the □ast Debris Pile is appro□imatel□ □00 m² and□based on a depth of □ m based on field observations□has an appro□imate volume of □00 in□situ m□. Partiall□ buried □astes found in the □ast Debris Pile include□

- 5 gallon metal pails as □ell as other container si□es used for various petroleum h□drocarbon products□
- Household □astes such a metal cans□glass □ars and plastic containers□
- □sed paint cans□
- Miscellaneous □ood and metal □astes□and□
- □ □ashing machine.

The □ est Debris Pile□located in a □ooded area appro□imatel□22 m north of the Duple□D□elling Building e□tends appro□imatel□25 m □ith an average □idth of □ m□as sho□n on Figure □□. The estimated area of e□tent of the □ est Debris Pile is 200 m² and□based on an average depth of 0.□ m based on field observations□a volume of appro□imatel□ □20 in□situ m□. Partiall□buried □astes in the □ est Debris Pile □ere found to include□

- Ma□orit□ □astes include household items such a metal cans□glass □ars and plastic containers□
- 5 gallon metal pails as □ell as other container si□es used for various petroleum h□drocarbon products□
- Some used paint cans□
- Minor miscellaneous □ood and metal □astes□and□
- T□o empt□ □5 gallon drums.

5.□.□2 Lighthouse □rea (CS□2)

Debris Pile □□□location illustrated on Figure □□□□as observed in the □ooded area north of the Lighthouse □rea. □ aste □as observed to be scattered over the area of sho□n as Debris Pile □□□ on Figure □□in □ppendi□C□and □as partiall□buried. The estimated area of e□tent of the dumping area is □0 m² and□based on an average depth of 0.□ m as estimated b□ field observations□a volume of appro□imatel□25 in□situ m□. These □astes include□

- □et cell batteries□and
- Paint cans.

In addition to Debris Pile □□□small amounts of scattered debris □ere observed at the base of the lighthouse cliff to□ards the south and east. The debris □as not concentrated into an□one area□ rather appeared to have been historicall□thro□n from the top of the cliff. This debris generall□ consisted of paint cans and old automotive□st□le batteries.

5.□.□.□ Old D□elling (CS□)

The perimeter of CS□ consists of □ooded areas □ith multiple areas containing partiall□buried and scattered debris piles. The piles are labelled Debris Pile 2□□2□B□and 2□C and are sho□n on Figure □5. The estimated collective area of the debris piles is □5 m^2 and□based on an average depth of 0.□ m as estimated from field observations□there is an estimated volume of 2□ in□situ m□. These □astes observed in these piles include□

- Household items such a metal cans and glass □ars□
- 5 gallon metal pails as □ell as other container si□es used for various petroleum h□drocarbon products□and□
- Paint cans.

5.6.2 Soil Analytical Results and Discussion

The follo□ing sub□sections present the anal□tical results from the shallo□ soil samples collected from the Site. The sample locations are sho□n on Figures □□ to □5 for each contaminated area of the Site. Laborator□anal□tical results are presented in Tables □ through □0 in □ppendi□C□as are the laborator□certificates of anal□sis.

In order to provide meaningful contaminated soil areas□the surface areas □ere estimated based on interpreted soil impact delineation areas for lead and □inc as the□compared to the 2005 human health and ecological SSTLs. The areas of the contaminated soil □as conservativel□estimated□ based on the Clients re□uest□b□e□tending the estimated contaminated area from the □no□n impacted area to the nearest clean sampling point. The volume estimates □ere determined based on the Site and soil observations described in 5.□.□. Samples that e□ceeded the SSTLs are sho□n as red in Figure □□□5. □here other parameters e□ceeded the updated applicable guidelines as described in Section 5.□□either due to e□ceeding the previous ma□imum values of the parameter reported historicall□□or because the generic guideline have changed since the

SSR□ □as competed□these areas □ere not included in the contaminated areas and are sho□n as □ello□ in Figure □□□5. Samples that met all of the applicable guidelines (e□cept pH) are sho□n as green on Figure □□□5. Soil pH values that are outside the CCM□ range are indicated on the summar□table in □ppendi□C□□here applicable based on the circumstances described in Section 5.□.□□though are not considered impacts from an□current or historical Site activities.

Generall□□volumes of contaminated soil □ere estimated for each of the three overburden t□pes found throughout the Site□based on the overburden thic□nesses and overburden□bedroc□ coverage described above in Section 5.□.□. The sum of each estimated volume for the overburden t□pes □ithin an indicated contaminated area resulted in the volume estimates provided belo□.

5.□.2.□ <u>Main Site □rea (CS□)</u>

Fort□eight soil sample locations (four of □hich □ere submitted as field duplicates) throughout CS□ □ □ere field screened and submitted for laborator□ anal□sis of metals concentrations□20 soil samples □ere additionall□submitted for PHC F□F□and BT□□ anal□sis□and □□for P□H anal□sis. The □RF field screening lead concentrations and the anal□tical results are presented on Table □ in □ppendi□C of this report.

□RF field screening of the collected soil samples indicated lead concentrations ranging from belo□ the detection limit of the instrument to 5□□□0 ppm.

T□elve soil samples from the sampling locations (plus t□o field duplicates) □ere found to e□hibit lead concentrations greater than the SSTL$_{HH}$ of □25 □g□g. Laborator□results anal□tical results for lead ranged from □□ □g□g (samples CS□□5□CS□□□□CS□□□) to □□000 □g□g (sample CS□□0□ collected ad□acent to the Former Oil House) as sho□n on Table □.

□ine soil samples from the sampling locations (plus one field duplicate) □ere found to e□hibit □inc concentrations greater than the SSTL$_{HH}$ of □□5 □g□g. Laborator□anal□tical results for □inc ranged from □2 □g□g (samples CS□2□) to □□000 □g□g (sample CS□□□)□collected in the burn pit area.

Concentrations of other metals □ere also found to e□ceed the applicable generic guidelines throughout the CS□ area. These concentrations included marginal e□ceedances of selenium□ vanadium□arsenic and nic□el as sho□n on Figure □□in □ppendi□□.

Samples CS□□□CS□5□CS□□□□CS□□2 and CS□22 failed to meet applicable CCME guidelines for one or both of benzene and ethylbenzene. Samples CS□□□CS□2□CS□□□CS□□□□and CS□□□2 did not meet the applicable federal or provincial criteria for PAH parameters (one or more of acenaphthylene□□□2□methylnaphthalene□and phenanthrene).

As described in Section 5.□.□□due to updates to the applicable generic guidelines since the SSRA was completed□contaminant screening thresholds have changed for some parameters□and COCs have been identified by the current investigation were deemed to not be a risk in the 2005 SSRA. The □□ locations where neither lead or zinc exceeded the SSTLs but there were exceedances of one or more parameters that were not previously assessed by the SSRA□or exceeded the previous maximum concentration that was deemed not to be a risk to receptors□ are shown on Figure □□ in yellow□labelled with the applicable parameter that exceeded.

The surface area where shallow soil contains lead concentrations greater than the HH SSTL is estimated to be approximately 2□50 m^2 and contain a volume of approximately □00 in-situ m$^□$ of solid non-hazardous waste and approximately 50 in-situ m$^□$ of hazardous waste as defined by Reg. □□□. These areas are shown on Figure □□ and the parameters used to calculate the volume are described in Section 5.□.□. The leachate-hazardous and non-hazardous soil is mostly found surrounding the old fog alarm building with an isolated area located north of the former oil house. In addition□there was non-hazardous contaminated soil identified near the former burn pit in the eastern portion of CS□□.

5.□.2.2 <u>Lighthouse Area (CS□2)</u>

Twenty-four samples from 22 locations throughout the CS□2 were field screened and submitted for metals analysis. XRF field screening indicated lead concentrations ranging from below detection limit of the instrument to □□□0□ppm. Five of the samples submitted failed to meet the SSTL$_{HH}$ of □□5□µg/g for lead. Laboratory lead concentration results ranged from □□ µg/g (sample CS2□□) to the highest lead concentration of □2□000 µg/g (sample CS2□□) as shown on Table □ in Appendix C.

Four soil samples were found to exhibit zinc concentrations greater than the SSTL$_{HH}$ of □□5 µg/g. Laboratory zinc concentration results ranged from 5□ µg/g (sample CS2□□) to □□□00 µg/g (sample CS2□2□collected adjacent to the base of the lighthouse).

□s described in Section 5.□.□□due to changes in regulation since the 2005 SSR□ □as completed□ generic standards have changed□thus affecting the contaminant parameter screening thresholds for ris□ assessments. Parameters that □ould be considered potential COCs currentl□□□ere not included in the 2005 SSR□. This has resulted in e□ceedances of some of the previous parameter concentrations that □ere deemed to not be a ris□. The nine locations □here there □as an e□ceedance of a parameter that □as not previousl□assessed b□the SSR□ are sho□n on Figure □□ in □ello□□and are annotated □ith the parameter that e□ceeded. The ma□orit□ of the samples e□ceeded the generic CCM□ guideline for selenium□though there □ere copper□arsenic□nic□el and vanadium e□ceedances as □ell.

For CS□2□the surface area of shallo□ soil estimated to contain lead and□or □inc concentrations greater than the HH SSTL is appro□imatel□ □00 m². It is estimated□based on the parameters presented in Section 5.□.□□that CS□2 contains a volume of appro□imatel□ □0 m□ of solid non□ha□ardous □aste and □0 m□ of ha□ardous □aste as defined b□Reg. □□□. The leachate□ha□ardous and non□ha□ardous contaminated soil is all centred around the lighthouse structure as sho□n on Figure □□.

5.□.2.□ Old D□elling (CS□□)

T□ent□five samples from 22 locations throughout the Old D□elling area □ere field screened and submitted for metals anal□sis and five □ere submitted for PHCs□VOCs and P□Hs. □RF field screening indicated lead field screening results ranging from belo□ detection limit of the instrument to □5□ ppm.

□ight of the samples submitted failed to meet the $SSTL_{HH}$ of □25 □g□g for lead and □□ samples (including one field duplicate) failed to meet the CCM□ residential guidelines of 200 □g□g for □inc. Laborator□ lead results ranged from □□ □g□g (sample CS□□□□) to □□00 □g□g (sample CS□□□□) and □inc concentrations ranged from 52 □g□g (sample CS□□□□) to □□0 □g□g (sample CS□□□□) as sho□n on Table □0 in □ppendi□C.

□s described in Section 5.□.□□due to changes in regulation since the 2005 SSR□ □as completed□ generic standards have changed thus affecting the contaminant parameter screening thresholds. □lso□higher □inc concentrations □ere noted than previousl□ measured. Therefore□parameters that □ould be considered potential COCs currentl□□□ere not included in the 2005 SSR□. This has resulted in e□ceedances of some of the previous parameter concentrations that □ere deemed to not be a ris□. The nine locations □here there □as an e□ceedance of a parameter that □as not previousl□ assessed b□ the SSR□ are sho□n on Figure □5 in □ello□□ and are annotated □ith the parameter that e□ceeded. These parameters included ben□ene□eth□lben□ene□toluene□copper□ selenium□nic□el□chromium□arsenic and □inc.

The surface area □here shallo□ soil contains lead concentrations greater than the SSTLs is estimated to be appro□imatel□ □20 m^2 and contain a volume of appro□imatel□ 550 m□ of contaminated soil. □ll of the contaminated soil is considered non□ha□ardous and is centred around the Old D□elling building.

5.6.3 Waste Characterization

T□ent□four samples □ere selected for TCLP anal□sis based on field screening indicators and for general site coverage. CS□□ and CS□2 □ere found to have soils classified as leachate□ha□ardous soil □astes according to Reg. □□□ as sho□n on Table □□ in □ppendi□ C. These areas are illustrated on Figures □□ and □□ in □ppendi□ C and □uantified in the previous sections.

5.6.4 Quality Assurance and Quality Control Results

The □□□□C results for this investigation are detailed in the follo□ing sections.

5.□.□.□ Field □□□□C Results

DST collected and submitted blind field duplicate samples for laborator□ anal□sis. The duplicate samples are summari□ed belo□.

Table 5.1: Blind Field Duplicates Submitted for Laboratory Analysis

Medium	Sample ID	Duplicate Sample ID	Analytical Parameters
Soil	CS□□5	CS□0□5	PHC□VOC□P□HS□Metals□pH
Soil	CS□□□	CS□0□□	PHC□VOC□P□HS□Metals□pH
Soil	CS□□2□	CS□0□2□	Metals
Soil	CS□□□□	CS□□□□0	Metals
Soil	CS2□□□	CS20□□□	Meals
Soil	CS2□20	CS2□200	Metals□TCLP
Soil	CS□□□□	CS□□□□0	Metals
Soil	CS□□20	CS□□200	Metals

□ relative percent difference (RPD) calculations □ere completed to evaluate precision of sampling and laborator□ anal□ses□

RPD□ (Sample Result – Duplicate Result) □ □00
(Sample Result □ Duplicate Result) □2

Relative percentage differences are considered applicable □hen the concentrations of the sample and its duplicate are both greater than five times the reportable detection limit (RDL) (Ma□□am□ 20□2). □pplicable RPDs bet□een the samples and their duplicates □ere revie□ed and compared to alert limits as sho□n on Table □2 in □ppendi□ C.

The PHC F□ concentration bet□een CS□□□ (250 μg□g) and its field duplicate (□□00 μg□g) e□hibited an RDL greater than the alert limit (□2□□ versus □00□). This discrepanc□ □ill not materiall□ affect the conclusions of the report as neither concentration approached the $SSTL_{HH}$ of □200 μg□g. □ll other applicable RPDs □ere less than the alert limits derived from Ma□□am (20□2).

5.□.□2 Laborator□□□□□C Results

□ll samples □ere submitted □ithin sample hold times. □ll samples □ere submitted using sample containers and preservation methods consistent □ith laborator□ procedures and applicable regulations and guidelines.

□ revie□ of the laborator□ □ualit□ Control Data report indicated that acenaphthene□ ben□o(a)anthracene□chr□sene□fluorine□phenanthrene and p□rene all e□hibited a high bias□ ho□ever all of the parameters met application standards□therefore □ould not affect the material conclusions of the report. □ll other anal□ses □ere □ithin the acceptable □□□□C limits. Laborator□ □ualit□ reports are included □ith the laborator□ Certificates of □nal□sis in □ppendi□ C.

5.7 Soil Investigation Conclusions and Recommendations

DST has completed a soil investigation and additional delineation at the Slate Island Light Station on Patterson Island□near Terrace Ba□□Ontario. The soil investigation of three previousl□identified contaminated areas included field screening of soil samples and laborator□ anal□ses to identif□ and delineate contaminated areas at the Site. In addition□ the investigation involved the identification and □uantification of concentrated debris piles located at and around the three developed areas of the Site.

Soil logged during the surface soil sampling activities indicated that the soil along the shoreline at CS□□ consists of cobbles □ith some gravel beach deposits□in places e□tending to the treeline. The developed grassed areas surrounding the d□ellings at CS□□ are underlain b□ shallo□ soil□ consisting of topsoil □ith some sand□cobbles and gravel. In the forested areas surrounding CS□ □□soils □ere often found to have organic litter□fibric and humus (LFH) hori□ons. □nderl□ing the LFH hori□ons□mineral soils □ere found to have a coarse sand□loam te□ture □ith some gravel. □□posed bedroc□ □as observed predominantl□ along the shoreline of the site □ithin the area of the intertidal □one.

□t CS□2□the overburden □as found to consist of discontinuous sand□gravel □ith some cobbles in lo□□l□ing patches on the rugged bedroc□ surface.

□t CS□□□soils □ere found to be a medium to coarse sand □ith some gravel□e□tending to the beach at La□e Superior. In the surrounding forested areas of CS□□□soils □ere found to have LFH hori□ons overl□ing sand and gravel.

5.7.1 Contaminated Soil

The areas of contaminated soil□separated b□ ha□ardous and non□ha□ardous conditions are summari□ed as follo□s□

- CS□□ (Main Site □rea)□ Three areas of contaminated soil covering an area of appro□imatel□ □050 m² and an estimated volume of □□50 in□situ m□ of non□ha□ardous contaminated soil and □0 in□situ m□ of solid ha□ardous □aste as defined b□ Reg. □□□□
- CS□2 (Lighthouse □rea)□contaminated soil in this area □as delineated in all directions on the summit □ith an appro□imate area of □00 m² and an estimated volume of □0 in□situ m□ of non□ha□ardous contaminated soil and □0 in□situ m□ of solid ha□ardous □aste as defined b□ Reg. □□□□and□
- CS□□ (Old D□elling □rea)□an area of appro□imatel□ □20 m² and estimated volume of 550 in□situ m□ of non□ha□ardous contaminated soil.

5.7.2 Debris Areas

The areas □here historical debris dumping □as observed in concentrated conditions are as follo□s□

- CS-□ (Main Site Area): Two debris piles (East and West Dumps) with an area of □00 m^2 and estimated debris volume of 220 in-situ m^3.
- CS-2 (Lighthouse Area): Approximate area of □0 m^2 and estimated volume of 25 in-situ m^3 and;
- CS-□ (Old Dwelling Area): three debris dumps with a collective area of □5 m^2 and an estimated volume of 2□ in-situ m^3 of debris.

In addition, small amounts of scattered debris were observed at the base of the lighthouse cliff towards the south and east. The debris was not concentrated into any one area, rather appeared to have been historically thrown from the top of the cliff.

It is recommended that all identified debris be removed from the Site as per the SO□. This debris should be excavated, placed into suitable bulk bags with suitable liners and carry straps. The debris should be sorted as indicated in Section □ to separate, and appropriately containerize the debris for disposal. Efforts should be made to decrease the volume of the debris prior to containerization. The containerized debris should be transported from the Site to the appropriately licensed waste receiver for disposal. During, and upon completion of debris removal, inspections are recommended to be completed by an environmental consultant to confirm waste removal and to collect confirmatory samples, as required.

Also, it is recommended that a new human health and ecological site specific risk assessment be completed for the Site. After the risk assessment and confirmatory sampling recommended above, the areas and volumes of contaminated soil can be refined, based on the risk management/remediation recommendations within the risk assessment.

6 Species At Risk Survey Update

It □as determined b□ the Client that an updated S□R surve□ report □as re□uired to develop a comprehensive set of mitigation measures to be implemented during the construction phase of this pro□ect. These mitigation measures have been developed to minimi□e impacts to potential S□Rs at the Site during the abatement and debris removal activities planned.

6.1 Scope of Work

The scope of □or□ for the S□R revie□ and surve□ included the follo□ing components□

- Database searches□ including Species at Ris□ in Ontario (S□RO) and the □atural Heritage Information Center (□HIC)□
- Consultation □ith regulator□ agencies and Site custodians□
- Revie□ of S□R information presented in the historical report provided b□ the Client (Refer to Section □)□
- □ Site visit and field observations□
- Habitat assessment□
- Develop a list of potentiall□ occurring S□R□
- Compilation of mitigation measures to reduce impacts to S□Rs during construction activities□ and
- Development of a report outlining the des□top and field results as □ell as recommended mitigation measures for the S□R revie□ and update.

6.2 Methodologies

6.2.1 Literature Review and Secondary Sources

DST conducted a revie□ of available literature for the Site and areas ad□acent to the Site in order to determine potential S□Rs at the Site□ including□

- Screening Level Ris□ □ssessment□ Canadian Coast Guard □avigational □id L.L. □□□□.0 Patterson Island□ Slate Islands□ La□e Superior□ Ontario (□CG□ 200□)□
- Site Specific Ris□ □ssessment□ Canadian Coast Guard Light Station L.L □□□□□ Slate Islands□ La□e Superior□ Ontario (DST□ 2005)□
- Ontario Par□s □ebsite□ 20□□□ Slate Islands□
- □erial photographs□ and Ontario Base Maps and other available maps□

- Ministr□of □atural Resources and Forestr□(M□RF□acron□m used to refer to organi□ation under previous names) □atural Heritage Information Center (□HIC) Biodiversit□ □□plorer (20□□)□
- Federal species at ris□public registr□□Schedule □□S□R□ (□CCC□20□□)□
- S□RO □ebsite□Thunder Ba□region (M□RF□20□□b)□
- DFO a□uatic species at ris□ □ebsite (DFO□20□□)□
- Biodiversit□and Conservation □tlas of the Great La□es Islands□and□
- The literature revie□ provided historical and current information on S□R occurrences and regulator□conte□t for the Site.

6.2.2 Consultation/Communication with Regulatory Agencies

DST contacted the follo□ing agencies to gather information related to the environmental program at the Site and the occurrence of Species at Ris□and□or their habitats□and an□related permitting re□uirements□

- □nvironment Canada and Climate Change (□CCC)□
- M□RF□
- Ontario Par□s – □ipigon Region□
- La□e Superior □ational Conservation □rea of Canada (LS□MC□)□
- DFO□
- To□nship of Terrace Ba□□and□
- Mr. Rodne□ Br□ton□leaseholder□provided on□Site support during the Site visit bet□een □ugust □0 and □□□ 20□□ as □ell as anecdotal evidence related to potential S□R occurrence at the Site.

6.2.3 Field Investigation

□ Site visit □as completed to conduct a field investigation for S□R and□or their habitat □as made on □ugust □0□20□□□bet□een □00 am and □00 pm and on □ugust □□□20□□ bet□een □00 am and □00 pm. □ eather conditions during both surve□ da□s □ere mainl□ sunn□ □ith a mid□da□ temperature of appro□imatel□ □5 ºC. The Main Site (CS□□) and Lighthouse □rea (CS□2) □ere surve□ed on □ugust □0□20□□□□hile the Old D□elling (CS□□) area □as surve□ed on □ugust □□□ 20□□. Photographs ta□en during the Site visit are provided in □ppendi□D.

Transect surve□s traversing each of the three main developed areas □ithin the Site (CS□□□CS□2□ and CS□□) □ere conducted to inspect for the presence or evidence of S□R□in particular Boreal

Woodland Caribou (*Rangifer tarandus caribou*) tracks and scat. Transects included open portions of each area, and continued into wooded areas surrounding each area for a distance of approximately □00 m. An effort to make transects linear and to space them approximately □5 m apart was made. However, due to topography, this was not always possible. Figure □□ shows the transects that were completed. All areas surrounding the Site buildings (CS□, CS2, and CS□) as well as areas scheduled for debris removal and soil remediation were inspected in this manner. Suitable habitat for Peregrine Falcon (*Falco peregrinus*), such as the cliffs around the Site, was inspected using □□□2 Bushnell binoculars. Cliffs that were inspected are marked on Figure □□.

6.3 Results

6.3.1 Literature Review and Secondary Sources

□CG (200□) contained no information on SAR that may be present at the Site. DST (2005), as detailed in Section □, indicated SAR that may potentially be present on the Slate Islands include: Boreal Woodland Caribou (threatened provincially and federally); Eastern Wolf (*Canis lupus lycaon;* special concern federally, threatened provincially); Peregrine Falcon (special concern provincially and federally); and the Monarch Butterfly (*Danaus plexippus;* special concern provincially and federally). Although these species have habitat preferences favoring biophysical conditions at the Site, none of these species were observed or identified during the Site investigation conducted in 2005.

Mammals that are known to occur on Patterson Island include Boreal Woodland Caribou (*Rangifer tarandus caribou*), Beaver (*Castor Canadensis*), Red Fox (*Vulpes vulpes*), Snowshoe Hare (*Lepus americanus*), Muskrat (*Ondatra zibethica*), and Shorttailed Weasels (*Mustela vison*) (□CG 200□; Ontario Parks, 20□□). At least two wolves reached the island during the winter of 2002/200□ (DST 2005), but no later records of wolves accessing the island have been found or were produced by the MNRF.

Results related to NHIC, federal SAR, SARO list and the DFO aquatic SAR list are provided in subsequent sections.

□.□.□.□ Natural Heritage Information Center

The Natural Heritage Information Center (NHIC) was queried for occurrences of rare and at risk species for the □0 x □0 km UTM grids containing the Site, as well as the adjacent grids. Four species were identified in the search. An additional two species and two plant communities whose occurrences □ere deemed sensitive data □ere identified onl□as Species and Plant Communities□ respectivel□□belonging to Great La□es □rctic□□lpine Basic Open Bedroc□Shoreline T□pe. These species are dis□unct on the Slate Islands archipelago□having a Provincial Conservation Ran□ing of S□□meaning the□ are rare in Ontario□usuall□ having 20□□00 occurrences in the province. □lthough considered rare in this particular area□these species are not listed as S□R.

Results of the search of the □HIC are provided in Table □.□ belo□. □ote that the onl□ S□R identified b□the □HIC database □as the Peregrine Falcon. This specie is listed as a species of Special Concern (S□R□).

Table 6.1: Species Occurrences of Rare and At Risk Species for the Site Provided by the NHIC

Species/ Community Name	Scientific Name	Year of Record	Conservation Status	ESA Listing	SARA - Schedule 1 Listing
Drummonds Mountain □vens	*Dryas drummondii*	□□□0	S□	□ot listed	□ot listed
Ros□Puss□toes	*Antennaria rosea*	□□□□	S□S2	□ot listed	□ot listed
□ lichen	*Porpidia herteliana*	□□□□	S□S□	□ot listed	□ot listed
Peregrine Falcon	*Falco peregrinus*	200□	S□B	SC	SC
Great La□es □rctic□□lpine Basic Open Bedroc□ Shoreline T□pe – Species	Great La□es □rctic□ □lpine Basic Open Bedroc□ Shoreline T□pe	□□□□	S□	□□□	□□□
Great La□es □rctic□□lpine Basic Open Bedroc□ Shoreline T□pe – Species	Great La□es □rctic□ □lpine Basic Open Bedroc□ Shoreline T□pe	□□□□	S□	□□□	□□□
Great La□es □rctic□□lpine Basic Open Bedroc□ Shoreline T□pe – Plant Communit□	Great La□es □rctic□ □lpine Basic Open Bedroc□ Shoreline T□pe	□□□□	S□	□□□	□□□
Great La□es □rctic□□lpine Basic Open Bedroc□ Shoreline T□pe – Plant Communit□	Great La□es □rctic□ □lpine Basic Open Bedroc□ Shoreline T□pe	□□□□	S□	□□□	□□□

□otes□

S1: Critically Imperiled—Criticall□imperiled in the nation or state□province because of e□treme rarit□(often 5 or fe□er occurrences) or because of some factor(s) such as ver□ steep declines ma□ing it especiall□ vulnerable to e□tirpation from the state□province.

S2: Imperiled—Imperiled in the nation or state□province because of rarit□ due to ver□ restricted range□ver□ fe□ populations (often 20 or fe□er)□steep declines□or other factors ma□ing it ver□vulnerable to e□tirpation from the nation or state□province.

S1S2: Species is ran□ed as both S□ (Criticall□ Imperiled) and S2 (Imperiled)□reflecting the uncertaint□ as to □hether the species should be listed as S□ or S2.

S3: Vulnerable—Vulnerable in the nation or state□province due to a restricted range□relativel□fe□ populations (often □0 or fe□er)□recent and □idespread declines□or other factors ma□ing it vulnerable to e□tirpation.

B: Breeding— Refers to the breeding population of the species in the nation or state□province.

Not listed: Indicated the species is not listed under the applicable □ct.

SC: The species is listed as Special Concern.

N/A: □o data are available regarding the listing of the species or communit□ under the applicable □ct.

□.□.□.2 <u>S□R Species Potentiall□ Present □ccording to □CCC</u>

Schedule □ of S□R□ □as consulted□ ho□ever□ onl□ federal S□R identified b□ □CCC □ere considered for this pro□ect. The follo□ing is a list of S□R that ma□ occur on the Slate Islands archipelago according to □CCC (Rob Dobos and Sheelagh Hsena□ of □CCC□ 20□□).

6.3.1.2.1 Mammals

□. Boreal □oodland Caribou (*Rangifer tarandus caribou*) – Threatened (Federal and Provincial)

The Boreal population of □oodland Caribou reside in the boreal forest all □ear. Onl□ the Boreal population is listed as a S□R in Ontario□ and in the S□R□□ Schedule □. Prior to the □□□0s□ the caribou population on the Slate Islands had reached its highest population densit□□ ho□ever□ a food shortage in the □□□0s caused the population to decline. □ccording to □CCC the Slate islands are critical habitat for the caribou.

2. □orthern M□otis (*Myotis septentrionalis)* – □ndangered (Federal□ Provincial)

The □orthern M□otis is common throughout forested portions of southern Ontario□ north to the north shore of La□e Superior□ and has been found as far north as Moosonee. This species is t□picall□ associated □ith boreal forest t□pes□ roosting under loose bar□ or in the cavities of trees. Li□e the Little Bro□n M□otis□ this species hibernates from October or □ovember□ through to March or □pril□ selecting humid caves and abandoned mines as hibernacula (M□RF□ 20□□).

□. Little Bro□n M□otis *(Myotis lucifugus)* – □ndangered (Federal□ Provincial)

The Little Bro□n M□otis is common across southern Ontario and as far north as Moose Factor□ and Favourable La□e□ Ontario. It forms summer colonies in attics□ abandoned buildings and barns□ □here it raises its □oung. Onl□ ver□ rarel□ does this specie select trees as roost habitat (M□RF□ □□□□). It hibernates from October or □ovember through March or □pril. Humid caves and abandoned mines that sta□ above free□ing throughout the □inter are generall□ selected as hibernacula (M□RF□ 20□□).

□. Tri□coloured Bat *(Perimyotis subflavus)* – □ndangered (Federal□ Provincial)

The Tri-coloured bat is found in a variety of forested habitats during the summer months. It forms day roosts and maternity colonies in older forest and occasionally in barns or other structures. Foraging occurs over water and along streams in the forest. Tri-colored Bats eat flying insects and spiders gleaned from webs. In the fall, they travel to a location where they swarm; it is generally near the cave or underground location where they will overwinter. Caves are generally selected as winter hibernacula (MNRF, 2016). This bat is found in southern Ontario and is known to occur as far north as Espanola near Sudbury. It should be noted that the known range for this species does not overlap the Site and it is unlikely to occur there.

6.3.1.2.2 Birds

1. Canada Warbler *(Cardinella canadensis)* – Threatened (Federal), Special Concern (Provincial)

The Canada Warbler is found most abundantly in wet, mixed deciduous-coniferous forest with a well-developed shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. Its primary breeding range is in the Boreal Shield, extending north into the Hudson Plains and south into the Mixedwood Plains.

2. Common Nighthawk *(Chordeiles minor)* – Threatened (Federal), Special Concern (Provincial)

Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings.

3. Eastern Whip-poor-will *(Caprimulgus vociferous)* – Threatened (Federal, Provincial)

Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting.

4. Olive Sided Flycatcher (*Contopus cooperi)* – Threatened (Federal), Special Concern (Provincial)

The Olive-sided flycatcher is most often found along natural forest edges and openings. It will use forests that have been logged or burned if there are ample tall snags and trees to use for foraging perches. Its breeding habitat usuall□ consists of coniferous or mi□ed forest ad□acent to rivers or □etlands. In Ontario□Olive□sided fl□catchers commonl□ nest in conifers such as □ hite and Blac□ spruce.

6.3.1.2.3 Plants

□o plant S□R □ere identified b□ □CCC as being present or potentiall□ present on the Slate Island archipelago.

□.□.□.□ <u>S□RO Species List</u>

□ hile M□RF did not indicate the potential presence of an□ S□R be□ond □oodland caribou□the S□RO list for the region including the Slate Islands indicated the potential presence of Barn S□allo□ (*Hirundo rustica*). This species is listed as threatened in Ontario□but is not listed as a S□R under the S□R□.

□.□.□.□ <u>DFO □□uatic Species at Ris□ List</u>

The DFO a□uatic species at ris□ list □as consulted. The follo□ing is a list of a□uatic S□R that ma□ occur around the Slate Islands archipelago□

□. Deep□ater Sculpin □Great La□es □□ estern St. La□rence (*Myoxocephalus thompsonii*)

The Deep□ater Sculpin is a la□e□d□elling sculpin of the famil□ Cottidae. It is a bottom□d□elling fish that is found in cold (□□ degrees Celsius)□□ell o□□genated□deep la□es. In the Great La□es□ adults usuall□ live bet□een □0 and □50 meters in depth. Spa□ning appears to occur during the □inter.

2. □pper Great La□es □i□i (*Coregonus kiyi kiyi*)

The □i□i is among the deepest □ater forms of cisco species found in Canada. It lives in a clear□ cold□□ater environment at depths ranging from □0 meters to □05 meters□□ith pea□ abundances found at depths bet□een □□0 to □50 meters. □i□i have been collected over la□e bottoms of cla□ and mud substrates. Spa□ning generall□ occurs in the late fall at depths bet□een □□ and □□□ meters.

6.3.2 <u>Consultation/Communication with Regulatory Agencies</u>

□s a result of agenc□ communication and consultation□□CCC□DFO□LS□MC□□M□RF□Ontario Par□s□and the To□nship of Terrace Ba□ provided e□pert advice that □as considered and incorporated in the SAR assessment. Specifically, ECCC indicated that Boreal Woodland Caribou, Northern Myotis *(Myotis septentrionalis)*, Little Brown Myotis *(Myotis lucifugus)*, Tri-colored Bat *(Perimyotis subflavus)*, Canada Warbler *(Cardinella canadensis)*, Common Nighthawk *(Chordeiles minor)*, Eastern Whip-poor-will *(Caprimulgus vociferous)*, and Olive Sided Flycatcher (*Contopus cooperi)* had the potential to be present on or near the Site.

The contact information of each agency and the associated responses are provided in Table 6.2. Where correspondence was provided, e-mail responses are included in Appendix D.

Table 6.2: Summary of Regulatory Agency Consultation and Response

Regulatory Agency	Contact Person	Contact Information	Response
Environment Canada and Climate Change (ECCC)	Rob Dobos, Sheelagh Hsenay	Manager of Environmental Assessment Section of ECCC for Ontario Region, Environmental Assessment Officer, Environmental Protection Branch	Critical habitat for Boreal Woodland Caribou overlaps the Site. Additional SAR with ranges overlapping the Site include: Northern Myotis, Little Brown Myotis, Tri-colored Bat, Canada Warbler, Common Nighthawk, Eastern Whip-poor-will, and Olive Sided Flycatcher.
Ministry of Natural Resources and Forestry (MNRF)	Kimberly McNaughton	Planner, Nipigon District	Timing and types of project activities might have impacts on caribou if during calving/nursery period (May □st – July □0th). “Best Management Practices for Aggregate Activities and Boreal Woodland Caribou in Ontario” should be consulted. An ESA permit may be required depending on project activities. There may be arctic alpine disjunct communities associated with the Site.
Ontario Parks, Nipigon District	Allison Dennis	Park Superintendent, Nipigon Cluster	Boreal Woodland Caribou are present on Island. Provided an Ontario Parks map depicting caribou crossing routes on and between the Slate Islands. No identified crossing routes are present near the Site.
Lake Superior National Marine Conservation Area of Canada (LSNMCA)	Lisa □□man	Resource Conservation Manager, Lake Superior National Marine Conservation Area	The Lake Superior National Marine Conservation Area boundary, when established, will be □00 m away from the high water mark of the Slate Islands. The project lands will not be subject to the Canada National Marine Conservation Areas Act and therefore will not require authorization from Parks Canada. Slate Islands are identified as having a globally significant Boreal Woodland Caribou population with rare arctic-alpine plant habitat.
Fisheries and Oceans Canada (DFO)	Jennifer Sifton	Environmental Officer	Real Property and Fisheries Protection Group were contacted and did not have further information to provide for the project.
Township of Terrace Bay	Jon Hall	Chief Administrative Officer/Clerk	In the Official Plan and Zoning By-law for Terrace Bay Township the Site is designated as and environmental protection area. All of the Slate Islands are designated Caribou habitat.

Site leaseholder, Mr. Rodney Bryton, indicated that no Boreal Woodland Caribou were observed on or around the Site between his arrival on the Island in April 20□□ and the time of the field investigation (Rodney Bryton, pers. comm.) coinciding with the calving and nursery periods.

6.3.3 Field Surveys for SAR

The results of the field surve□are provided in the follo□ing subsections. Photographs collected during the Site visit are provided in □ppendi□D.

□.□.□.□ Habitat Features

6.3.3.1.1 Geology and Topography

The geological and topographical descriptions belo□ are provided to □ualif□the habitat conditions in the areas of proposed □or□. Certain features□such as the presence of steep cliffs□ma□ be unsuitable for some species□such as the □oodland caribou□but favourable for others□such as the peregrine falcon.

CS□□ consists of cobbles □ith some gravel beach deposits□in places e□tending to the treeline. The developed grassed areas surrounding the structures of CS□□ are underlain b□shallo□ soil□ consisting of topsoil □ith some sand□cobbles and gravel. In the forested areas surrounding CS□ □□soils □ere often found to have LFH hori□ons. □□posed bedroc□ □as observed predominantl□ along the shoreline of the Site □ithin the area of the intertidal □one.

□t CS□2□the overburden □as found to consist of discontinuous sand□gravel □ith some cobbles in lo□□l□ing patches on the rugged bedroc□surface.

□t CS□□□soils □ere found to be a medium to coarse sand □ith some gravel□e□tending to the beach at La□e Superior. In the surrounding forested areas of CS□□□soils □ere found to have LFH hori□ons overl□ing sand and gravel. The topograph□is moderatel□ hill□□□ith a 20 m steep cliff climbing up□ards from the south shore to the lighthouse on the summit. Surface □ater □ould drain into La□e Superior.

6.3.3.1.2 Surface Water, Wetlands and Floodplains

The Site is located on Sunda□Point□Patterson Island and is surrounded to the north□south and □est b□La□e Superior. There are no □etlands□cree□s or rivers nearb□.

6.3.3.1.3 Vegetation

Terrestrial vegetation at the Site consists of t□pical Boreal forest species□including Spruce (*Picea* spp.)□□astern □ hite Cedar (*Thuja occidentalis*) and □ hite Birch (*Betula papyrifera*). Common understore□ shrub species on□Site include Common □uniper (*Juniperus communis*)□□inebar□

(*Physocarpus opulifolius*)□Mountain Maple (*Acer spicatum*) and Red□Osier Dog□ood (*Comus stolonifera*). Other understore□ species commonl□ include T□inflo□er (*Linnaea borealis*)□Peat Moss (*Sphagnum spp.*), Schreber's Moss (*Pleurozium schreberi*) and Step Moss (*Hylocomium splendens*). The littoral (nearshore) area t□picall□ consists of hori□ontal outcrops of basalt roc□□ □ith no visible a□uatic vegetation.

□.□.□2 <u>S□R Field Surve□Results</u>

□t site CS□3, suspected evidence of caribou winter foraging of Old Man's Beard (*Usnea* spp.) and other similar lichen species from tree branches □as observed□since□at lo□er branch levels□fe□er lichens □ere found. □lso□a □eathered caribou antler □as observed appro□imatel□ 250 m from CS□□□outside of the areas surve□ed for S□R. □o other evidence of S□R □as observed at CS□□.

□ ith the e□ception of Monarch butterflies observed at CS□□□no evidence of an□S□R□and caribou in particular□□as observed at either CS□□ or CS□2.

The Site consists of steep cliffs ne□t to a large bod□of □ater □hich suggests it □ould be suitable habitat for Peregrine Falcon. Ho□ever□no Peregrine Falcons or nests □ere observed during the field investigation□and the last observations recorded in the area on the □HIC □ebsite □as in 200□. It should be noted that the investigation □as conducted after the time □hen nesting □ould li□el□occur.

□s noted above□several Monarch butterflies □ere observed at CS□□. Ho□ever□no Common Mil□□eed (*Asclepias syriaca*) plants □ere identified on Site. Monarchs in Canada e□ist primaril□ in areas □ith mil□□eed and □ildflo□ers□such as Goldenrods (*Solidago spp.*)□□sters (*Aster spp.*)□ and Purple Loosestrife (*Lythrum salicaria*). Females la□their eggs on Common Mil□□eed □hich is the primar□food source for the caterpillars. □ lac□of Common Mil□□eed suggests the Site is not a significant breeding habitat for Monarchs Butterflies.

□o evidence of □astern □ olf □as observed during the S□R surve□s.

The Site visit and field investigation □ere completed be□ond the timing □indo□s □hen point counts for breeding birds and□□here available□species□specific surve□s are appropriate. □s such□ surve□s for Canada □ arbler□ Common □ightha□□□ □astern □ hip□poor □ ill□ Olive Sided Fl□catcher□Barn S□allo□□and bats □ere not conducted.

6.4 Discussion of Results Related to Caribou Use of the Site

Three Category 1 habitats (highly sensitive habitat areas where the species is anticipated to have the lowest tolerance to alteration) for Boreal Woodland Caribou are recognized by the MNRF (MNRF, 20[illegible]a): Nursery Areas, Winter Use Areas, and Travel Corridors.

Although Boreal Woodland Caribou are present on Patterson Island, the steep cliffs near CS-1 and CS-2 do not provide ideal Nursery Area conditions for caribou. Nursery Areas are typically comprised of lakes and wetland complexes dominated by fens and bogs. These areas are also typically relatively gentle in their topography. Furthermore, the Site is occupied between April and October, meaning that a level of background disturbance exists at the Site. This disturbance takes place during typical calving/nursery times, further reducing the likelihood the Site functions as a Nursery Area.

Travel Corridors are used by Boreal Woodland Caribou to migrate between Nursery Areas and Winter Use Areas. As the Site is located on a peninsula, it is unlikely that it is used specifically as only a Travel Corridor. In addition, Ontario Parks provided a map attached in Appendix D Figure [illegible] outlining Boreal Woodland Caribou Travel Corridors on the Slate Islands and none were identified within the vicinity of the Site.

Habitat features that contribute to an area's function as a Winter Use Area include presence of arboreal and terrestrial lichens, and areas with lower than average snow depths that facilitate caribou movement. For example, open windswept areas or areas with a greater density of forest cover can result in less snow cover and may be favourable for Boreal Woodland Caribou. In addition, areas where Boreal Woodland Caribou can aggregate in groups and seek refuge from predators are often selected. While lichens are present and openings associated with project buildings may contribute to decreased winter snow depths favouring the Site's function as a Winter Use Area, snow depths at the Site are unknown and it cannot be confirmed to what degree, if any, the Site serves as a Winter Use Area. It is unlikely that construction activities would occur in the winter, and removal of debris and abatement of exterior lead paint would benefit any caribou using the Site as a Winter Use Area.

While the Site may provide some features consistent with sensitive caribou habitat, in particular, Winter Use Areas, it should be clearly noted that proposed lead abatement and debris removal activities are not anticipated to result in meaningful impacts to caribou habitat. Although caribou

DST
consulting engineers

tend to have a low tolerance for disturbance in Category □ habitat, the scale of disturbance, in terms of duration, spatial extent and intensity associated with the planned remedial activities is unlikely to significantly impact caribou use of the Site.

6.5 Proposed Mitigation Measures

Species at Risk are protected by the federal SARA, which affords individual and habitat protection to at-risk species listed as 'threatened' or 'endangered' under Schedule 1 of the Act. Species listed as 'special concern' do not receive individual or habitat protection under the Act.

Potential evidence of Boreal Woodland Caribou winter foraging was observed at CS□□, indicating the Site may serve as a Winter Use Area, and ECCC has indicated that Critical Habitat for Boreal Woodland Caribou overlaps the Site, although did not indicate the function of the habitat. During a conference call on November □□, 20□□ between DST and ECCC staff, ECCC recommended a 500 metre buffer zone be established between project activities and sensitive caribou areas, including Nursery Areas, Winter Use Areas, and Travel Corridors, to mitigate potential impacts to Boreal Woodland Caribou.

While it may not be possible to observe the 500 m buffer proposed by ECCC, minimizing the duration and spatial extent of remedial activities will contribute significantly to minimizing potential disturbance to Boreal Woodland Caribou at and in the vicinity of the Site. Given the health and safety issues associated with Site access (crossing of Lake Superior), late-spring and summer are proposed as being suitable times to access the Site and complete remedial activities. This is outside of the period during which the Site would function as a Winter Use Area and outside of the MNRF's restriction on working within a Winter Use Area (between December □st and March □□st (MNRF, 20□5). As indicated above, the Site is not likely used as a Nursery Area or a Travel Corridor in the snow-free months. Furthermore, occupation of the Site by custodians, including the use of fossil-fuel fired generators, between April and October results in a level of background disturbance during the time when Site access is favourable. If remedial activities are planned during this period of background disturbance, and are kept as short in duration as possible, this will further reduce the likelihood of causing significant disturbance to caribou at the Site.

Designated substance abatement activities at project buildings (lead removal) are not expected to cause any significant alterations to caribou habitat at the Site. Debris removal from historic dump sites may result in very minimal impacts to caribou habitat at the Site, for example, if patches of lichen are disturbed, although these are likely to be very limited in spatial and temporal extent and are not likely to result in long-term, negative alterations to caribou habitat. Ultimately, debris removal should contribute to improvement of the quality of caribou habitat at the Site by returning portions of the Site to a pre-impacted state.

While the above measures will likely mitigate potential impacts to caribou at the Site, should it be deemed that impacts to Boreal Woodland Caribou are unavoidable, *Endangered Species Act* and/or SARA permits may be required, according to ECCC. At this point it is not anticipated that SARA permits will be required.

No evidence of Eastern Wolf or Peregrine Falcon was noted on Site. Both species are listed as 'special concern' under SARA and as a result do not receive individual or habitat protection under this Act. Furthermore, due to the nature of the project it is not anticipated that project activities would negatively impact these species should they be present.

Monarch butterflies were noted on Site. However, it was deemed there was a lack of significant habitat and it is not anticipated that project activities would significantly impact this species. In addition, Monarchs are currently listed as 'special concern' under the SARA and do not receive individual or habitat protection under this Act.

Canada Warbler, Common Nighthawk, Eastern Whip-poor-will and Olive Sided Flycatcher were identified by ECCC as having the potential to be present on or near the Site. Barn Swallow were indicated by SARO to potentially occur in the area. Since the Site visit and field investigation were completed beyond the timing windows when point counts for breeding birds and species-specific surveys are appropriate, surveys for these species were not conducted, though no evidence of these species was noted during the Site visit. To mitigate potential impacts to these species, nesting sweeps should be conducted by a qualified avian biologist if/where vegetation clearing is required and buildings should be checked for Barn Swallow nests prior to beginning work. Additionally, to the extent possible, movement of materials, equipment and personnel across the Site should be minimized and restricted to disturbed and regularly travelled portions (trails) of the Site to the extent practical. Workers should be trained to identify the above-mentioned bird SARs and if any are encountered during the course of work, work should cease immediately and an experienced avian biologist must be consulted for the way forward. The biologist must develop a species-appropriate buffer zone, as applicable, beyond which work may continue and provide further information on noise levels which may not be exceeded within an appropriate distance to the nest, taking into account the species of bird and the area surrounding the nest. The buffer zone should also be identified using fencing or coloured tape such that it is plainly visible. It must be maintained until the chicks have naturally and permanently left the areas near the nest or until work is completed. If a buffer zone cannot be established, the specie of breeding bird should be identified and ECCC should be contacted to determine how best to proceed. Due to the nature of the project, however, it is not anticipated that project activities would negatively impact these species where appropriate mitigation measures are adhered to.

Three species of bats (Northern Myotis, Little Brown Myotis, and Tri-colored Bat) were identified by ECCC as having the potential to occur at the Site. Building removal/demolition is not proposed as part of the designated substance removal portion of the remedial program, though the Client has requested that the replacement of asbestos-containing shingles be completed. In this way, bat roosting habitat in buildings is unlikely to be impacted. Moreover, according to the MNRF document, *Bats and Bat Habitats: Guidelines for Wind Power Projects* (2011), roosts within human structures are not considered to be significant wildlife habitat. If, where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to MNRF (2011) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical. Suitable bat hibernacula must have air temperatures slightly above zero and relative humidity levels above 90% and are typically found in humid caves or abandoned mines, and it is, therefore, highly unlikely that the Site buildings serve as a bat hibernaculum (MNRF, 2000).

Two aquatic SAR were identified as having the potential to occur around the Slate Islands. These were the Upper Great Lakes Kiyi and the Deep Water Sculpin (Great Lakes – Western St. Lawrence population). Both fish are listed as 'special concern' on Schedule 1 of SARA and therefore, do not receive individual or habitat protection under SARA. However, general prohibitions against causing 'serious harm' to fish under the Fisheries Act (R.S.C., 1985, c. F-14) still apply to these species. The following measures, if properly applied, will mitigate serious harm to these species: no work should be undertaken below the water line; a sediment and erosion control plan shall be designed and implemented, with appropriate control measures put in place on-site; loading/unloading should not impact the banks and/or cause additional erosion into the water, designated routes for equipment travel are to be used, preferably along existing pathways, staging areas/re-fueling are to take place well away from waterbodies in designated areas, a spill response plan should be in place and a spill kit available. Workers should be trained in the use of the spill kit, equipment should arrive clean and free of fluid leaks, and be maintained as such.

Contractors and workers should be familiar with SAR that may occur at the Site. If workers identify any SAR at the Site, work should cease and the project manager and a qualified biologist must be consulted for how to proceed.

6.6 Species at Risk Survey Update Conclusions and Recommendations

No SAR listed as endangered or threatened under the SARA were identified on Site during the Site visit and field investigation. Potential evidence of winter caribou foraging was observed at site CS-[illegible] and the Site in general provides attributes supporting its function as a Winter Use Area for Boreal Woodland Caribou, although this function is not confirmed. Mitigation measures related to avoidance of winter work periods, minimization of the intensity, spatial and temporal extent of on-Site activities, as well as restricting remediation activities to disturbed areas to the extent practical will likely prevent any meaningful impacts to Boreal Woodland Caribou and/or their habitat at and in the vicinity of the Site.

Four bird SAR (Canada Warbler, Common Nighthawk, Eastern Whip-poor-will and Olive Sided Flycatcher) were identified by ECCC as having the potential to be present on or near the Site. SARO indicated the potential presence of Barn Swallow. Surveys for these five species were not conducted as the Site visit was conducted beyond the time when appropriate surveys could have been conducted. However, by observing the following mitigation measures, no impacts to these bird SAR are anticipated: nesting sweeps by a qualified avian biologist in potentially impacted areas, implementation of buffer zones if/where bird SAR are encountered, restrictions of remediation activities to disturbed areas of ground to the extent practical, and minimization of spatial and temporal extent of work.

Three species of bats (Northern Myotis, Little Brown Myotis, and Tri-colored Bat) were identified by ECCC as having the potential to occur at the Site. Building demolition is not proposed as part of the designated substance removal portion of the remedial program, though the replacement of roofing materials is to be completed. Therefore, bat roosting habitat in buildings is unlikely to be impacted. If/where debris removal from historic dumps will include tree removal, or where tree removal ma□ other□ise occur and have the potential to impact bat maternal roost colonies□ surve□s for bat maternit□ snags according to the Ontario Ministr□ of □atural Resources and Forestr□ (M□RF□20□□) should be underta□en b□ a □ualified biologist. If no suitable maternal snags are identified□□or□ma□proceed. If suitable maternal snags are identified□these should be retained and debris removal in their vicinit□should be done b□hand □here practical. □ here these mitigation measures are observed□no impacts to bat S□R are anticipated as a result of the proposed □or□.

T□o a□uatic S□R □ere identified as having the potential to occur around the Slate Islands. Both species□the □pper Great La□es □i□i and Deep□ater Sculpin (Great La□es – □ estern St. La□rence population) are listed as ‘special concern’ under Schedule 1 of the SARA. Therefore, neither receives individual or habitat protection. Ho□ever□prohibitions under the Fisheries □ct prohibit causing ‘serious harm’ to these species. Through the application of appropriate mitigation measures□no impacts to either of these species is anticipated.

7 ENVIRONMENTAL EFFECTS EVALUATION

DST completed an Environmental Effects Evaluation (EEE) in accordance with Section □□ of the *Canadian Environmental Assessment Act* 2012 (CEAA 2012) to determine what, if any, environmental effects the proposed project might have on the environment. The EEE report, based on a template provided by PWGSC is presented in Appendix □.

As part of the EEE, DST reviewed available information regarding the proposed project, reviewed Site information, completed a Site visit, consulted with various directly affected agencies and conducted research to determine potential effects and provide mitigation measures that would help to avoid causing any negative impacts to the environment.

Federal and provincial authorities likely to have an interest in the project were contacted by DST on behalf of PWGSC, during the course of the environmental effects evaluation. A project description was distributed to the following authorities in order to garner expert advice. These authorities included:

- ECCC;
- DFO;
- LSNMCA;
- MNRF;
- Township of Terrace Bay;
- Ontario Parks;
- Indigenous and Northern Affairs Canada (INAC, no response to date); and
- Pic River First Nation (no response to date).

As a result of this consultation, ECCC, DFO, LSNMCA, MNRF, and the Township of Terrace Bay provided expert advice that was considered and incorporated in the environmental effects evaluation. Records of consultation are provided in the EEE report in Appendix □.

The Site visit portion of the EEE work was completed in conjunction with other Site work on August □0th and □1st, 20□□. Photographs taken during the Site visit are provided in the EEE report in Appendix □.

To mitigate any potential environmental impacts the project may incur□consideration will be taken relating to avoidance of winter work periods□nesting sweeps by a qualified avian biologist□ implementation of buffer zones if□where bird SAR are encountered and minimization of the intensity□□spatial and temporal extent of on-Site activities□as well as restricting remediation activities to disturbed areas of ground to the extent practical. These mitigation measures were largely proposed in the previous section to mitigate potential effects on SARs.

It is reasonable to conclude that with appropriate mitigation measures included in the work specifications and as summarized above and detailed in Section C□Tables 2.□□2.□ of the □□□ (Appendix □)□any potential environmental effects will be of short duration and the zone of influence□if any□□will be confined to the immediate vicinity of the Site. Further□the removal of the lead impacted materials and debris piles currently at the Site are expected to have a positive effect on any environmental receptors present at the Site or nearby areas.

8 STRUCTURAL ASSESSMENT

DST retained □ML □ngineering (□ML) of Thunder Ba□□Ontario□to conduct a Level II building inspection in order to evaluate the current conditions of the buildings on the Slate Island Coast Guard Site □ith commentar□on the need for a repair□replacement program and associated costs. The □ML report is provided in □ppendi□F of this report.

□ML provided recommendations to ensure that the structures and their s□stems □ill reach their ma□imum life e□pectanc□□and maintain the re□uired health and safet□levels. □ML revie□ed all available historical data and completed a Site inspection of all buildings on September □□20□□. The table belo□ summari□es the □ML findings.

Table 8.1: Structural Assessment Findings

No.	Name	Construction Date	Condition	Recommended Expenditure (1-5 years)
□	Lighthouse	□□0□	Poor	□ □□000
2	Solar Building	2000's	Good	□0
□	□pper Helicopter Pad	□n□no□n	Good	□0
□	Main D□elling	□□5□	Fair	□2□500
5	Duple□D□elling	□□□5	Fair	□ □□500
□	Old Fog □larm□Generator Building	Early 1900's	Poor	□ □□500
□	□e□ Fog □larm□□lectronics Building	□□□5	Good	□□500
□	□e□ Diesel Generator Building	□□□5	Good	□5□500
□	Former Oil House	1920's	Good	□2□000
□0	Furnace Oil Tan□Pad	□n□no□n	Good	□0
□□	Diesel Tan□Pad	□□5□	Good	□0
□2	Diesel Tan□D□e	□n□no□n	Good	□0
□□	Transformer	□n□no□n	Fair	□5□000
□□	Lo□er Helicopter Pad	□n□no□n	Good	□0
□5	Lighthouse Doc□	1960's	Fair	□5□000
□□	Log Retaining □ all	1990's	Poor	□20□000
□□	Side□al□s	□n□no□n	Good	□0
□□	Old D□elling	□□□□	Fair	□ □□500

No.	Name	Construction Date	Condition	Recommended Expenditure (1-5 years)
□□	□ inch Pad	□n□no□n	Good	□2□000
20	Sunda□Harbour Doc□	□□□□	Good	□2□000

The findings of the report recommended □□0□000.00 in short term (□5 □ears) e□penditures and □2□□000.00 in long term (□25 □ears) e□penditures. □dditional details can be found in the □ML Structural attached as □ppendi□F of this report.

It □as indicated that each structure included in the report can □ithstand the recommended abatement activities and there are no health and safet□concerns □ith contractors accessing the structures.

9 MARINE ASSESSMENT

Public Works and Government Services Canada, on behalf of DFO, requested DST to conduct an environmental program on the Slate Islands Coast Guard Site (GC □□□□), Lake Superior. The program was intended to identify the needs for any structural repairs or soil remediation at the site.

DST retained Riggs Engineering Ltd. (Riggs) to conduct a marine assessment as a component of its overall program. The objective of the marine assessment is to evaluate access options for the scope of the remedial works required at the Slate Islands Coast Guard Site.

PWGSC's requirements for the assessment are as follows:

- Conduct a review of available Canadian Hydrographic Survey (CHS) charts for the area;
- Evaluate methods of access to Patterson Island considering no current infrastructure (dock or wharf) is available, and provide a recommendation for the most feasible and cost effective option;
- Determine type(s) of vessel that could meet the needs of the project (excavation and disposal of contaminated soil and possibly building materials) including access to and from the Site; and
- A report detailing observations made on site, including recommendations and cost estimates for site access options during remediation.

Since survey equipment was necessary for the marine assessment DST requested that Riggs carry out a limited topographical survey of the Site.

9.1.1 <u>Marine Servicing the Main Site</u>

The Main Site will require marine servicing to mobilize/demobilize equipment and supplies to the Site and to transfer the containerized waste off-Site.

The Main Site is fully exposed to open Lake Superior and subject to wind and waves from all directions except north and northwest. Safe access to the Main Site landing will be limited to days when winds and waves are light. Locals indicate that the best season providing calm conditions is in late spring (late-May through June).

Landing at the Main Site doc□ can onl□ be achieved □ith narro□ beam□shallo□ draft□and maneuverable vessels. The flat□bottomed barges carried b□Coast Guard suppl□vessels to suppl□ the Site □hile it □as manned are an e□ample of vessel t□pes needed to service remediation activities from the Main Site doc□. The capacit□of this si□e of vessel □ill be less than □2 tonnes. Mobili□ing and demobili□ing mobile e□uipment and removing containeri□ed □aste from the Site to a larger support vessel □ill involve □0 trips or more for a vessel of this si□e. □dditional trips □ill be re□uired should soil remediation activities be added to the □or□scope.

It is assumed that □aste from the Lighthouse □rea □ill be consolidated and containeri□ed along □ith Main Site □aste for removal off□Site. Transportation of e□uipment□materials and □aste to and from the Lighthouse □rea □ill li□el□be via helicopter.

The Main Site cannot be accessed b□mobile e□uipment overland from the Old D□elling Site.

9.1.2 Marine Servicing the Old Dwelling Site

The Old D□elling Site is not as e□posed to open la□e conditions as is the Main Site location. The Sunda□ Harbour doc□ is accessible under □ind and □ave conditions from all directions e□cept those from the north□est. Safe access to the doc□during north□est □ind and □aves □ill be limited to da□s □hen □inds are light. The approach is deep and the sand beach can provide alternate landing. There are no vessel restrictions at Sunda□Harbour.

9.1.3 Mainland Ports

The closest mainland landing area to the Slate Island light station is Terrace Ba□□2□ □m to the north. The marine facilities there are limited and suited for pleasure craft and light vessels onl□. The ad□acent beach is protected and could provide a landing for front loading□landing□craft t□pe vessels. The landing has road access through To□n to High□a□ □□.

Other small mainland ports include Rossport and Redroc□. These are small scale facilities serving pleasure craft and light commercial fishing vessels□onl□.

The closest industrial si□ed mainland port is at Peninsula Harbour at Marathon□□□ □m east of the light station. This deep □ater harbour that served the Marathon paper mill is currentl□closed but contractors can negotiate its use □ith the o□ner□Tembec Inc.

Other large mainland ports include Thunder Ba□□□□ □m □est of the light station and Sault Ste. Marie□□□5 □m east of the Site. These are active industrial□commercial ports having a □ide range of marine services that could provide suitable vessels and manpo□er and other marine support to service the proposed □or□.

It □as advised that bidding contractors inspect the potential marine access areas at the Site including soundings to determine landing locations and approaches□the t□pes and combinations of vessels to use□and □hich mainland port to utili□e in order to set a □or□able marine servicing plan and cost.

10 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

□ summar□ of the conclusions and recommendations from the various disciplines involved □ith this pro□ect and ho□ the□ impact the overall ob□ectives of the pro□ect in terms of completing the lead (and asbestos) abatement and debris removal are discussed in the follo□ing subsections.

10.1 Designated Substance and Hazardous Materials Survey

DST □as retained b□ P□ GSC to conduct a DSHMS of the buildings□surrounding structures and grounds at the Slate Island Coast Guard Site identified □ith the Propert□ □umber 5□02□.

The DSHMS scope of □or□ included an assessment for the presence of the □□ Designated Substances□ as identified in the *Occupational Health and Safety Act*□ as □ell as PCBs□ halocarbons□mould□and other ha□ardous materials.

The follo□ing recommendations appl□ to onl□ designated substances and ha□ardous materials observed in the buildings and surrounding areas□as applicable. The handling and use of these materials should be underta□en b□ those □ith proper training (e.g. □ or□place Ha□ardous Materials Information S□stem□etc.) and adhere to an□ applicable guidelines and□or regulations.

10.1.1 Asbestos

The disturbance of □CMs on construction and demolition pro□ects in the province of Ontario is governed b□ *O. Reg. 278/05, Asbestos on Construction Projects and in Buildings and* Repair Operations enabled under the *Occupational Health and Safety Act R.S.O. 1990, Chapter 1*. This regulation classifies all asbestos disturbances as Lo□ Ris□ (T□pe □)□Moderate Ris□ (T□pe 2)□or High Ris□ (T□pe □)□each of □hich has defined precautionar□ measures. □ll asbestos materials are sub□ect to specific handling and disposal precautions□ and must be removed prior to demolition. The MoL must be notified of an□ pro□ect involving removal of more than a minor amount (e.g. t□picall□ □ s□uare metre) of friable asbestos material.

The transport and disposal of asbestos □aste is governed b□ R.R.O. *Regulation 347 – General – Waste Management* under the *Environmental Protection Act R.S.O. Ch. E. 19* (Reg. □□□)□as amended. This regulation re□uires that asbestos □aste be sealed in appropriatel□ labelled□ double containers resistant to puncture and tears. The □aste must be disposed of at a licensed □aste disposal site.

The removal of less than one s□uare metre of dr□□all in □hich □oint□filling compounds are asbestos□containing can be performed follo□ing T□pe □ asbestos precautionar□ measures□as applicable as per O. Reg. 2□□05□as amended. The removal of one s□uare metre or more of dr□□all in □hich □oint□filling compounds are asbestos□containing must be performed follo□ing T□pe 2 asbestos removal procedures□as a minimum.

Based on the current scope of □or□as discussed □ith the P□ GSC□T□pe 2 asbestos abatement □ill be completed on all interior dr□□all □ith asbestos□containing □oint compound □here lead containing paint is present as outlined in Table □ in □ppendi□ B. Lead precautionar□ measures should also be considered on an□removal of dr□□all □ith lead□containing paint.

The brea□ing□cutting□drilling□abrading□grinding□sanding or vibrating of non□friable □CMs such as vin□l floor tiles□adhesives□mortars□mastics□Transite□pipe □oint gas□ets and caul□ing products can be conducted using T□pe □asbestos precautionar□measures□provided the material is □etted to control the spread of dust or fibres□and the □or□is done onl□be means of non□po□ered hand□held tools. If these conditions cannot be met□then more stringent (T□pe 2 or T□pe □) □or□ procedures are re□uired (e.g. po□er tool removal).

Based on the current pro□ect scope as discussed □ith the P□ GSC□asbestos abatement follo□ing a T□pe □ □ill be completed on the follo□ing material□structure□

- Main d□elling□e□teriors basement □indo□s caul□ing and stored □indo□ □here asbestos caul□ing □as present□and□
- Old fog alarm building□roofing shingles and shingles debris.

□here painted □indo□ caul□ing is present on the main d□elling e□terior basement□lead precautionar□measures should also be considered.

The time □eight average e□posure limit (T□ □□L) for airborne asbestos is prescribed b□Ontario Regulation □□0□0□*Designated Substances* under the *Occupational Health and Safety Act, R.S.O. 1990, c. O.1* (O. Reg. □□0□0□)□as amended. □ or□procedures and personal protective e□uipment must be used to ensure that □or□ers are not e□posed to airborne asbestos levels that e□ceed this T□ □□L.

Should an□previousl□unidentified suspect □CMs be encountered as part of planned □or□□these materials are to be treated as □CMs and handled accordingl□□unless sampling proves other□ise.

Materials that have not been anal□□ed□but are visibl□ similar to other materials identified as asbestos□containing□ must be considered asbestos□containing unless proven other□ise b□ laborator□anal□sis.

The follo□ing recommendations appl□to □CMs and assumed □CMs□

- Materials found in poor condition should be abated using appropriate precautionar□ measures□
- Materials must be maintained in good condition□
- □ppropriate □or□ procedures and precautionar□ measures must be used□as outlined in O. Reg. 2□□05□as amended□□hen performing □or□that ma□disturb □CMs or suspected □CMs□including prior to building demolition□
- Disturbance and□or removal of □CMs must be appropriatel□ recorded as part of the building's Asbestos Management Plan;
- If □CMs or suspected □CMs become damaged and □or□er e□posure to the material is li□el□ to occur□the damaged material must be repaired or removed follo□ing □or□ procedures outlined in O. Reg. 2□□05□as amended□and
- Disposal of asbestos □aste is controlled b□ Reg. □□□, as amended. This regulation re□uires that asbestos □aste be sealed in double containers resistant to puncture and tears□and appropriatel□ labelled. The □aste must be disposed of at a licensed □aste disposal site. Proper notification must be issued to the site representative prior to transportation of □aste. The transport of the □aste to the disposal site is controlled b□the federal *Transportation of Dangerous Goods Act*□□□□2 (TDG□) and Reg. □□□.

10.1.2 Lead

The Occupational Health and Safet□Branch of the Ontario Ministr□of Labour have published a document entitled□*Guideline: Lead on Construction Projects*. This document classifies all lead disturbances as T□pe □□T□pe 2a□T□pe 2b□T□pe □a or T□pe □b □or□□and assigns different levels of respirator□protection and □or□procedures for each classification.

Paint and surface coatings on various building finishes containing elevated concentrations of lead can pose a health ris□to humans if ingested or inhaled. Such lead paints are also a ris□to the environment □ith the potential to contaminate soil□ground□ater□sediments and surface □ater. Paints □ith elevated lead content can also pose a health ris□ to □or□ers □hile completing demolition activities.

The T□ □□L for airborne lead is prescribed b□ O. Reg. □□0□0□□as amended. □ or□ procedures and personal protective e□uipment must be used to ensure that □or□ers are not e□posed to airborne lead levels that e□ceed this T□ □□L.

DST recommends that an□ future disturbance should avoid operations that generate high levels of dust (e.g. sanding□ grinding) and that should these operations be re□uired□ appropriate precautionar□ measures be implemented for □or□er e□posure.

The disposal of construction □aste containing lead is governed b□ Reg. □□□□as amended. The transportation of the □aste to the disposal site is controlled b□ the federal TDG□ and applicable provincial regulations and licenses. Materials □ith elevated concentrations of lead should be sub□ect to anal□tical testing using TCLP anal□tical techni□ues to determine its □aste class in accordance □ith Reg. □□□□as amended.

The follo□ing recommendations appl□ to paint and surface coatings on building finishes found to contain elevated concentrations of lead□

- Paint on the e□terior of buildings should be abated using appropriate speciali□ed paint strippers (e.g. al□aline caustic or so□ gel) and po□er tools e□uipped □ith H□P□ filtered vacuums□
- Paint on interior surfaces should be abated using appropriate T□pe □ procedures as outlined in the MoL *Guideline: Lead on Construction Projects*□
- Paint debris surrounding the perimeter of the buildings and structures should be remediated scrapping top la□er of soil to a depth of up to 5 cm □here feasible. □ here debris is located on bedroc□□side□al□s or cobblestone□debris should be removed using H□P□ filtered vacuums. Debris found in the interior of buildings should be remediated follo□ing MoL precautionar□ measures□outlined in the document referenced above□and□
- Based on the current scope of remediation as discussed □ith P□ GSC□the remediation of lead paint □ill be completed on all identified lead□base interior surfaces□all e□terior paint and all paint debris as noted in Table □ of □ppendi□ B. It should also be noted that □here lead paint remediation is to be completed on asbestos containing substrate material□the most stringent guidelines shall be applied.

If not abated□all interior paints containing elevated levels of leads□should be maintained in good condition. Prior to□or during demolition or renovation □or□□the follo□ing additional procedures should be performed □ith respect to other anticipated lead□containing materials□

- Copper piping solder can be cut a small distance (e.g. 50 mm) from the joints to avoid direct disturbance of the lead material; and,

Cast iron drain pipes can be cut away from the joints to avoid direct disturbance of the lead caulking in the joints.

10.2 Environmental Soil Investigation

DST has completed a soil investigation and additional delineation at the Slate Island Light Station on Patterson Island, near Terrace Bay, Ontario. The soil investigation of three previously identified contaminated areas included field screening of soil samples and laboratory analyses to identify and delineate contaminated areas at the Site. In addition, the investigation involved the identification and quantification of concentrated debris piles located at and around the three developed areas of the Site.

Soil logged during the surface soil sampling activities indicated that the soil along the shoreline at CS-1 consists of cobbles with some gravel beach deposits, in places extending to the treeline. The developed grassed areas surrounding the dwellings at CS-1 are underlain by shallow soil, consisting of topsoil with some sand, cobbles and gravel. In the forested areas surrounding CS-1, soils were often found to have organic litter, fibric and humus (LFH) horizons. Underlying the LFH horizons, mineral soils were found to have a coarse sand, loam texture with some gravel. Exposed bedrock was observed predominantly along the shoreline of the site within the area of the littoral zone.

At CS-2, the overburden was found to consist of discontinuous sand, gravel with some cobbles in low-lying patches on the rugged bedrock surface.

At CS-3, soils were found to be a medium to coarse sand with some gravel, extending to the beach at Lake Superior. In the surrounding forested areas of CS-3, soils were found to have LFH horizons overlying sand and gravel.

A total of nine contaminated areas (or areas with discarded debris piles) were identified at the Site.

10.2.1 Contaminated Soil

The areas of contaminated soil□separated b□ ha□ardous and non□ha□ardous conditions are summari□ed as follo□s□

- CS□□ (Main Site □rea)□ Three areas of contaminated soil covering an area of appro□imatel□ 2□□50 m^2 and an estimated volume of □00 in□situ m□ of non□ha□ardous contaminated soil and 50 in□situ m□ of solid ha□ardous □aste as defined b□ Reg. □□□□
- CS□2 (Lighthouse □rea)□contaminated soil in this area □as delineated in all directions on the summit □ith an appro□imate area of □00 m^2 and an estimated volume of □0 in□situ m□ of non□ha□ardous contaminated soil and □0 in□situ m□ of solid ha□ardous □aste as defined b□ Reg. □□□□and□
- CS□□ (Old D□elling □rea)□an area of appro□imatel□ □20 m^2 and estimated volume of 550 in□situ m□ of non□ha□ardous contaminated soil.

10.2.2 Debris Areas

The areas □here historical debris dumping □as observed in concentrated conditions are as follo□s□

- CS□□ (Main Site □rea)□T□o debris piles (□ast and □ est Dumps) □ith an area of □00 m^2 and estimated debris volume of 220 in□situ m□.
- CS□2 (Lighthouse □rea)□□ppro□imate area of □0 m^2 and estimated volume of 25 in□situ m□ and□
- CS□□ (Old D□elling □rea)□three debris dumps □ith a collective area of □5 m^2 and an estimated volume of 2□ in□situ m□ of debris.

In addition□small amounts of scattered debris □ere observed at the base of the lighthouse cliff to□ards the south and east. The debris □as not concentrated into an□ one area□rather appeared to have been historicall□ thro□n from the top of the cliff.

It is recommended that all identified debris be removed from the Site as per the SO□ . This debris should be e□cavated□placed into suitable bul□ bags □ith suitable liners and carr□ straps. The debris should be sorted as indicated in Section □ to separate□and appropriatel□ containeri□e□the debris for disposal. □fforts should be made to decrease the volume of the debris prior to containeri□ation. The containeri□ed debris should be transported from the Site to the appropriatel□ licensed □aste receiver for disposal. During□ and upon completion of debris removal, inspections are recommended to be completed by an environmental consultant to confirm waste removal and to collect confirmatory samples, as required.

Also, it is recommended that a new human health and ecological site specific risk assessment be completed for the Site. After the risk assessment and confirmatory sampling recommended above, the areas and volumes of contaminated soil can be refined, based on the risk management/remediation recommendations within the risk assessment.

10.3 Species At Risk Survey Update

It was determined by the Client that an updated SAR survey report was required to develop a comprehensive set of mitigation measures to be implemented during the construction phase of this project. These mitigation measures have been developed to minimize impacts to potential SARs at the Site during the abatement and debris removal activities planned.

No SAR listed as endangered or threatened under the SARA were identified on Site during the Site visit and field investigation. Potential evidence of winter caribou foraging was observed at CS□□ and the Site in general provides attributes supporting its function as a Winter Use Area for Boreal Woodland Caribou, although this function is not confirmed. Mitigation measures related to avoidance of winter work periods, minimization of the intensity, spatial and temporal extent of on-Site activities, as well as restricting remediation activities to disturbed areas to the extent practical will likely prevent any meaningful impacts to Boreal Woodland Caribou and/or their habitat at and in the vicinity of the Site.

Four bird SAR (Canada Warbler, Common Nighthawk, Eastern Whip-poor-will and Olive Sided Flycatcher) were identified by ECCC as having the potential to be present on or near the Site. SARO indicated the potential presence of Barn Swallow. Surveys for these five species were not conducted as the Site visit was conducted beyond the time when appropriate surveys could have been conducted. However, by observing the following mitigation measures, no impacts to these bird SAR are anticipated, nesting sweeps by a qualified avian biologist in potentially impacted areas, implementation of buffer zones if/where bird SARs are encountered, restrictions of remediation activities to disturbed areas of ground to the extent practical, and minimization of spatial and temporal extent of work.

Three species of bats (Northern Myotis, Little Brown Myotis, and Tri-colored Bat) were identified by ECCC as having the potential to occur at the Site. Building demolition is not proposed as part of the designated substance removal portion of the remedial program, though the replacement of roofing materials is to be completed. Therefore, bat roosting habitat in buildings is unlikely to be impacted. If, where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to the Ontario Ministry of Natural Resources and Forestry (MNRF, 20[illegible]) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical. Where these mitigation measures are observed, no impacts to bat SAR are anticipated as a result of the proposed work.

Two aquatic SAR were identified as having the potential to occur around the Slate Islands. Both species, the Upper Great Lakes Kiyi and Deepwater Sculpin (Great Lakes – Western St. Lawrence population) are listed as 'special concern' under Schedule 1 of the SARA. Therefore, neither receives individual or habitat protection. However, prohibitions under the Fisheries Act prohibit causing 'serious harm' to these species. Through the application of appropriate mitigation measures, no impacts to either of these species is anticipated.

Overall, so long as the aforementioned mitigation measures are implemented, it is unlikely that the abatement, debris and soil removal activities will have any meaningful impact to SAR.

10.4 Environmental Effects Evaluation

DST completed an Environmental Effects Evaluation (EEE) in accordance with Section [illegible] of the *Canadian Environmental Assessment Act* 2012 to determine what, if any, environmental effects the proposed project might have on the environment. The EEE report, based on a template provided by PWGSC, is presented in Appendix [illegible].

As part of the EEE, DST reviewed available information regarding the proposed project, reviewed Site information, completed a Site visit, consulted with various directly affected agencies and conducted research to determine potential effects and provide mitigation measures that would help to avoid causing any negative impacts to the environment.

Following the completion of the □□□□, it was determined that, to mitigate any potential environmental impacts the project may incur, consideration will be taken relating to: avoidance of winter work periods; nesting sweeps by a qualified avian biologist; implementation of buffer zones if/where bird SAR are encountered; and minimization of the intensity, spatial and temporal extent of on-Site activities, as well as restricting remediation activities to disturbed areas of ground to the extent practical.

It is reasonable to conclude that with appropriate mitigation measures included in the work specifications and as summarized in Section C, Tables 2.□–2.□ of the □□□ (Appendix □), any potential environmental effects will be of short duration and the zone of influence, if any, will be confined to the immediate vicinity of the Site. Further, the removal of the lead impacted materials and debris piles currently at the Site are considered to have a positive effect on any environmental receptors present at the Site or nearby areas.

10.5 Structural Assessment

DST retained □ML Engineering (□ML) of Thunder Bay, Ontario, to conduct a Level II building inspection in order to evaluate the current conditions of the buildings on the Slate Island Coast Guard Site with commentary on the need for a repair/replacement program and associated costs. The □ML report is provided in Appendix F of this report.

□ML provided recommendations to ensure that the structures and their systems will reach their maximum life expectancy, and maintain the required health and safety levels. The findings of the report recommended □□0□000.00 in short term (□5 years) expenditures and □2□□000.00 in long term (□25 years) expenditures. Additional details can be found in the □ML Structural attached as Appendix F of this report.

It was indicated that each structure included in the report can withstand the recommended abatement activities and there are no health and safety concerns with contractors accessing the structures.

10.6 Marine Assessment

Public Works and Government Services Canada, on behalf of DFO, requested DST to conduct an environmental program on the Slate Islands Coast Guard Site (GC □□□□), Lake Superior. The program □as intended to identif□ the needs for an□ structural repairs or soil remediation at the site.

DST retained Riggs □ngineering Ltd. (Riggs) to conduct a marine assessment as a component of its overall program. The ob□ective of the marine assessment is to evaluate access options for the scope of the remedial □or□s re□uired at the Slate Islands Coast Guard Site.

PWGSC's requirements for the assessment are as follows:

- Conduct a revie□ of available Canadian H□drographic Surve□ (CHS) charts for the area□
- □valuate methods of access to Patterson Island considering no current infrastructure (doc□ or □harf) is available□ and provide a recommendation for the most feasible and cost effective option□
- Determine t□pe(s) of vessel that could meet the needs of the pro□ect (e□cavation and disposal of contaminated soil and possibl□ building materials) including access to and from the Site□ and□
- □ report detailing observations made on site□ including recommendations and cost estimates for site access options during remediation.

It □as advised that bidding contractors inspect the potential marine access areas at the Site including soundings to determine landing locations and approaches□ the t□pes and combinations of vessels to use□ and □hich mainland port to utili□e in order to set a □or□able marine servicing plan and cost.

10.6.1 Marine Servicing the Main Site

The Main Site □ill re□uire marine servicing to mobili□e□demobili□e e□uipment and supplies to the Site and to transfer the containeri□ed □aste off□Site.

The Main Site is full□ e□posed to open La□e Superior and sub□ect to □ind and □aves from all directions e□cept north and north□est. Safe access to the Main Site landing □ill be limited to da□s □hen □inds and □aves are light. Locals indicate that the best season providing calm conditions is in late spring (late□Ma□ through □une).

Landing at the Main Site doc□ can onl□ be achieved □ith narro□ beam□ shallo□ draft□ and maneuverable vessels. The flat□bottomed barges carried b□ Coast Guard suppl□ vessels to suppl□ the Site □hile it □as manned are an e□ample of vessel t□pes needed to service remediation activities from the Main Site doc□. The capacit□of this si□e of vessel □ill be less than □2 tonnes. Mobili□ing and demobili□ing mobile e□uipment and removing containeri□ed □aste from the Site to a larger support vessel □ill involve □0 trips or more for a vessel of this si□e. □dditional trips □ill be re□uired should soil remediation activities be added to the □or□scope.

It is assumed that □aste from the Lighthouse □rea □ill be consolidated and containeri□ed along □ith Main Site □aste for removal off□Site. Transportation of e□uipment□materials and □aste to and from the Lighthouse □rea □ill li□el□be via helicopter.

The Main Site cannot be accessed b□mobile e□uipment overland from the Old D□elling Site.

10.6.2 Marine Servicing the Old Dwelling Site

The Old D□elling Site is not as e□posed to open la□e conditions as is the Main Site location. The Sunda□ Harbour doc□ is accessible under □ind and □ave conditions from all directions e□cept those from the north□est. Safe access to the doc□during north□est □ind and □aves □ill be limited to da□s □hen □inds are light. The approach is deep and the sand beach can provide alternate landing. There are no vessel restrictions at Sunda□Harbour.

10.6.3 Mainland Ports

The closest mainland landing area to the Slate Island light station is Terrace Ba□□2□ □m to the north. The marine facilities there are limited and suited for pleasure craft and light vessels onl□. The ad□acent beach is protected and could provide a landing for front loading□landing□craft t□pe vessels. The landing has road access through To□n to High□a□ □□.

Other small mainland ports include Rossport and Redroc□. These are small scale facilities serving pleasure craft and light commercial fishing vessels□onl□.

The closest industrial si□ed mainland port is at Peninsula Harbour at Marathon□□□ □m east of the light station. This deep □ater harbour that served the Marathon paper mill is currentl□closed but contractors can negotiate its use □ith the o□ner□Tembec Inc.

Other large mainland ports include Thunder Ba□□□□□ □m □est of the light station and Sault Ste. Marie□□□5 □m east of the Site. These are active industrial□commercial ports having a □ide range of marine services that could provide suitable vessels and manpo□er and other marine support to service the proposed □or□.

11 LIMITATIONS OF REPORT

Limitation of this report and third party reliance information is provided in the following subsections.

11.1 Designated Substances and Hazardous Materials

This report is intended for Client (Government of Canada) and DFO use only. Any use of this document by a third party, or any reliance on or decisions made based on the findings described in this report, are the sole responsibility of such third parties, and DST Consulting Engineers Inc. accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions conducted based on this report. No other warranties are implied or expressed.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. The sampling program included asbestos bulk sampling, paint chip sampling and paint with substrate sampling in select representative areas for laboratory analysis. There is a practical limitation on the number of samples that can be collected in a building. This requires the investigator to extrapolate observations and analytical results between sample locations. The uncertainty (and inherent risk) associated with this necessity increases with the distance between sampling locations. Note, however, that no scope of work, no matter how exhaustive, can guarantee to identify all contaminants. This report therefore cannot warrant that all building conditions are represented by those identified at specific locations.

Recommendations, when included, are made in good faith and are based on several successful experiences. DST is not in a position to evaluate the health risks associated with exposure to the mould referenced in this report. Since human reactions to mould exposure vary widely amongst individuals, and specific segments of the population are generally recognized to be more susceptible than others, an evaluation of health risks can only be made on an individual basis and even then, only by a licensed medical practitioner equipped with knowledge of the individual's medical history.

Any use of this report by the client and any other party is contingent upon their understanding and acceptance of the following condition:

“Mould is a naturally occurring substance and regardless of the results of an assessment or ho□ completely it is removed, it could reoccur.”

Regardless of the effectiveness of an□ remedial actions□ mould gro□th ma□ occur□reoccur an□□here □ithin a building at an□time□should conditions be favourable. It is therefore essential to maintain buildings□surfaces□appliances and furnishings under conditions □hich are not favourable to mould incubation and gro□th (□arm□dr□□and clean). The scope of services provided b□ DST for this assignment did not include a detailed evaluation of the thermal and moisture management characteristics of the e□terior □all assembl□□or a detailed building envelope investigation to ascertain ever□ potential root cause of the □ater infiltration that created an environment favourable to mould proliferation. Similarl□□DST has not been engaged to provide detailed designs for the reinstatement of building finishes or for improvements to the building envelope.

Note also that standards, guidelines and practices related to DST’s scope of work may change □ith time. Those □hich □ere applied at the time of this program ma□be obsolete or unacceptable at a later date.

□n□comments given in this report on potential remediation problems and possible methods are intended onl□ for the guidance of the designer. The scope of □or□ ma□ not be sufficient to determine all of the factors that ma□ affect construction□ clean□up methods and□or costs. Contractors bidding on this pro□ect or underta□ing clean□ups should□therefore□ma□e their o□n interpretation of the factual information presented and dra□ their o□n conclusions as to ho□ the conditions ma□affect their □or□.

11.2 Environmental Soil Investigation

□n□results from an anal□tical laborator□or other subcontractor reported herein have been carried out b□others□and DST Consulting □ngineers Inc. cannot □arrant□their accurac□. Similarl□□DST cannot □arrant□the accurac□of information supplied b□the Client.

The information□conclusions and recommendations given herein are specific to this pro□ect and this Client□Government of Canada and DFO□and for the scope of □or□described herein. This report ma□not be relied upon□in □hole or in part□b□other parties for an□purposes □hatsoever. □n□ use □hich a third part□ ma□es of this report□or an□ part thereof□or an□ reliance on or decisions made based on it□are the responsibilit□ of such third parties. DST does not accept responsibilit□ for damages□if an□□suffered b□ an□ third part□ due to decisions or actions made based on this report.

The data□conclusions and recommendations □hich are presented in this report□and the □ualit□ thereof□are based on a scope of □or□ authori□ed b□ the Client. This report cannot □arrant□ that all conditions on□or off□the Site are represented b□ those identified at specific locations. For e□ample□ conditions bet□een sampling locations ma□ differ from those encountered in the investigation and observed or measured conditions ma□change □ith time.

□n□ recommendations and conclusions provided□that are based on conditions or assumptions reported herein□ □ill inherentl□ include an□ uncertaint□ associated □ith those conditions or assumptions. Man□ aspects involving professional □udgment such as subsurface models and remediation criteria contain a degree of uncertaint□. This uncertaint□ should be managed b□ periodic revie□ and refinement as additional information becomes available.

□ote also that standards□guidelines and practices related to environmental investigations ma□ change □ith time. Those □hich □ere applied at the time of this investigation ma□be obsolete or unacceptable at a later date.

□n□ topographic benchmar□s and elevations documented in this report are primaril□ used to establish relative elevation differences bet□een test locations and should not be used for other purposes such as grading□e□cavation□planning□development□etc.

□n□comments given in this report on potential remediation problems and possible methods are intended onl□ for the guidance of the designer. The scope of □or□ ma□ not be sufficient to determine all of the factors that ma□affect construction or clean□up methods and costs.

□n□ results from laborator□ or other subcontractors reported herein have been carried out b□ others□and DST Consulting □ngineers Inc. cannot □arrant their accurac□. Similarl□□DST cannot □arrant the accurac□of information supplied b□the Client or others.

This report ma□not be reproduced□in □hole or in part□□ithout □ritten consent from DST.

11.3 Natural Science Elements

The scope of □or□□conclusions and recommendations given herein are specificall□for this pro□ect and this Client□the Government of Canada and DFO□and for the scope of □or□described herein□ and ma□not be sufficient for other uses. □atural sciences are the sciences used in the stud□of the natural ph□sical □orld□including ph□sics□chemistr□□geolog□□biolog□ and botan□. The conclusions and recommendations regarding natural conditions □hich are presented in this report□and the □ualit□ thereof□are based on a scope of □or□ authori□ed b□ the client. □ote□ ho□ever□that virtuall□no scope of □or□□no matter ho□ e□haustive□can identif□all habitat t□pes or all natural features on land and in the □ater. For e□ample□natural features bet□een transects or fish net sets ma□differ from those encountered at sampling locations during the time of the field investigation□and ma□ change □ith time. This report□therefore□cannot □arrant□ that all conditions on or off the site are represented b□those identified at specific locations.

□ote that identification of natural features are limited b□seasonal conditions □hich ma□preclude the identification of some natural features during the field investigation. Habitats are not static□ but change □ith time□and the presence or absence of certain flora and fauna identified in the field are limited to the time of the investigation and ma□ not al□a□s be representative of future conditions. □n□ topographic benchmar□ and elevations used in this report are primaril□ to establish relative elevation differences for □ater or stratigraph□and are site specific.

□n□ comments given in this report on the presence of features including significant □etlands□ significant portions of habitat for endangered or threatened species□fish habitat□significant □oodlands□significant valle□ lands□□ildlife habitat and significant areas of natural and scientific interests (ANSI’s) are intended only for the guidance of the client. The scope of □or□ma□not be sufficient to determine all of the features □hich ma□ affect site operation plans and potential development proposals. Clients should□therefore□ma□e their o□n interpretations of the factual information presented and dra□ their o□n conclusions as to ho□ the conditions ma□affect their □or□on the pro□ect.

□n□results prepared b□an anal□tical laborator□reported herein have been carried out b□others□ and DST Consulting □ngineers Inc. does not □arrant□ their accurac□. Similarl□□DST cannot □arrant□the accurac□of information supplied b□the client.

12 CLOSURE

□ e trust this report meets □our present re□uirements and appreciate this opportunit□ to provide environmental consulting services to □ou. If □ou have an□ □uestions or comments□please contact the undersigned.

12.1 Designated Substances and Hazardous Materials Survey

□ ritten b□□

□on □ addell□M.Sc.
□nvironmental Scientist

Revie□ed b□□

Brendan Harrigan□P.□ng.
Principal

12.2 Environmental Soil Investigation

□ ritten b□□

Geoff La□e□G.I.T.
Geoscientist in Training

Revie□ed b□□

Curtis Schmidt□P.□ng.
□nvironmental □ngineer

12.3 Species at Risk Survey

□ ritten b□□

□dam Moreira□M.Sc.
□nvironmental Biologist

Revie□ed b□□

David Vard□□Ph.D.
□nvironmental Biologist

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Public □ or□s and Government Services Canada□□nvironmental Services□□ul□ □2□20□□ *Scope of Work for Additional Soil Delineation, Designated Substances Survey, Species At Risk Survey Update, Structural Assessment, Marine Assessment, Risk Assessment Update and Development of Plans and Specifications for Abatement and Soil Remediation, Slate Islands Coast Guard Site, Patterson Island, Lake Superior, Ontario. DFRP No. 56027 PWGSC No. R.083149.001 & .004*

Rodne□Br□ton□personal communication. □ugust □0□20□□.

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Appendix A

General Site Figures

DST consulting engineers
885 REGENT STREET, SUITE 3-1B
SUDBURY, ONTARIO, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

- SITE LOCATION
- ☆ SITE MARKER

NOTES:

1. THIS FIGURE SHALL BE READ IN CONJUNCTION WITH THE ACCOMPANYING TECHNICAL REPORT
2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - CANADA
3. TOPORAMA, 2016

REV	DATE	ISSUE	APPROVAL
1	29/03/17	FINAL	CS
0	12/5/16	DRAFT	CS

PROJECT TITLE:

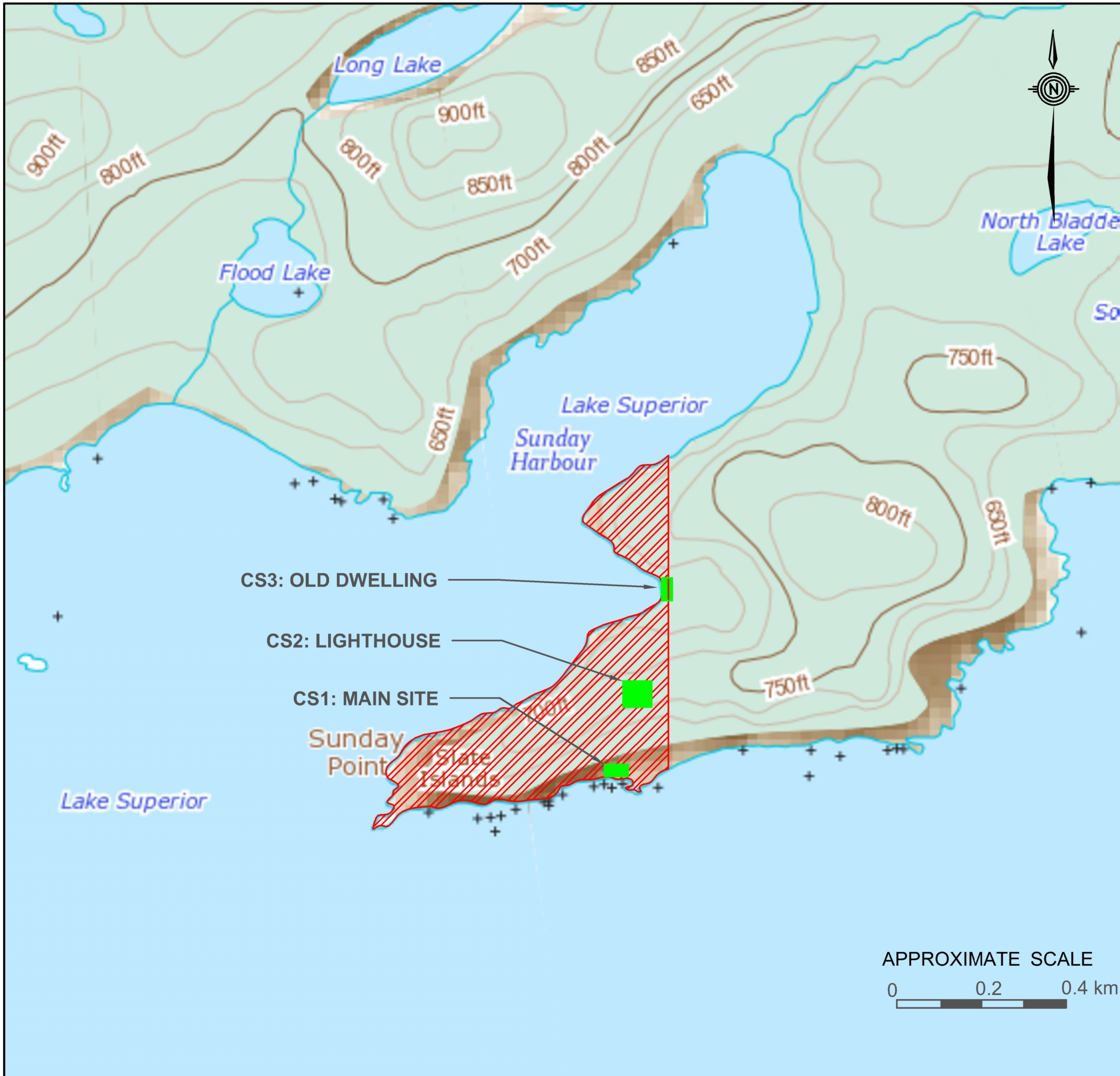
ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE:

SITE LOCATION MAP

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 1



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LEGEND:

- DEVELOPED AREA
- PROPERTY BOUNDARY

NOTES:

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2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - CANADA
3. TOPORAMA, 2016

REV	DATE	ISSUE	APPROVAL
1	29/03/17	FINAL	CS
0	12/5/16	DRAFT	CS

PROJECT TITLE:

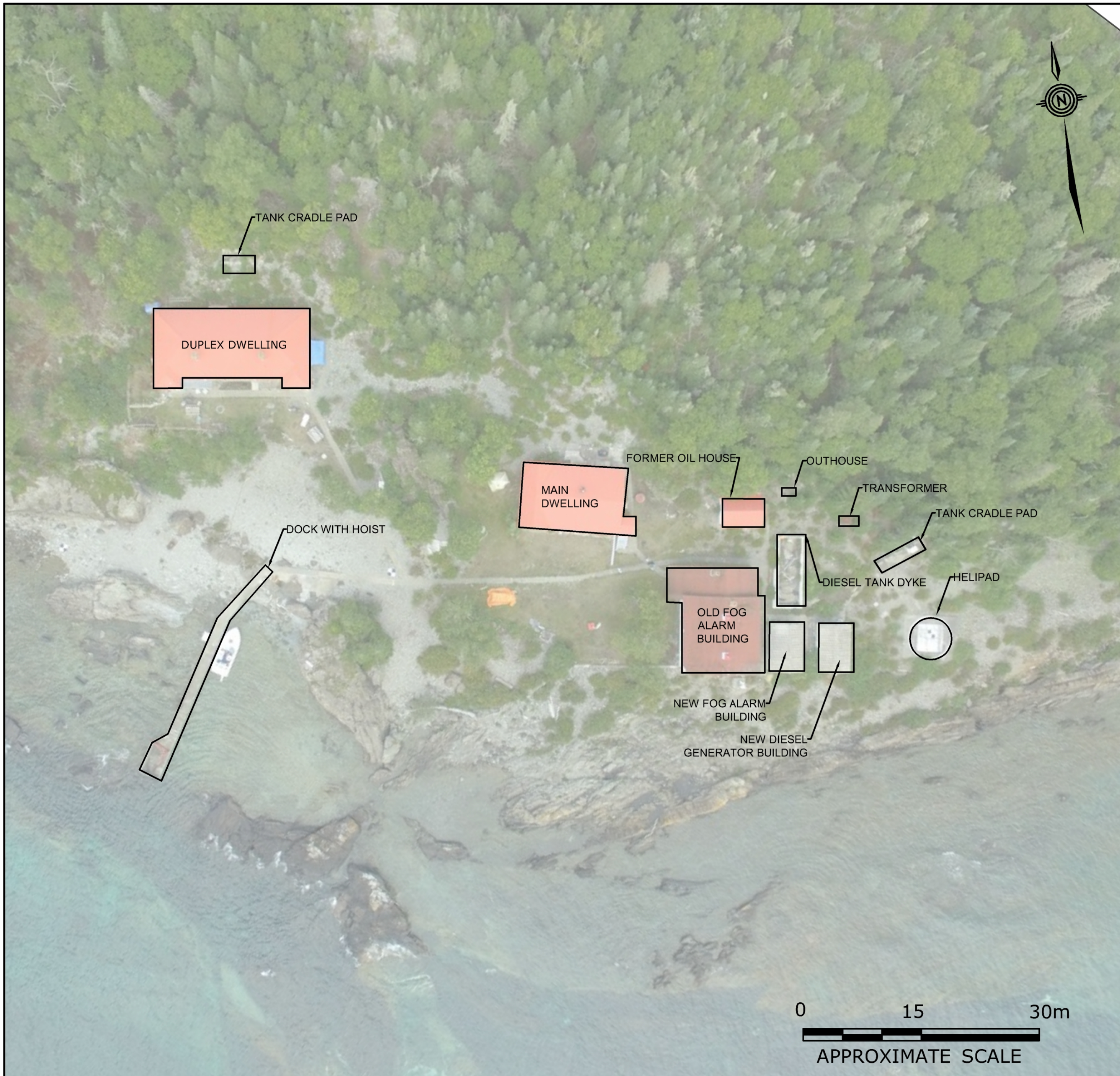
ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE:

SITE LOCATIONS

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 2



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LEGEND:

NOTES:

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REV	DATE	ISSUE	APPROVAL
1	29/03/17	FINAL	CS
0	05/12/16	FINAL	CS

PROJECT TITLE:

ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND, LAKE SUPERIOR, ON

DRAWING TITLE:

MAIN SITE (CS-1) - SITE PLAN

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DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 3

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LEGEND:

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1	29/03/17	FINAL	CS
0	05/12/16	FINAL	CS
REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

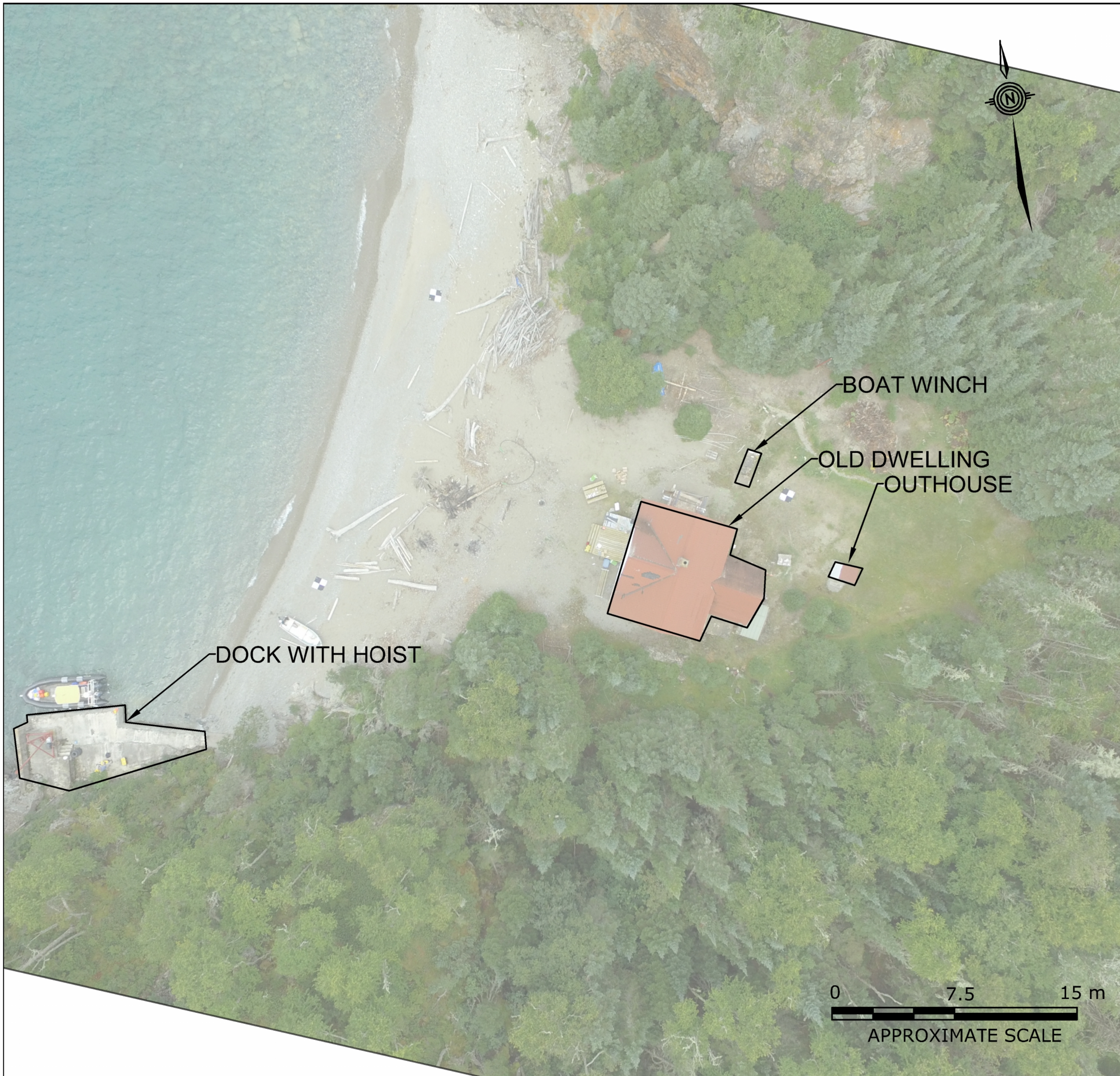
ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE:

LIGHTHOUSE AREA (CS-2)
SITE PLAN

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 4



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LEGEND:

NOTES:

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REV	DATE	ISSUE	APPROVAL
1	29/03/17	FINAL	CS
0	05/12/16	FINAL	CS

PROJECT TITLE:

ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND, LAKE SUPERIOR, ON

DRAWING TITLE:

OLD DWELLING SITE (CS-3)
SITE PLAN

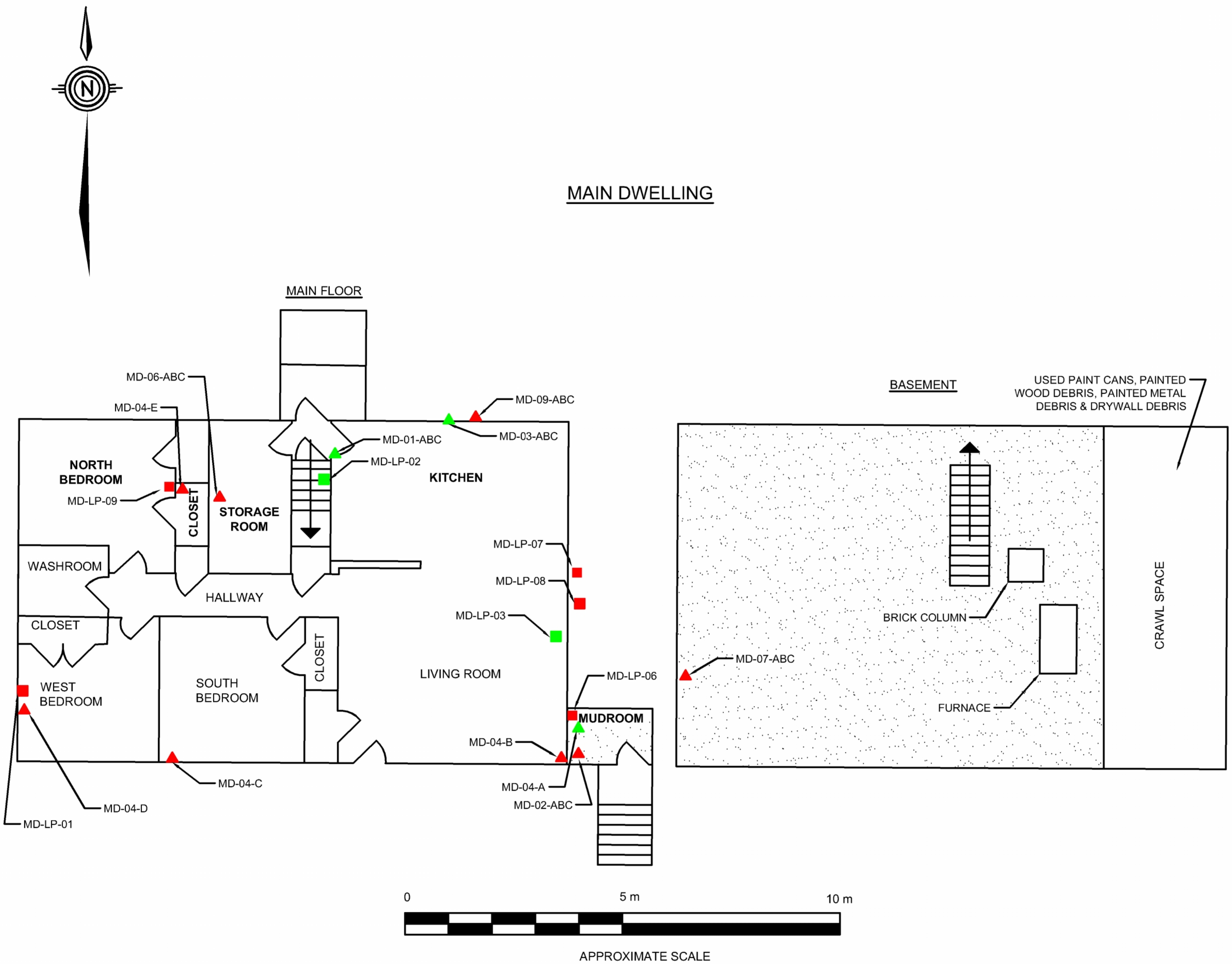
DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 5

Appendix B

Designated Substance and Hazardous Materials Survey

Floor Plans



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LEGEND:

- ▲ (red) ASBESTOS CONTAINING MATERIAL AS PER O.REG 278/05 AS AMENDED (≥ 0.5%)
- ▲ (green) NON ASBESTOS CONTAINING MATERIAL
- ■ (red) PAINTED SURFACE EXCEEDS THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- ■ (green) PAINTED SURFACE BELOW THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- PAINT DEBRIS OBSERVED ON FLOOR

NOTES:

1. THIS FIGURE SHALL BE READ IN CONJUNCTION WITH THE ACCOMPANYING TECHNICAL REPORT.
2. ALL SAMPLE IDENTIFIERS ARE PREFIXED WITH 027105 WHICH WAS LEFT OUT OF DRAWING FOR CLARITY

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0	05/12/16	DRAFT	BH

PROJECT TITLE:

ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE, PATTERSON ISLAND
LAKE SUPERIOR, ON

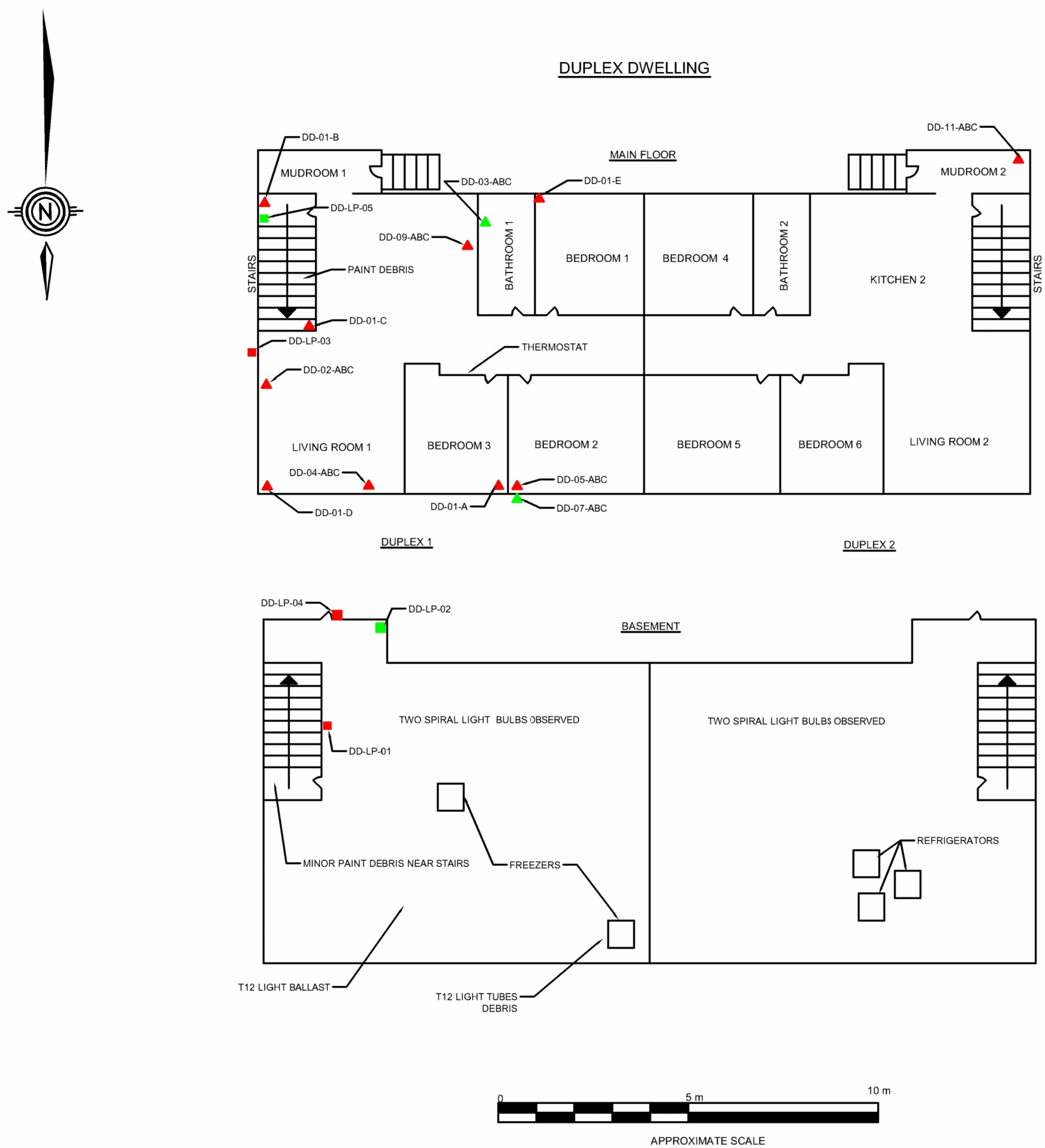
DRAWING TITLE:

MAIN DWELLING FLOOR PLAN

DESIGNED BY: JR	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: BH	PROJECT NO: GV-TB-027105

FIGURE 6

DUPLEX DWELLING



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LEGEND:

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- NON ASBESTOS CONTAINING MATERIAL
- PAINTED SURFACE EXCEEDS THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- PAINTED SURFACE BELOW THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED

NOTES:

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2. ALL SAMPLE IDENTIFIERS ARE PREFIXED WITH 027105 WHICH WAS LEFT OUT OF DRAWING FOR CLARITY

1	29/03/17	FINAL	BH
0	05/12/16	DRAFT	BH
REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

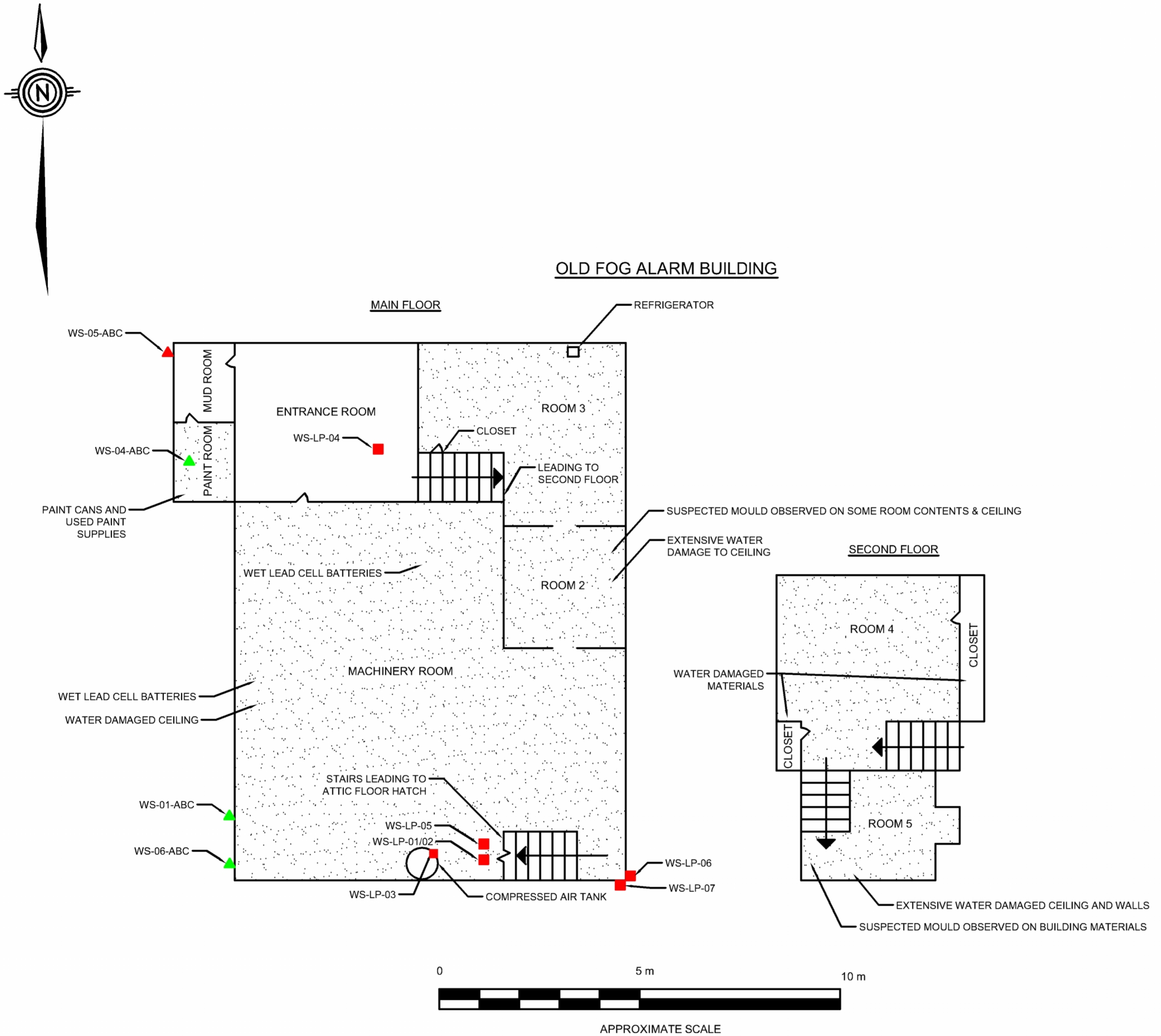
ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE, PATTERSON ISLAND
LAKE SUPERIOR, ON

DRAWING TITLE:

DUPLEX DWELLING FLOOR PLAN

DESIGNED BY: JR	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: BH	PROJECT NO: GV-TB-027105

FIGURE 7



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LEGEND:

- ▲ (red) ASBESTOS CONTAINING MATERIAL AS PER O.REG 278/05 AS AMENDED (≤ 0.5%)
- ▲ (green) NON ASBESTOS CONTAINING MATERIAL
- ■ (red) PAINTED SURFACE EXCEEDS THE 90ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- ■ (green) PAINTED SURFACE BELOW THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- PAINT DEBRIS OBSERVED ON FLOOR

NOTES:

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0	05/12/16	DRAFT	BH

PROJECT TITLE:

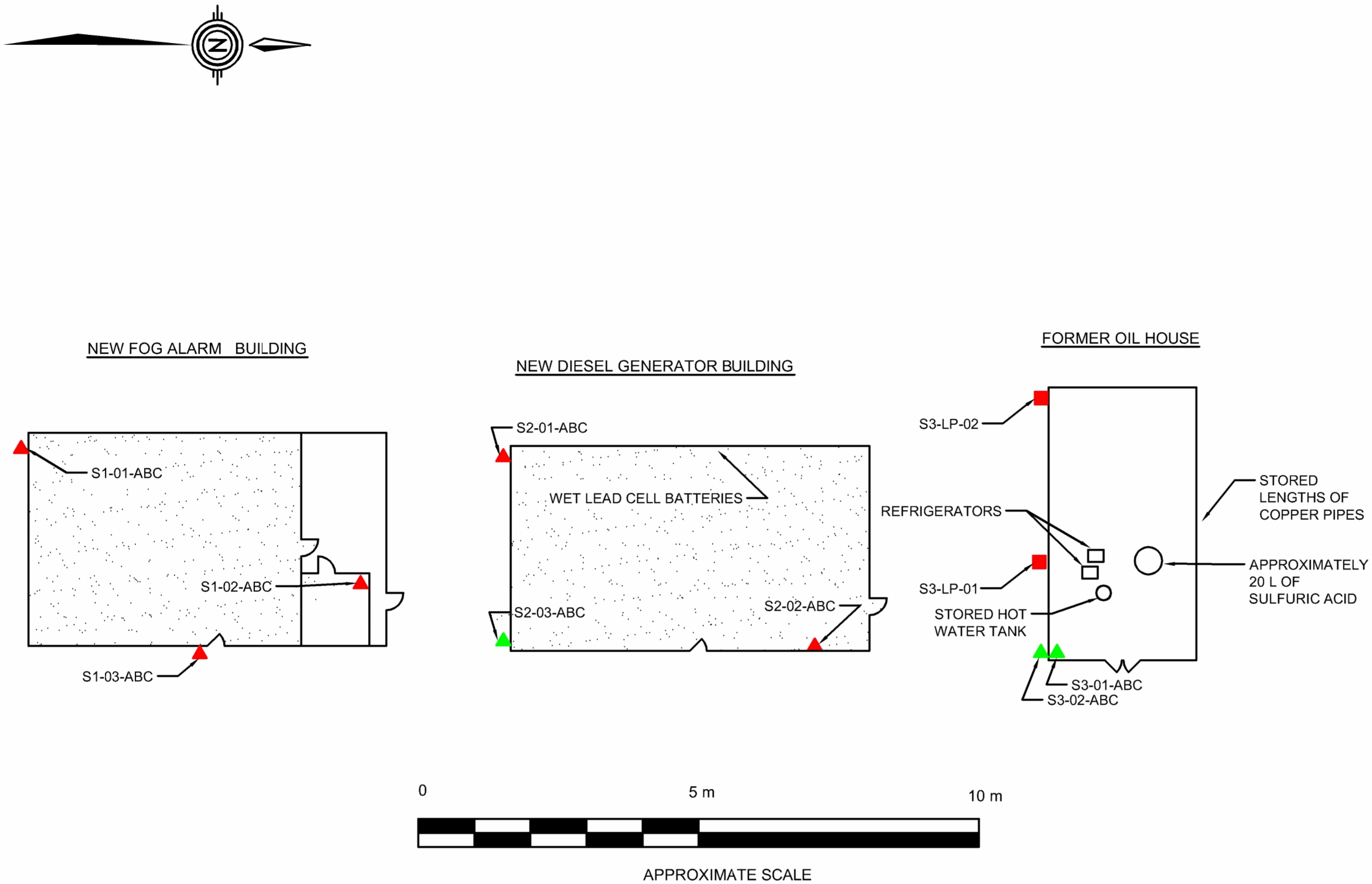
ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE, PATTERSON ISLAND
LAKE SUPERIOR, ON

DRAWING TITLE:

OLD FOG ALARM BUILDING FLOOR PLAN

DESIGNED BY: JR	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: BH	PROJECT NO: GV-TB-027105

FIGURE 8



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LEGEND:

- (red triangle) ASBESTOS CONTAINING MATERIAL AS PER O.REG 278/05 AS AMENDED (≦ 0.5%)
- (green triangle) NON ASBESTOS CONTAINING MATERIAL
- (red square) PAINTED SURFACE EXCEEDS THE 90ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- (green square) PAINTED SURFACE BELOW THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- (hatched square) PAINT DEBRIS OBSERVED ON FLOOR

NOTES:

1. THIS FIGURE SHALL BE READ IN CONJUNCTION WITH THE ACCOMPANYING TECHNICAL REPORT.
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1	29/03/17	FINAL	BH
0	05/12/16	DRAFT	BH

PROJECT TITLE:

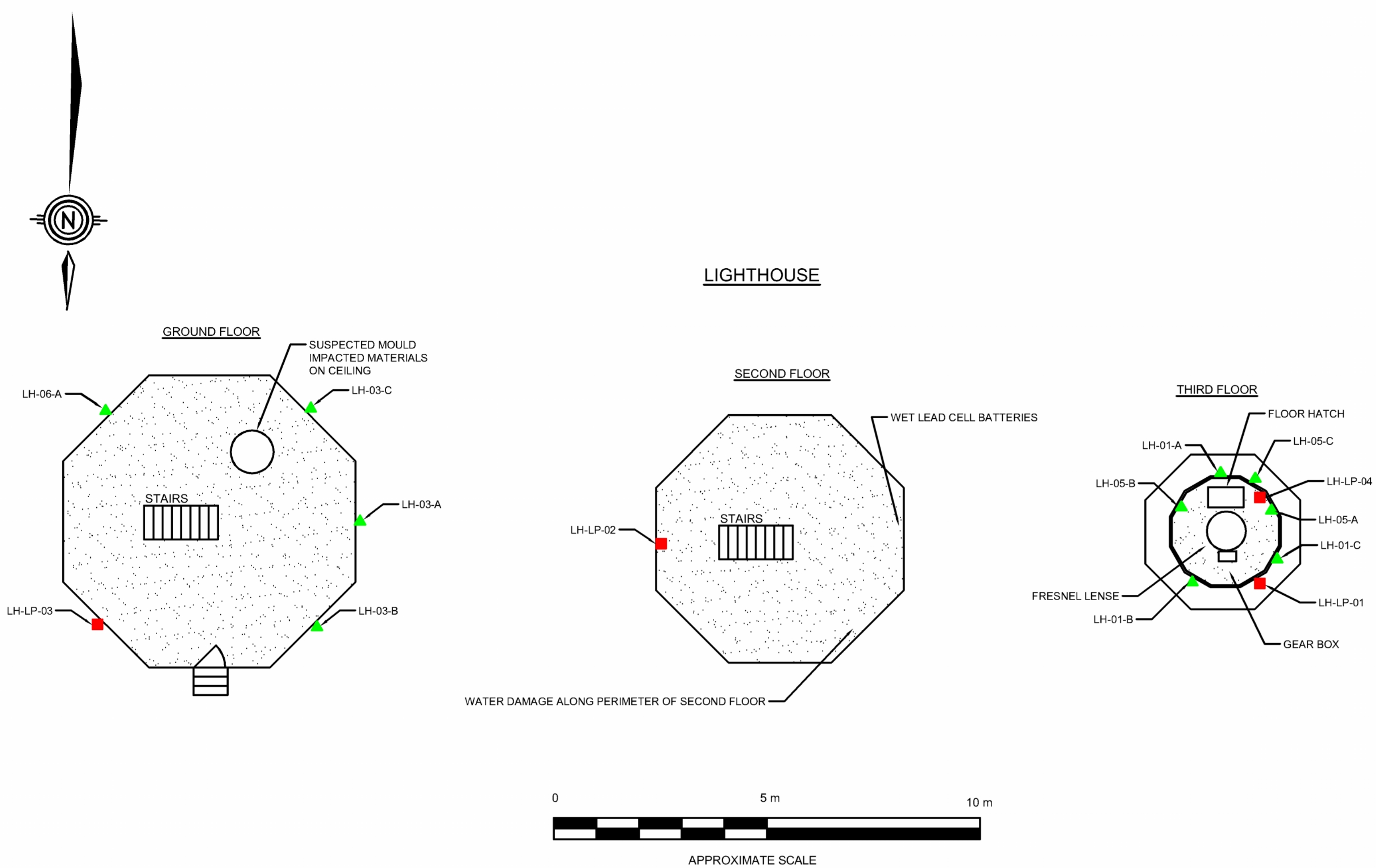
ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE, PATTERSON ISLAND
LAKE SUPERIOR, ON

DRAWING TITLE:

NEW FOG ALARM BUILDING, NEW DIESEL GENERATING BUILDING AND FORMER OIL HOUSE FLOOR PLANS

DESIGNED BY: JR	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: BH	PROJECT NO: GV-TB-027105

FIGURE 9



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- PAINTED SURFACE BELOW THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- PAINT DEBRIS OBSERVED ON FLOOR

NOTES:

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2. ALL SAMPLE IDENTIFIERS ARE PREFIXED WITH 027105 WHICH WAS LEFT OUT OF DRAWING FOR CLARITY

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REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

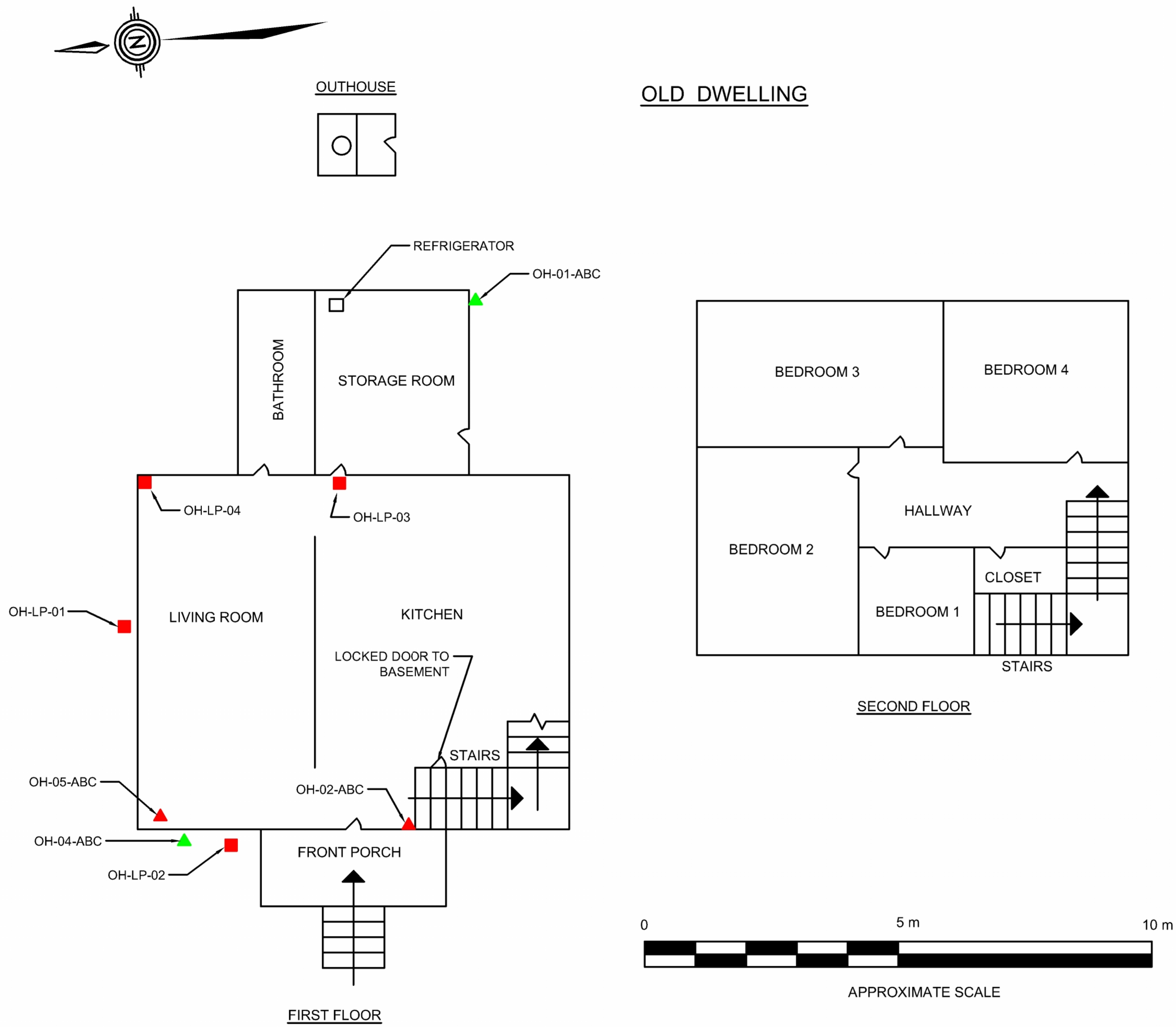
ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE, PATTERSON ISLAND
LAKE SUPERIOR, ON

DRAWING TITLE:

LIGHTHOUSE FLOOR PLAN

DESIGNED BY: JR	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: BH	PROJECT NO: GV-TB-027105

FIGURE 10



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LEGEND:

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- NON ASBESTOS CONTAINING MATERIAL
- PAINTED SURFACE EXCEEDS THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED
- PAINTED SURFACE BELOW THE 90 ppm LIMIT FOR LEAD, AS PER HAZARDOUS PRODUCTS ACT'S SURFACE COATING MATERIALS REGULATIONS SOR/2005-109, AS AMENDED

NOTES:

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2. ALL SAMPLE IDENTIFIERS ARE PREFIXED WITH 027105 WHICH WAS LEFT OUT OF DRAWING FOR CLARITY

1	29/03/17	FINAL	BH
0	05/12/16	DRAFT	BH
REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE, PATTERSON ISLAND LAKE SUPERIOR, ON

DRAWING TITLE:

OLD DWELLING FLOOR PLAN

DESIGNED BY: JR	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: BH	PROJECT NO: GV-TB-027105

FIGURE 11

Tables

Table 1
Summary of Bulk Samples for Asbestos Content

Sample I .D.	Building Name	Sample Location	Sample Description	Asbestos Content
027105-MD-01-A	Main Dwelling	Mudroom, Floor	Grey Vinyl Floor Tile/ Mastic	None Detected
027105-MD-01-B				
027105-MD-01-C				
027105-MD-02-A		Kitchen	Beige Vinyl Floor Tile	0.79 % Chrysotile
027105-MD-02-B				Not Analyzed (Stop Positive)
027105-MD-02-C				
027105-MD-03-A		Kitchen	White Window Caulking	None Detected
027105-MD-03-B				
027105-MD-03-C				
027105-MD-03-DUP				
027105-MD-04-A		Mudroom, North Bedroom, Living Room, South Bedroom, West Bedroom	Grey Drywall Joint Compound	1% Chrysotile
027105-MD-04-B				Not Analyzed (Stop Positive)
027105-MD-04-C				
027105-MD-04-D				
027105-MD-04-E				
027105-MD-06-A		Storage Room	Grey Caulking on Stored Window	0.89 % Chrysotile
027105-MD-06-B				Not Analyzed (Stop Positive)
027105-MD-06-C				
027105-MD-07-A		Basement	Grey Window Caulking	0.91 % Chrysotile
027105-MD-07-B				Not Analyzed (Stop Positive)
027105-MD-07-C				
027105-MD-07-DUP				
027105-MD-09-A		Exterior	Black Caulking	4.56 % Chrysotile
027105-MD-09-B				Not Analyzed (Stop Positive)
027105-MD-09-C				
027105-DD-01-A	Duplex Dwelling	Bedroom 3	Grey / White Drywall Joint Compound	1% Chrysotile / 1% Chrysotile
027105-DD-01-B		Stairwell 1		Not Analyzed (Stop Positive)
027105-DD-01-C		Stairwell 1		
027105-DD-01-D		Living Room 1		
027105-DD-01-E		Bedroom 1		
027105-DD-01-Dup		Bedroom 3		
027105-DD-02-A		Living room 1	White Floor Tile/ Black Mastic	0.75% / 2.35 % Chrysotile
027105-DD-02-B				Not Analyzed (Stop Positive)
027105-DD-02-C				
027105-DD-03-A		Bathroom 1	Interior White Bathroom Caulking	None Detected
027105-DD-03-B				
027105-DD-03-C				
027105-DD-03-DUP				
027105-DD-04-A		Living Room 1	Black Mastic	0.6 % Chrysotile
027105-DD-04-B				Not Analyzed (Stop Positive)
027105-DD-04-C				
027105-DD-05-A		Bedroom 2	White Vinyl Floor Tile with Green Streaks / Black Mastic	0.74% / 2.22 % Chrysotile
027105-DD-05-B				Not Analyzed (Stop Positive)
027105-DD-05-C				
027105-DD-07-A		Exterior	Grey Caulking	None Detected
027105-DD-07-B				
027105-DD-07-C				
027105-DD-09-A		Kitchen 1	White Vinyl Floor Tile with Green Streaks / Mastic	2.22 % Chrysotile / 2.45 % Chrysotile
027105-DD-09-B				Not Analyzed (Stop Positive)
027105-DD-09-C				
027105-DD-09-DUP				
027105-DD-11-A		Mudroom 2	Beige Vinyl Floor Tile / Beige Mastic	None Detected / 0.61 % Chrysotile (Mastic)
027105-DD-11-B				Not Analyzed (Stop Positive)
027105-DD-11-C				
027105-WS-01-A	Old Fog Alarm / Generator	Exterior	White Window Caulking	None Detected
027105-WS-01-B				
027105-WS-01-C				
027105-WS-01-DUP				
027105-WS-04-A		Paint Room	Vinyl Sheet Flooring	None Detected
027105-WS-04-B				
027105-WS-04-C				
027105-WS-05-A		Exterior	Shingle Roofing	0.73 % Chrysotile
027105-WS-05-B				Not Analyzed (stop positive)
027105-WS-05-C				
027105-WS-06-A		Exterior	Grey Parging Cement	None Detected
027105-WS-06-B				
027105-WS-06-C				

Table 1
Summary of Bulk Samples
for Asbestos Content

Sample I.D.	Building Name	Sample Location	Sample Description	Asbestos Content
027105-S1-01-A	**New Fog Alarm / Electronics**	**Exterior**	**Grey Transit Corrugated Cladding and Roofing**	**20% Chrysotile Asbestos**
027105-S1-01-B				**Not Analyzed (Stop Positive)**
027105-S1-01-C				
027105-S1-02-A		**Interior**	**Grey Transite Paneling**	**20% Chrysotile Asbestos**
027105-S1-02-B				**Not Analyzed (Stop Positive)**
027105-S1-02-C				
027105-S1-03-A		**Exterior**	**Grey Wall Caulking**	**0.52 % Chrysotile Asbestos**
027105-S1-03-B				**Not Analyzed (Stop Positive)**
027105-S1-03-C				
027105-S2-01-A	**New Diesel Generator**	**Interior**	**Grey Transite Paneling**	**20% Chrysotile Asbestos**
027105-S2-01-B				**Not Analyzed (Stop Positive)**
027105-S2-01-C				
027105-S2-01-DUP				
027105-S2-02-A		**Exterior**	**Grey Transit Corrugated Cladding and Roofing / Caulking**	**20% Chrysotile Asbestos**
027105-S2-02-B				**Not Analyzed (Stop Positive)**
027105-S2-02-C				**0.52% Chrysotile Asbestos**
027105-S2-03-A		Exterior	Grey Caulking Near Vent	None Detected
027105-S2-03-B				
027105-S2-03-C				
027105-S2-03-DUP				
027105-S3-01-A	Former Oil House	Exterior	Red Shingles / Bottom Layer Roofing Material	None Detected
027105-S3-01-B				
027105-S3-01-C				
027105-LH-01-A	Lighthouse	Exterior	Red Caulking, Third Level Balcony	None Detected
027105-LH-01-B				
027105-LH-01-C				
027105-LH-01-DUP				
027105-LH-03-A		Exterior	Light Grey / Dark Parging Cement	None Detected
027105-LH-03-B				
027105-LH-03-C				
027105-LH-03-DUP				
027105-LH-05-A		Interior Balcony, Window	White Caulking	None Detected
027105-LH-05-B				
027105-LH-05-C				
027105-LH-06-A		Exterior	Grey Caulking	None Detected
027105-LH-06-B				
027105-LH-06-C				
027105-OH-01-A	**Old Dwelling**	Exterior	Shingle Roofing	None Detected
027105-OH-01-B				
027105-OH-01-C				
027105-OH-02-A		**Entrance**	**Grey floor tile with White Specs/** Black Mastic	**2.3 % Chrysotile** / None Detected
027105-OH-02-B				**Not Analyzed (Stop Positive)**
027105-OH-02-C				
027105-OH-02-DUP				
027105-OH-04-A		Exterior	White Window Caulking	None Detected
027105-OH-04-B				
027105-OH-04-C				
027105-OH-05-A		**Main Level**	**Grey Drywall Joint Compound**	**1% Chrysotile**
027105-OH-05-B				**Not Analyzed (Stop Positive)**
027105-OH-05-C				

***Bold items** e□ceed the 0.5□ regulated concentration of asbestos□as per O. Reg. 2□□05□as amended.

Table 2
Summary of ACMs Quantities and Conditions

Building	Floor	Specific Location	Asbestos Containing Material	Colour	Friability	% Present	Asbestos Type	Total Quantity	Quantity In Fair / Poor Condition	Required Abatement	Comments
Main Dwelling	Main	Floor	Vinyl Floor Tile	Beige with Brown Streaks	Non-Friable	0.79	Chrysotile	18 m^2	None	None	
		Walls & Ceiling	Drywall Joint Compound	Grey	Non-Friable	1.0	Chrysotile	310 m^2	None	Type 2 (ACM)	Lead Containing Surfaces
		Stored Window	Caulking	Grey	Non-Friable	0.89	Chrysotile	4.5 m	4.5 (Fair)	Remove window if not it use; Type 1 (ACM)	Window observed to be in storage
	Basement	Windows	Caulking	Grey	Non-Friable		Chrysotile	12 m	12 m	Type 1 (ACM)	Lead Containing Surfaces
		Drywall Debris	Drywall Joint Compound	Grey	Non-Friable	1.0	Chrysotile	6 m^2	6 m^2	Type 2 (ACM)	Observed Debris in the Crawl Space
		Cast iron pipe	Caulking	White	Non-Friable	Suspected	-	1	None	None	
	Exterior	Fixtures	Caulking	Black	Non-Friable	2.35	Chrysotile	3 m	None	Type 1 (ACM)	Lead Containing Surfaces
		Roof	Roofing materials	-	Non-Friable	Suspected	-	-	None	None	Covered by tin roof
		Wall	Tar Paper	Black	Non-Friable	Suspected	-	-	None	None	Covered by wood cladding
Duplex Dwelling	Main	Walls & Ceiling	Drywall Joint Compound	White and Grey	Non-Friable	1.0	Chrysotile	500 m^2	None	Type 2 (ACM)	Lead Containing Surfaces
		Floor	Vinyl Floor Tile	White with Brown Streaks	Non-Friable	0.74 and 0.75	Chrysotile	114 m^2	None	None	
		Floor	Vinyl Floor Tile	Green With White Streaks	Non-Friable	2.22	Chrysotile	56 m^2	None	None	
		Floor	Mastic	Black	Non-Friable	0.60 and 2.45	Chrysotile	170 m^2	None	None	
	Exterior	Roof	Roofing materials	-	Non-Friable	Suspected	-	-	None	None	Covered by tin roof
Old Fog Alarm Building	Exterior	Roof	Shingles	Red and Black	Non-Friable	0.73	Chrysotile	250 m^2	250 m^2	Type 1 (ACM)	
		Debris	Shingles	Red and Black	Non-Friable	Suspected	-	10 m^2	10 m^2	Type 1 (ACM)	Various locations surrouding building
New Fog Alarm Building	Main	Walls & Ceiling	Transite Wallboard	Grey	Non-Friable	20.0	Chrysotile	104 m^2	None	Type 1 (ACM)	
	Exterior	Walls & Roof	Transite Corrugated Cladding	Grey	Non-Friable	20.0	Chrysotile	72 m^2	None	Type 1 (ACM)	
		Walls	Caulking	Grey	Non-Friable	0.52	Chrysotile	10 m	None	None	
New Diesel Generation	Main	Walls & Ceiling	Transite Wallboard	Grey	Non-Friable	20.0	Chrysotile	72 m^2	None	Type 1 (ACM)	
	Exterior	Walls & Roof	Transite Corrugated Cladding	Grey	Non-Friable	20.0	Chrysotile	72 m^2	None	None	
		Walls	Caulking	Grey	Non-Friable	0.52	Chrysotile	20 m	None	None	
Old Dwelling	Main	Floor	Vinyl Floor Tile	Grey with White and Blue Specks	Non-Friable	2.3	Chrysotile	25 m^2	None	None	
		Walls and Ceiling	Drywall Joint Compound	Grey	Non-Friable	1.0	Chrysotile	140 m^2	None	Type 2 (ACM)	Lead Containing Surfaces

Table 3
Summary of Pain Chip Samples Analyzed for Lead

Sample I.D.	Building	Sample Location	Paint Description	Lead (ppm)
027105-MD-LP-01	**Main Dwelling**	**Second Bedroom**	**Light Blue**	**93**
027105-MD-LP-02		**Stairwell**	**Light Green**	**194**
027105-MD-LP-03		Living Room	Beige	9
027105-MD-LP-03-DUP		Living Room	Duplicate of LP-03	10
027105-MD-LP-06		**Mudroom**	**Sky blue**	**174**
027105-MD-LP-07		**Exterior**	**White**	**94,300**
027105-MD-LP-08		**Exterior**	**Red**	**25,500**
027105-MD-LP-09		**North Bedroom**	**Dark Blue on Light Blue**	**380**
027105-DD-LP-01	**Duplex Building**	**Basement**	**Grey**	**1,030**
027105-DD-LP-02		Basement	White	<20
027105-DD-LP-03		**Exterior**	**White**	**1,360**
027105-DD-LP-04		**Exterior**	**Red**	**8,150**
027105-DD-LP-05		Stairwell	Beige	24
027105-WS-LP-01	**Old Fog Alarm Building**	**Machinery Room**	**Grey**	**116,000**
027105-WS-LP-01-DUP		**Machinery Room**	**Duplicate of LP-01**	**110,000**
027105-WS-LP-03		**Tank**	**Metallic Grey**	**80,200**
027105-WS-LP-04		**Entrance Room**	**Grey**	**1,480**
027105-WS-LP-05		**Machinery Room**	**White**	**133,000**
027105-WS-LP-06		**Exterior**	**White**	**159,000**
027105-WS-LP-07		**Exterior**	**Red**	**217,000**
027105-S3-LP-01	**Former Oil House**	**Exterior**	**White**	**216,000**
027105-S3-LP-02		**Exterior**	**Red**	**31,800**
027105-S3-LP-02- DUP		**Exterior**	**Duplicate of LP-02**	**26,400**
027105-LH-LP-01	**Lighthouse**	**Exterior - Top Balcony**	**Red**	**19,100**
027105-LH-LP-02		**Interior-Second level**	**White**	**206,000**
027105-LH-LP-03		**Exterior**	**White**	**19,200**
027105-LH-LP-04		**Third level**	**White on Red**	**253,000**
027105-LH-LP-05		**Floors and Stairs**	**Grey**	**184,000**
027105-OH-LP-01	**Old Dwelling**	**Exterior**	**White**	**42,400**
027105-OH-LP-02		**Exterior**	**Red**	**101,000**
027105-OH-LP-03		**Main level**	**White**	**189,000**
027105-OH-LP-04		**Main level**	**Light Grey on Light Green**	**552**
027105-OUTH-LP-1	**Outhouse (near Old Dwelling)**	**Interior**	**White on Grey**	**259,000**
021705-OUTH-LP-2		**Exterior**	**White Paint**	**163,000**
021705-HP-LP-01	**Exterior Structure**	**Helipad**	**White**	**3,070**
021705-Diesel-LP-01	**Exterior Structure**	**Diesel Dyke**	**White**	**472**
021705-T-LP-01	**Exterior Structure**	**Transformer**	**Forest Green**	**10,400**

Notes:

□) **Bold** items exceed the 90 ppm limit for lead, as per Hazardous Products Act's *Surface Coating Materials Regulations SOR/2005-109*, as amended.

2) Samples 02□□05□MD□LP□0□□02□□05□MD□LP□05□02□□05□□ S□LP□02 □ere omitted in the anal□sis intentionall□ due to additional duplicate samples collected.

Table 4
Lead Based Material
Required for Abatement

Building	Floor	Colour	Total Area (m^2)	Quantity In Poor Condition (m^2)	Required Minimum Abatement Level	Comments
Main Dwelling	Basement	White	100	30	Type 1 (Lead)	Concrete Foundation
		Grey	10	1	Type 1 (Lead)	Wood Stairs
		Debris	20	20	Type 1 (Lead)	Concrete Floor
	Main	White	160	0	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containing Drywall
		Dark Blue on Light Blue	60	0	Type 1 (ACM) on painted caulking and Type 1 (Lead) all painted surfaces	40 m^2 of Particle Board / Wood Doors / Asbestos Containing Drywall
		Sky Blue	40	3	Type 2 (ACM) and Type 1 (Lead)	Mudroom / Bedroom - Asbestos Containing Drywall
		Light Blue	90	0	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containig Drywall
		Light Green	20	6	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containig Drywall - Stairwell
		Debris	5	5	Type 1 (Lead)	Mudroom
	Exterior	White	200	40	Type 1 (ACM) on painted caulking and Type 1 (Lead) all painted surfaces	Wood Cladding / Windows / Soffits / Eavetroughs / Concrete Foundation / Type 1 asbestos precautionary measures for basement windows caulking and other black caulking application
		Red	20	20	Type 1 (Lead)	Fascia / Window Trim / Door
		Grey	10	10	Type 1 (Lead)	Front stairs
		Debris	200	200	Type 1 (Lead)	Grassed Area / Sidewalks
Duplex Dwelling	Basement	Grey	10	2	Type 1 (Lead)	Stairs
		Debris	4	4	Type 1 (Lead)	Floor
	Main	White	270	1	Type 2 (ACM) and Type 1 (Lead)	Asbesto Containing Drywall
		Sky Blue	120	0	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containing Drywall
		Light Blue	120	0	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containing Drywall
	Exterior	White	200	40	Type 1 (Lead)	Wood Clad Siding / Windows / Soffits / Eavetroughs / Foundation
		Red	20	6	Type 1 (Lead)	Fascia / Window Trim / Door Trim/eave troughs
		Grey	15	0	Type 1 (Lead)	Stairs
		Debris	200	200	Type 1 (Lead)	Cobble stones / Grassed Area / Sidewalks
Old Fog Alarm Building	Main	White	400	200	Type 1 (Lead) and Level II Mould Precausionary Measures on lead based material	Walls and Ceilings / Workshop area ceiling is approx. 4.5 m / Heavily Water Damaged Materials Observed on Ceilings / < 10 m^2 of mould observed / Possible mould in concealed areas / Approximately 340 m^2 Total Area of Particle Board with Lead Painted Surfaces having the colour White, Grey and Light Green
		Mettalic Grey	28	0	Type 1 (Lead)	Old Compressed air Tank Located In Machinery Room
		Grey	380	175	Type 1 (Lead)	Walls / Possible water damaged materials / Particle Board found to be painted Grey
		Debris	100	100	Type 1 (Lead)	Throughout the First Floor
	Second and Attic	White	130	70	Type 1 (Lead)	Walls, Ceiling & Attic / Particle Board Found to be Painted White
		Grey	5	0	Type 1 (Lead)	Particle Board Found to be Painted Grey
		Light Green	180	30	Type 1 (Lead) and Level II Mould Precausionary Measures on lead based material	Walls and Ceiling / Water Damaged Material / Suspected Mould Observed / Particle Board Found to be Painted Light Green
		Debris	40	40	Type 1 (Lead)	Located throughout Second Floor and Attic
	Exterior	White	360	20	Type 1 (Lead)	Wood Cladding / Soffits / Windows / Roof Vents
		Grey	6	0	Type 1 (Lead)	Foundation
		Red	32	10	Type 1 (Lead)	Fascia / Trim / Roof Vents / Eavestrough
		Debris	220	220	Type 1 (Lead)	Grassed Area / Sidewalks / Bedrock (Debris and Spilled Paint) / Cobblestone
New Fog Alarm Building	Main	White	40	0	Type 1 (Lead)	Metal Doors / Wood
		Grey	15	1	Type 1 (Lead)	Concrete Floor
		Debris	1	1	Type 1 (Lead)	Concrete Floor
	Exterior	White	6	2	Type 1 (Lead)	Metal Door / Trim
New Diesel Generator Building	Main	White	5	0	Type 1 (Lead)	Metal Doors
		Grey	30	2	Type 1 (Lead)	Concrete Floor / Wood
		Debris	1	1	Type 1 (Lead)	Concrete Floor
	Exterior	White	6	2	Type 1 (Lead)	Metal Door
Former Oil House	Exterior	White	70	70	Type 1 (Lead)	Wood Cladding / Door / Vent
		Red	8	8	Type 1 (Lead)	Trim / Fascia
		Debris	65	65	Type 1 (Lead)	Grassed Area / Cobblestone
Lighthouse	Main	White	160	10	Type 1 (Lead)	Plywood Walls and Ceiling / Visible Water Damaged Materials / Suspected Mould Growth / Possible Concealed Mould Conditions
		Grey	60	30	Type 1 (Lead)	Wood Floor / Wood Stairs
		Debris	20	20	Type 1 (Lead)	Wood Floor
	Second	White	60	20	Type 1 (Lead)	Wood Frame / Visible Water Damages Materials
		Grey	30	10	Type 1 (Lead)	Wood Floor / Stairs
		Debris	10	10	Type 1 (Lead)	Wood Floor

Table 4
Lead Based Material
Required for Abatement

Building	Floor	Colour	Total Area (m^2)	Quantity In Poor Condition (m^2)	Required Minimum Abatement Level	Comments
Lighthouse (cont'd)	Third / Lantern	White	30	20	Type 1 (Lead)	Metal Ceiling / Wood Walls
		Grey	4	1	Type 1 (Lead)	Metal Floor
		Red	10	4	Type 1 (Lead)	Door to Balcony / Metal Light Stand
		Debris	4	4	Type 1 (Lead)	Throughout Floor Area
	Exterior	White	260	260	Type 1 (Lead)	Wood Cladding (shingles) / Window
		Grey	10	10	Type 1 (Lead)	Stairs / Door Area
		Red	60	20	Type 1 (Lead)	Metal Balcony / Lantern / Roof
		Debris	110	110	Type 1 (Lead)	Bedrock / Gravel
Old Dwelling	Basement	Not Accessible at the time of the survey				
	Main	White	110	0	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containing Drywall
		Grey	30	15	Type 1 (Lead)	Stairs / Door
		Light Blue on Light Green	80	0	Type 2 (ACM) and Type 1 (Lead)	Asbestos Containing Drywall
	Second	White	80	0	Type 2 (ACM) on Drywall and Type 1 (Lead) on all painted surfaces	Trim / Asbestos Containing Drywall Ceiling / Wood Ceiling / Window
		Grey	110	5	Type 1 (Lead)	Wood Floor / Wood Walls
		Salmon	80	0	Type 2 (ACM) on Drywall and Type 1 (Lead) on all surfaces	Asbestos containing drywall / wood walls
	Exterior	White	250	14	Type 1 (Lead)	Wood Cladding / Soffits / Windows / Door
		Red	20	4	Type 1 (Lead)	Trim / Fascia / Vent / Door
		Grey	10	10	Type 1 (Lead)	Deck found under newer deck
		Debris	140	140	Type 1 (Lead)	Grassed Area / Gravel Sand
Outhouse (CS1)	Interior	Grey	18	18	Type 1 (Lead)	Deteriorated Wood
		Debris	2	2	Type 1 (Lead)	Through Interior of Outhouse
	Exterior	White	15	15	Type 1 (Lead)	Deteriorated Wood
		Debris	20	20	Type 1 (Lead)	Cobble Stones and Vegetated Area
Outhouse (CS3)	Interior	Grey	18	0	Type 1 (Lead)	Plywood
	Exterior	White	15	1	Type 1 (Lead)	Plywood
Diesel Dyke	Exterior	White	45	0	Type 1 (Lead)	Concrete
Helipad (Both)	Exterior	White	10	0	Type 1 (Lead)	Concrete
		Red	10	0	Type 1 (Lead)	Concrete
Retaining Wall (near Main Dwelling)	Exterior	White	5	5	Type 1 (Lead)	Concrete
Dock Hoist (Both)	Exterior	Red	20	2	Type 1 (Lead)	Metal
Transformer	Exterior	Forest Green	10	6	Type 1 (Lead)	Metal
Flag Pole	Exterior	White	1	0	Type 1 (Lead)	Metal
		Red	4	0	Type 1 (Lead)	Metal and Concrete
		Debris	4	4	Type 1 (Lead)	Grassed Area
Tank Cradle (Both)	Exterior	White	1	0	Type 1 (Lead)	Small amounds of spilled paint
		Red	1	0	Type 1 (Lead)	Small amounds of spilled paint
Boat Winch	Exterior	Red	1	1	Type 1 (Lead)	Metal
		Grey	1	1	Type 1 (Lead)	Metal

Table 5
Summary of Mould and Water Impacted Materials Quantities and Conditions

Building	Floor	Recommendations	Comments
Old Fog Alarm Building	Main & Second	Level II (Mould)	Roof observed to be leaking at the time of site visit
			Water impacted materials throughout buidling
			< 10 m^2 of observed mould growth throughout building on wood ceiling, walls and contents
			Concealed mould may be present
Lighthouse	Main, Second and Third	Level II (Mould)	Approx 10 m^2 of water-impacted materials throughout buidling
			Approximately 2 m^2 of mould growth on plywood observed on main floor
			Concealed mould may be present

Table 6
Summary of Other Hazardous Materials

Building	Floor	Material	Estimated Quantity	Suspected Designated Substances	Recommendations	Comments / Abatement required
Main Dwelling	Basement (Crawl Space)	Paint Cans	4	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Suspected to contain lead; Not in use / abatement required
		Painted Wood	2	Lead	T□pe □(Lead) Precautiona□Measure and Disposed of in □ccordance □ith O.Reg. □□□□ as □mended□*General Waste Management.*	Scattered debris in crawl space, possible hiden materials / abatement required
		Painted Metal	2	Lead		
Duplex Dwelling	Basement	T12 Light Ballast	1	PCB	Disposal as per O. Reg. □□□□as amended and Hendeling as per Transportation of Dangerous Goods □ct□	Appeared in-use / abatement not required
		Light Tubes	3	Mercury	Remove for rec□cling or disposal as per O.Reg □□0□0□0□Designated Substances□ as amended□and O. Reg. □□□□as amended□ General □ aste Management	Appeared in-use / abatement not required
		Spiral Light Bulbs	4	Mercury		Observed in -use / abatement not required
		Freezer	2	Halocarbons	The handling□transport and disposal of ODSs are governed b□Reg. □□□□0□*Ozone Depleting Substances and Other Halocarbons* □and Federal Halocarbon Regulation 200□.	One appeared not in use; convered in debris / abatement not required
		Refrigerator	3	Halocarbons		Unknown as to whether in use / abatement not required
		Paint Cans	2	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Unknown as to whether in use / abatement not required
	Main	Thermostat	2	Mercury	Remove for rec□cling or disposal as per O.Reg □□0□0□0□Designated Substances□ as amended□and O. Reg. □□□□as amended□ General □ aste Management	Unknown as to whether in use / abatement not required
		Spiral Light Bulbs	2	Mercury		Observed in-use / abatement not required
Old Fog Alarm / Generator	Main	Paint Cans & Used Paint Supplies	25	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Unknown as to whether in use; Some observed to be waste; various locations throughout building / abatement required
		Refrigerator	1	Halocarbons	The handling□transport and disposal of ODSs are governed b□Reg. □□□□0□*Ozone Depleting Substances and Other Halocarbons* □and Federal Halocarbon Regulation 200□.	Not in use / abatement not required
		Wet lead cell battery	5	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Some unknown as to whether in use; some appeared in use / abatement required
New Diesel Generator	Main	Wet lead cell battery	1	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Appeared in-use / abatement required
Former Oil House	Main	Solder on Copper Pipe	1	Lead	Copper piping solder can be cut a small distance (e.g. 50 mm) from the □oints to avoid direct disturbance of the lead material□	Several hot water tanks observed to be not in use; One observed to have solder / abatement not required
		Paint Cans	12	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Not in use / abatement required
		Sulfuric Acid	20 Liters	Other Hazardous	Disposal as per O. Reg. □□□□as amended and Hendeling as per Transportation of Dangerous Goods □ct□	Container found in poor condition /abatement required
		Refrigerator	2	Halocarbons	The handling□transport and disposal of ODSs are governed b□Reg. □□□□0□*Ozone Depleting Substances and Other Halocarbons* □and Federal Halocarbon Regulation 200□.	Appeared to be not in use / abatement not required
	Exterior	Solder on Copper Pipe	2	Lead	Copper piping solder can be cut a small distance (e.g. 50 mm) from the □oints to avoid direct disturbance of the lead material□	Several lenghts of stored copper pipes / abatement required
Lighthouse	Second	Wet lead cell battery	1	Lead	Lead is to be disposed of in accordance □ith O. Reg. □□□□as amended□*General Waste Management*	Appeard in-use / abatement required
Old Dwelling	Main	Refrigerator	1	Halocarbons	The handling□transport and disposal of ODSs are governed b□Reg. □□□□0□*Ozone Depleting Substances and Other Halocarbons* □and Federal Halocarbon Regulation 200□.	Unknown as to whether in use / abatement not required
Pad-Mounted Transformer	Exterior	Oil	1	PCBs	Disposal as per O. Reg. □□□□as amended and Hendeling as per Transportation of Dangerous Goods □ct□	Unknown as to whether in use / abatement not required
Tank Cradle	Exterior	Refrigerator	1	Halocarbons	The handling□transport and disposal of ODSs are governed b□Reg. □□□□0□O□one Depleting Substances and Other Halocarbons□and Federal Halocarbon Regulation 200□.	Appeared Not in Use / abatement not required

Photographs

Photograph 1: Exterior view of Main Dwelling, facing northwest.

Photograph 2: View of the Main Dwelling's kitchen Beige floor tiles found to contain asbestos.

Photograph 3: View of paint debris along the perimeter of the Main Dwelling Building

Photograph 4: View of the Main Dwelling's basement foundation walls, painted white and found to be in poor condition.

Photograph 5: Exterior view of Duplex Dwelling, facing northwest.

Photograph 6: View of two vinyl floor types, white with brown streaks and green with white streaks, in the Duplex Dwelling found to contain asbestos.

Photograph 7: View of Old Fog Alarm / Generator Building, facing southeast.

Photograph 8: View of paint on ceiling of Old Fog Alarm / Generator Building in the Machinery Room found to be in poor condition.

Photograph 9: View of poor condition paint on ceiling with visible signs of water damage in Old Fog Alarm / Generator Building.

Photograph 10: View of poor condition paint on ceiling of second level with visible signs of water damage in Old Fog Alarm / Generator Building.

Photograph 11: View of paint debris on and suspect asbestos containing roof single debris along the perimeter of the Old Fog Alarm / Generator Building.

Photograph 12: View of paint debris on south side of the Old Fog Alarm / Generator Building.

Photograph 13: View of New Fog Alarm / Electronics building, facing southeast.

Photograph 14: View of Former Oil House, found to have exterior paint in poor condition.

Photograph 15: View of Ground-Mounted Transformer, having paint in poor condition and suspect PCB contain transformer oil.

Photograph 16: View of outhouse on Site 1, having poor condition paint and extensive signs of water damage.

Photograph 17: View of Lighthouse, found to have exterior paint in poor condition.

Photograph 18: View of debris along the base of the perimeter of the lighthouse.

Photograph 19: View of interior of Lighthouse upper level lantern, found to have paint in poor condition, paint debris on floor and signs of water damage.

Photograph 20: View of interior of Lighthouse upper level lantern ceiling, found to have paint in poor condition.

Photograph 21: Exterior view of Old Dwelling Building, facing north.

Photograph 22: View of asbestos-containing vinyl floor tiles in the kitchen of the Old Dwelling Building

Laboratory Certificates of Analysis

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Certificate of Analysis

DST Consulting Engineers Inc. (Sudbury)
1351 Kelly Lake Road, Unit 4
Sudbury, ON P3E 5P5
Attn: Micheline Gervais

Client PO:
Project: GV TB 027105 | Report Date: 14-Sep-2016
Custody: | Order Date: 13-Sep-2016

Order #: 1638075

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
□□□□0□5□0□	02□□05□OH□LP□0□
□□□□0□5□02	02□□05□OH□LP□02
□□□□0□5□0□	02□□05□OH□LP□0□
□□□□0□5□0□	02□□05□MD□LP□0□
□□□□0□5□05	02□□05□MD□LP□0□
□□□□0□5□0□	02□□05□MD□LP□0□
□□□□0□5□0□	02□□05□MD□LP□0□
□□□□0□5□0□	02□□05□MD□LP□0□□D□P
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□□□□0□5□□□	02□□05□DD□LP□0□
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□□□□0□5□□□	02□□05□T□LP□0□
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□□□□0□5□20	02□□05□S□□LP□02
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□□□□0□5□22	02□□05□□ S□LP□0□
□□□□0□5□2□	02□□05□□ S□LP□0□□D□P
□□□□0□5□2□	02□□05□□ S□LP□0□
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□pproved B□□ Mark Foto

Mar□Foto□M.Sc.
Lab Supervisor

Certificate of Analysis

Client: DST Consulting Engineers Inc. (Sudbury)

Client PO:

Report Date□□□Sep□20□□

Order Date□□□Sep□20□□

Project Description: GV TB 027105

Analysis Summary Table

□nal□sis	Method Reference□Description	□□traction Date	□nal□sis Date
Metals□ICP□MS	□P□ □020 □Digestion□ICP□MS	□□□Sep□□□	□□□Sep□□□

Sample Data Revisions

□one

Work Order Revisions/Comments:

□one

Other Report Notes:

n□a□not applicable
□D□□ot Detected
MDL□Method Detection Limit
Source Result□Data used as source for matri□and duplicate samples
□ R□C□Percent recover□.
RPD□Relative percent difference.

PARACEL LABORATORIES LTD.

Order #: 1638075

Certificate of Analysis

Client: DST Consulting Engineers Inc. (Sudbury)

Client PO:

Report Date□□□Sep□20□□

Order Date□□□Sep□20□□

Project Description: GV TB 027105

Sample Results

Lead				Matrix: Paint Sample Date: 29-Aug-16
Paracel ID	**Client ID**	**Units**	**MDL**	**Result**
□□□□0□5□0□	02□□05□OH□LP□0□	ug□g	5	□2□00
□□□□0□5□02	02□□05□OH□LP□02	ug□g	5	□0□000
□□□□0□5□0□	02□□05□OH□LP□0□	ug□g	5	□□□000
□□□□0□5□0□	02□□05□MD□LP□0□	ug□g	5	□□
□□□□0□5□05	02□□05□MD□LP□0□	ug□g	5	□
□□□□0□5□0□	02□□05□MD□LP□0□	ug□g	5	□□□
□□□□0□5□0□	02□□05□MD□LP□0□	ug□g	5	25500
□□□□0□5□0□	02□□05□MD□LP□0□□D□P	ug□g	5	□0
□□□□0□5□□5	02□□05□O□TH□LP□□	ug□g	5	25□000
□□□□0□5□□□	02□□05□O□TH□LP□2	ug□g	5	□□□000
□□□□0□5□□□	02□□05□HP□LP□0□	ug□g	5	□0□0
□□□□0□5□□□	02□□05□T□LP□0□	ug□g	5	□0□00
□□□□0□5□□□	02□□05□S□□LP□0□	ug□g	5	2□□000
□□□□0□5□20	02□□05□S□□LP□02	ug□g	5	□□□00
□□□□0□5□2□	02□□05□S□□LP□02□D□P	ug□g	5	2□□00
□□□□0□5□22	02□□05□□ S□LP□0□	ug□g	5	□□□000
□□□□0□5□2□	02□□05□□ S□LP□0□□D□P	ug□g	5	□□0000
□□□□0□5□2□	02□□05□□ S□LP□0□	ug□g	5	□0200
□□□□0□5□25	02□□05□□ S□LP□0□	ug□g	5	□□□0
□□□□0□5□2□	02□□05□□ S□LP□05	ug□g	5	□□□000
□□□□0□5□2□	02□□05□□ S□LP□0□	ug□g	5	□5□000
□□□□0□5□2□	02□□05□□ S□LP□0□	ug□g	5	2□□000

Lead				Matrix: Paint Sample Date: 30-Aug-16
Paracel ID	**Client ID**	**Units**	**MDL**	**Result**
□□□□0□5□0□	02□□05□LH□LP□0□	ug□g	5	□□□00
□□□□0□5□□0	02□□05□LH□LP□02	ug□g	5	20□000
□□□□0□5□□□	02□□05□LH□LP□0□	ug□g	5	□□200
□□□□0□5□□2	02□□05□LH□LP□0□	ug□g	5	25□000
□□□□0□5□□□	02□□05□LH□LP□05	ug□g	5	□□□000
□□□□0□5□□□	02□□05□DD□LP□0□	ug□g	5	□□50

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**22.1**	**5**	**ug/g**						
Matrix Duplicate									
Lead	**ND**	**5**	**ug/g**	**ND**			**0.0**	**50**	
Matrix Spike									
Lead	[illegible]		ug[illegible]L	[illegible]D	[illegible]	[illegible]0-[illegible]0			

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300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com

Chain of Custody
(Lab Use Only)

Client Name: DST Consulting Engineers

Contact Name: Micheline Gervais

Address: 885 Regent St. Suite 3-1B Sudbury ON P3E 5M4

Telephone: 705-523-6680 ext.232

Project Reference: GV-TB-027105

Quote #

PO #

Email Address: mgervais@dstgroup.com

Turnaround Time:

☐ 1 Day ☒ 3 Day

☐ 2 Day ☒ Regular

Date Required:

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ______ ☐ Other: ______

Matrix Type: **S** (Soil/Sed.) **GW** (Ground Water) **SW** (Surface Water) **SS** (Storm/Sanitary Sewer) **P** (Paint) **A** (Air) **O** (Other)

Required Analyses

Paracel Order Number: 1638075

#	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	lead in Paint						
1	027105-OH-LP-01	P	-	-	Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
2	027105-OH-LP-02	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
3	027105-OH-LP-03	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
4	027105-MD-LP-01	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
5	027105-MD-LP-03	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
6	027105-MD-LP-06	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
7	027105-MD-LP-08	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
8	027105-MD-LP-03-DUP	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
9	027105-LH-LP-01	P	-	-	Aug 30/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
10	027105-LH-LP-02	P	-	-	" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐

Comments:
Samples '027105-MD-LP-02; 04; 05; 07' left out intenionally.

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville

Relinquished By (Print): Jennifer Rainville

Date/Time: Sept. 10/16 11:00AM

Received by Driver/Depot:

Date/Time:

Temperature: ____ °C

Received at Lab: Rachel Subject

Date/Time: Sep 13/16 8:49

Temperature: ____ °C

Verified By: Rachel Subject

Date/Time: Sep 13/16 9:31

pH Verified [x] By: N/A

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e: paracel@paracellabs.com

Chain of Custody (Lab Use Only)

Client Name: DST Consulting Engineers	Project Reference: GV-TB-027105
Contact Name: Micheline Gervais	Quote #
Address: 885 Regent St. Suite 3-1B. Sudbury, ON P3E 5M4.	PO #
Telephone: 705-523-6680 - ext. 232.	Email Address: mgervais@dstgroup.com

Turnaround Time: ☐ 1 Day ☒ 3 Day ☐ 2 Day ☒ Regular Date Required:

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ______ ☐ Other: ______

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1638075

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Lead in Paint						
1	027105-LH-LP-03	P			Aug 30/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
2	027105-LH-LP-04	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
3	027105-LH-LP-05	P			" "	PM.	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
4	027105-DD-LP-04	P			Aug 30/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
5	027105-OUTH-LP-1	P			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
6	027105-OUTH-LP-2	P.			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
7	027105-HP-LP-01	P			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
8	027105-T-LP-01	P			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
9	027105-S3-LP-01	P			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
10	027105-S3-LP-02	P			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐

Comments:

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received by Driver/Depot:	Received at Lab: Rachel Subject	Verified By: Rachel Subject
Relinquished By (Print): Jennifer Rainville	Date/Time:	Date/Time: Sep 13/16 8:49	Date/Time: Sep 13/16 9:31
Date/Time: Sept. 10/16 11:00AM	Temperature: ____ °C	Temperature: ____ °C	pH Verified [X] By: N/A

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Chain of Custody
(Lab Use Only)

Client Name: DST Consulting Engineers
Contact Name: Micheline Gervais
Address: 885 Regent St Suite 3-1B Sudbury, ON P3E 5M4
Telephone: 705-523-6680 ext. 232
Project Reference: GV-TB-027105
Quote #
PO #
Email Address: mgervais@dstgroup.com

Turnaround Time: ☐ 1 Day ☒ 3 Day ☐ 2 Day ☐ Regular
Date Required:

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ______ ☐ Other: ______

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Paracel Order Number: 1638075

Required Analyses

#	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Date	Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	lead in Paint						
1	027105-93-LP-02-DUP	P			Aug 29/16	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
2	027105-WS-LP-01	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
3	027105-WS-LP-01-DUP	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
4	027105-WS-LP-03	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
5	027105-WS-LP-04	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
6	027105-WS-LP-05	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
7	027105-WS-LP-06	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
8	027105-WS-LP-07	P			" "	PM	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐
9							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received by Driver/Depot:	Received at Lab: Rachel Subject	Verified By: Rachel Subject
Relinquished By (Print): Jennifer Rainville	Date/Time:	Date/Time: Sep 13/16 8:49	Date/Time: Sep 13/16 9:31
Date/Time: Sept. 10/16 11:00AM	Temperature: ___ °C	Temperature: ___ °C	pH Verified [X] By: N/A

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Certificate of Analysis

DST Consulting Engineers Inc. (Sudbury)

1351 Kelly Lake Road, Unit 4
Sudbury, ON P3E 5P5
Attn: Micheline Gervais

Client PO:
Project: GV TB 027105
Custody:

Report Date: 19-Sep-2016
Order Date: 13-Sep-2016

Order #: 1638285

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1638285-01	027105-MD-01A (FT)
1638285-02	027105-MD-01B (FT)
1638285-03	027105-MD-01C (FT)
1638285-04	027105-MD-01A (Mastic)
1638285-05	027105-MD-01B (Mastic)
1638285-06	027105-MD-01C (Mastic)
1638285-07	027105-MD-02-A
1638285-08	027105-MD-02-B
1638285-09	027105-MD-02-C
1638285-10	027105-MD-03-A
1638285-11	027105-MD-03-B
1638285-12	027105-MD-03-C
1638285-13	027105-MD-03-DUP
1638285-14	027105-MD-04-A (Compound)
1638285-15	027105-MD-04-B (Compound)
1638285-16	027105-MD-04-C (Compound)
1638285-17	027105-MD-04-E (Compound)
1638285-18	027105-MD-04-D (Compound)
1638285-19	027105-MD-06-A
1638285-20	027105-MD-06-B
1638285-21	027105-MD-06-C
1638285-22	027105-MD-07-A
1638285-23	027105-MD-07-B
1638285-24	027105-MD-07-C
1638285-25	027105-MD-09-A
1638285-26	027105-MD-09-B

Approved By: E Diaz

Emma Diaz
Senior Analyst

1638285-27	027105-MD-09-C
1638285-28	027105-MD-07-DUP
1638285-29	027105-DD-01-A (Grey DJC)
1638285-30	027105-DD-01-B (Grey DJC)
1638285-31	027105-DD-01-C (Grey DJC)
1638285-32	027105-DD-01-E (Grey DJC)
1638285-33	027105-DD-01-D (Grey DJC)
1638285-34	027105-DD-01-C (White DJC)
1638285-35	027105-DD-01-D (White DJC)
1638285-36	027105-DD-01-DUP (White DJC)
1638285-37	027105-DD-02-A (FT)
1638285-38	027105-DD-02-B (FT)
1638285-39	027105-DD-02-C (FT)
1638285-40	027105-DD-02-A (Mastic)
1638285-41	027105-DD-02-B (Mastic)
1638285-42	027105-DD-02-C (Mastic)
1638285-43	027105-DD-03-A
1638285-44	027105-DD-03-B
1638285-45	027105-DD-03-C
1638285-46	027105-DD-04-A (Mastic)
1638285-47	027105-DD-04-B (Mastic)
1638285-48	027105-DD-04-C (Mastic)
1638285-49	027105-DD-03-DUP
1638285-50	027105-DD-05-A (VFT)
1638285-51	027105-DD-05-B (VFT)
1638285-52	027105-DD-05-C (VFT)
1638285-53	027105-DD-05-A (Mastic)
1638285-54	027105-DD-05-B (Mastic)
1638285-55	027105-DD-05-C (Mastic)
1638285-56	027105-DD-07-A
1638285-57	027105-DD-07-B
1638285-58	027105-DD-07-C
1638285-59	027105-DD-09-A
1638285-60	027105-DD-09-B
1638285-61	027105-DD-09-C
1638285-62	027105-DD-09-DUP (FT)
1638285-63	027105-DD-09-DUP (Mastic)
1638285-64	027105-DD-011-A (FT)
1638285-65	027105-DD-011-B (FT)
1638285-66	027105-DD-011-C (FT)
1638285-67	027105-DD-011-A (Mastic)
1638285-68	027105-DD-011-B (Mastic)
1638285-69	027105-DD-011-C (Mastic)
1638285-70	027105-OH-01-A

1638285-71	027105-OH-01-B
1638285-72	027105-OH-01-C
1638285-73	027105-OH-02-A (FT)
1638285-74	027105-OH-02-B (FT)
1638285-75	027105-OH-02-C (FT)
1638285-76	027105-OH-02-DUP (FT)
1638285-77	027105-OH-02-A (Mastic)
1638285-78	027105-OH-02-B (Mastic)
1638285-79	027105-OH-02-C (Mastic)
1638285-80	027105-OH-02-DUP (Mastic)
1638285-81	027105-OH-04-A (Caulking)
1638285-82	027105-OH-04-B (Caulking)
1638285-83	027105-OH-04-C (Caulking)
1638285-84	027105-OH-05-A (Compound)
1638285-85	027105-OH-05-B (Compound)
1638285-86	027105-OH-05-C (Compound)
1638285-87	027105-LH-01-DUP
1638285-88	027105-LH-03-A (Light Grey)
1638285-89	027105-LH-03-B (Light Grey)
1638285-90	027105-LH-03-C (Light Grey)
1638285-91	027105-LH-03-A (Dark Grey)
1638285-92	027105-LH-03-B (Dark Grey)
1638285-93	027105-LH-03-C (Dark Grey)
1638285-94	027105-LH-05-A
1638285-95	027105-LH-05-B
1638285-96	027105-LH-05-C
1638285-97	027105-LH-06-A
1638285-98	027105-LH-06-B
1638285-99	027105-LH-06-C
1638285-AA	027105-LH-03-DUP (Light Grey)
1638285-AB	027105-LH-03-DUP (Dark Grey)
1638285-AC	027105-WS-01-A (Caulking)
1638285-AD	027105-WS-01-B (Caulking)
1638285-AE	027105-WS-01-C (Caulking)
1638285-AF	027105-WS-04-A (Vinyl)
1638285-AG	027105-WS-04-B (Vinyl)
1638285-AH	027105-WS-04-C (Vinyl)
1638285-AI	027105-WS-05-A
1638285-AJ	027105-WS-05-B
1638285-AK	027105-WS-05-C
1638285-AL	027105-WS-06-A
1638285-AM	027105-WS-06-B
1638285-AN	027105-WS-06-C
1638285-AO	027105-WS-01-DUP

1638285-AP	027105-S1-01-A
1638285-AQ	027105-S1-01-B
1638285-AR	027105-S1-01-C
1638285-AS	027105-S1-02-A
1638285-AT	027105-S1-02-B
1638285-AU	027105-S1-02-C
1638285-AV	027105-S1-03-A
1638285-AW	027105-S1-03-B
1638285-AX	027105-S1-03-C
1638285-AY	027105-S2-01-A
1638285-AZ	027105-S2-01-B
1638285-BA	027105-S2-01-C
1638285-BB	027105-S2-01-DUP
1638285-BC	027105-S2-02-A
1638285-BD	027105-S2-02-B
1638285-BE	027105-S2-02-C (Transite)
1638285-BF	027105-S2-02-C (Caulking)
1638285-BG	027105-S2-03-A
1638285-BH	027105-S2-03-B
1638285-BI	027105-S2-03-C
1638285-BJ	027105-S2-03-DUP
1638285-BK	027105-S3-01-A
1638285-BL	027105-S3-01-B
1638285-BM	027105-S3-01-C
1638285-BN	027105-S3-02-A
1638285-BO	027105-S3-02-B
1638285-BP	027105-S3-02-C
1638285-BQ	027105-S3-02-DUP
1638285-BR	027105-LH-01-A
1638285-BS	027105-LH-01-B
1638285-BT	027105-LH-01-C

Order #: 1638285

Certificate of Analysis
Client: DST Consulting Engineers Inc. (Sudbury)
Client PO:

Report Date: 19-Sep-2016
Order Date: 13-Sep-2016
Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-01	2	29-Aug-16	sample homogenized	Grey	Floor Tile	No	Client ID: 027105-MD-01A (FT)	[AS-PRE]
							Non-Fibers	100
1638285-02	2	29-Aug-16	sample homogenized	Grey	Floor Tile	No	Client ID: 027105-MD-01B (FT)	[AS-PRE]
							Non-Fibers	100
1638285-03	2	29-Aug-16	sample homogenized	Grey	Floor Tile	No	Client ID: 027105-MD-01C (FT)	[AS-PRE]
							Non-Fibers	100
1638285-04	2	29-Aug-16	sample homogenized	Beige	Mastic	No	Client ID: 027105-MD-01A (Mastic)	[AS-PRE]
							Non-Fibers	100
1638285-05	2	29-Aug-16	sample homogenized	Beige	Mastic	No	Client ID: 027105-MD-01B (Mastic)	[AS-PRE]
							Non-Fibers	100
1638285-06	2	29-Aug-16	sample homogenized	Beige	Mastic	No	Client ID: 027105-MD-01C (Mastic)	[AS-PRE]
							Non-Fibers	100
1638285-07	2	29-Aug-16	sample homogenized	Grey	Floor Tile	**Yes**	Client ID: 027105-MD-02-A	[AS-PRE]
							Chrysotile	0.79
							Non-Fibers	95.25
							Other fibers	3.96
1638285-08	2	29-Aug-16					Client ID: 027105-MD-02-B	
							not analyzed	
1638285-09	2	29-Aug-16					Client ID: 027105-MD-02-C	
							not analyzed	
1638285-10	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-MD-03-A	[AS-PRE]
							Non-Fibers	100
1638285-11	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-MD-03-B	[AS-PRE]
							Non-Fibers	100
1638285-12	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-MD-03-C	[AS-PRE]
							Non-Fibers	100
1638285-13	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-MD-03-DUP	[AS-PRE]
							Non-Fibers	100
1638285-14	1	29-Aug-16	sample homogenized	Grey	Drywall Joint Compound	**Yes**	Client ID: 027105-MD-04-A (Compound)	
							Chrysotile	1
							Cellulose	1
							Non-Fibers	98
1638285-15	1	29-Aug-16					Client ID: 027105-MD-04-B (Compound)	
							not analyzed	

Certificate of Analysis
Client: DST Consulting Engineers Inc. (Sudbury)
Client PO:

Report Date: 19-Sep-2016
Order Date: 13-Sep-2016
Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-16	1	29-Aug-16					Client ID: 027105-MD-04-C (Compound)	
							not analyzed	
1638285-17	1	29-Aug-16					Client ID: 027105-MD-04-E (Compound)	
							not analyzed	
1638285-18	1	29-Aug-16					Client ID: 027105-MD-04-D (Compound)	
							not analyzed	
1638285-19	1	29-Aug-16	sample homogenized	Grey	Caulking	**Yes**	Client ID: 027105-MD-06-A	[AS-PRE]
							Chrysotile	0.89
							Non-Fibers	99.11
1638285-20	1	29-Aug-16					Client ID: 027105-MD-06-B	
							not analyzed	
1638285-21	1	29-Aug-16					Client ID: 027105-MD-06-C	
							not analyzed	
1638285-22	1	29-Aug-16	sample homogenized	Grey	Caulking	**Yes**	Client ID: 027105-MD-07-A	[AS-PRE]
							Chrysotile	0.91
							Non-Fibers	99.19
1638285-23	1	29-Aug-16					Client ID: 027105-MD-07-B	
							not analyzed	
1638285-24	1	29-Aug-16					Client ID: 027105-MD-07-C	
							not analyzed	
1638285-25	1	29-Aug-16	sample homogenized	Black	Caulking	**Yes**	Client ID: 027105-MD-09-A	[AS-PRE]
							Chrysotile	4.56
							Non-Fibers	95.44
1638285-26	1	29-Aug-16					Client ID: 027105-MD-09-B	
							not analyzed	
1638285-27	1	29-Aug-16					Client ID: 027105-MD-09-C	
							not analyzed	
1638285-28	1	29-Aug-16					Client ID: 027105-MD-07-DUP	
							not analyzed	
1638285-29	1	30-Aug-16	sample homogenized	Grey	Drywall Joint Compound	**Yes**	Client ID: 027105-DD-01-A (Grey DJC)	
							Chrysotile	1
							Cellulose	1
							Non-Fibers	98
1638285-30	1	30-Aug-16					Client ID: 027105-DD-01-B (Grey DJC)	
							not analyzed	

Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Sudbury)**

Client PO:

Report Date: 19-Sep-2016

Order Date: 13-Sep-2016

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-31	1	30-Aug-16					Client ID: 027105-DD-01-C (Grey DJC)	
							not analyzed	
1638285-32	1	30-Aug-16					Client ID: 027105-DD-01-E (Grey DJC)	
							not analyzed	
1638285-33	1	30-Aug-16					Client ID: 027105-DD-01-D (Grey DJC)	
							not analyzed	
1638285-34	1	30-Aug-16					Client ID: 027105-DD-01-C (White DJC)	
							not analyzed	
1638285-35	1	30-Aug-16	sample homogenized	White	Drywall Joint Compound	**Yes**	Client ID: 027105-DD-01-D (White DJC)	
							Chrysotile	1
							Cellulose	1
							Non-Fibers	98
1638285-36	1	30-Aug-16					Client ID: 027105-DD-01-DUP (White DJC)	
							not analyzed	
1638285-37	2	30-Aug-16	sample homogenized	White	Floor Tile	**Yes**	Client ID: 027105-DD-02-A (FT) [AS-PRE]	
							Chrysotile	0.75
							Non-Fibers	99.25
1638285-38	2	30-Aug-16					Client ID: 027105-DD-02-B (FT)	
							not analyzed	
1638285-39	2	30-Aug-16					Client ID: 027105-DD-02-C (FT)	
							not analyzed	
1638285-40	2	30-Aug-16	sample homogenized	Black	Mastic	**Yes**	Client ID: 027105-DD-02-A (Mastic) [AS-PRE]	
							Chrysotile	2.35
							Non-Fibers	97.65
1638285-41	2	30-Aug-16					Client ID: 027105-DD-02-B (Mastic)	
							not analyzed	
1638285-42	2	30-Aug-16					Client ID: 027105-DD-02-C (Mastic)	
							not analyzed	
1638285-43	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-DD-03-A [AS-PRE]	
							Non-Fibers	100
1638285-44	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-DD-03-B [AS-PRE]	
							Non-Fibers	100
1638285-45	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-DD-03-C [AS-PRE]	
							Non-Fibers	100

PARACEL
LABORATORIES LTD.

Order #: 1638285

Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Sudbury)**

Client PO:

Report Date: 19-Sep-2016

Order Date: 13-Sep-2016

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1638285-46	2	30-Aug-16	sample homogenized	Black	Mastic	**Yes**	Client ID: 027105-DD-04-A (Mastic)	[AS-PRE]
							Chrysotile	0.6
							Non-Fibers	99.4
1638285-47	2	30-Aug-16					Client ID: 027105-DD-04-B (Mastic)	
							not analyzed	
1638285-48	2	30-Aug-16					Client ID: 027105-DD-04-C (Mastic)	
							not analyzed	
1638285-49	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-DD-03-DUP	[AS-PRE]
							Non-Fibers	100
1638285-50	2	30-Aug-16	sample homogenized	White	Floor Tile	**Yes**	Client ID: 027105-DD-05-A (VFT)	[AS-PRE]
							Chrysotile	0.74
							Non-Fibers	99.26
1638285-51	2	30-Aug-16					Client ID: 027105-DD-05-B (VFT)	
							not analyzed	
1638285-52	2	30-Aug-16					Client ID: 027105-DD-05-C (VFT)	
							not analyzed	
1638285-53	2	30-Aug-16	sample homogenized	Black	Mastic	**Yes**	Client ID: 027105-DD-05-A (Mastic)	[AS-PRE]
							Chrysotile	2.22
							Non-Fibers	97.78
1638285-54	2	30-Aug-16					Client ID: 027105-DD-05-B (Mastic)	
							not analyzed	
1638285-55	2	30-Aug-16					Client ID: 027105-DD-05-C (Mastic)	
							not analyzed	
1638285-56	1	30-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-DD-07-A	[AS-PRE]
							MMVF	0.53
							Non-Fibers	99.47
1638285-57	1	30-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-DD-07-B	[AS-PRE]
							MMVF	<MDL
							Non-Fibers	100
1638285-58	1	30-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-DD-07-C	[AS-PRE]
							MMVF	<MDL
							Non-Fibers	100
1638285-59	2	30-Aug-16	sample homogenized	Green	Floor Tile	**Yes**	Client ID: 027105-DD-09-A	[AS-PRE]
							Chrysotile	2.22
							Non-Fibers	97.78

Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Sudbury)**

Client PO:

Report Date: 19-Sep-2016

Order Date: 13-Sep-2016

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-60	2	30-Aug-16					Client ID: 027105-DD-09-B	
							not analyzed	
1638285-61	2	30-Aug-16					Client ID: 027105-DD-09-C	
							not analyzed	
1638285-62	2	30-Aug-16					Client ID: 027105-DD-09-DUP (FT)	
							not analyzed	
1638285-63	2	30-Aug-16	sample homogenized	Black	Mastic	**Yes**	Client ID: 027105-DD-09-DUP (Mastic)	[AS-PRE]
							Chrysotile	2.45
							Non-Fibers	97.55
1638285-64	2	30-Aug-16	sample homogenized	Beige	Floor Tile	No	Client ID: 027105-DD-011-A (FT)	[AS-PRE]
							Non-Fibers	100
1638285-65	2	30-Aug-16	sample homogenized	Beige	Floor Tile	No	Client ID: 027105-DD-011-B (FT)	[AS-PRE]
							Non-Fibers	100
1638285-66	2	30-Aug-16	sample homogenized	Beige	Floor Tile	No	Client ID: 027105-DD-011-C (FT)	[AS-PRE]
							Non-Fibers	100
1638285-67	2	30-Aug-16	sample homogenized	Beige	Mastic	**Yes**	Client ID: 027105-DD-011-A (Mastic)	[AS-PRE]
							Chrysotile	0.61
							Non-Fibers	99.39
1638285-68	2	30-Aug-16					Client ID: 027105-DD-011-B (Mastic)	
							not analyzed	
1638285-69	2	30-Aug-16					Client ID: 027105-DD-011-C (Mastic)	
							not analyzed	
1638285-70	2	30-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-OH-01-A	[AS-PRE]
							Cellulose	40
							Non-Fibers	60
1638285-71	2	30-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-OH-01-B	[AS-PRE]
							Cellulose	40
							Non-Fibers	60
1638285-72	2	30-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-OH-01-C	[AS-PRE]
							Cellulose	40
							Non-Fibers	60
1638285-73	2	30-Aug-16	sample homogenized	Grey	Floor Tile	**Yes**	Client ID: 027105-OH-02-A (FT)	[AS-PRE]
							Chrysotile	2.3
							Non-Fibers	97.7

Certificate of Analysis

Client: DST Consulting Engineers Inc. (Sudbury)

Client PO:

Report Date: 19-Sep-2016

Order Date: 13-Sep-2016

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-74	2	30-Aug-16					Client ID: 027105-OH-02-B (FT)	
							not analyzed	
1638285-75	2	30-Aug-16					Client ID: 027105-OH-02-C (FT)	
							not analyzed	
1638285-76	2	30-Aug-16					Client ID: 027105-OH-02-DUP (FT)	
							not analyzed	
1638285-77	2	30-Aug-16	sample homogenized	Black	Mastic	No	Client ID: 027105-OH-02-A (Mastic) [AS-PRE]	
							Non-Fibers	100
1638285-78	2	30-Aug-16	sample homogenized	Black	Mastic	No	Client ID: 027105-OH-02-B (Mastic) [AS-PRE]	
							Non-Fibers	100
1638285-79	2	30-Aug-16	sample homogenized	Black	Mastic	No	Client ID: 027105-OH-02-C (Mastic) [AS-PRE]	
							Non-Fibers	100
1638285-80	2	30-Aug-16	sample homogenized	Black	Mastic	No	Client ID: 027105-OH-02-DUP (Mastic) [AS-PRE]	
							Non-Fibers	100
1638285-81	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-OH-04-A (Caulking) [AS-PRE]	
							MMVF	<MDL
							Non-Fibers	100
1638285-82	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-OH-04-B (Caulking) [AS-PRE]	
							MMVF	0.59
							Non-Fibers	99.41
1638285-83	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-OH-04-C (Caulking)	
							MMVF	0.52
							Non-Fibers	99.48
1638285-84	1	30-Aug-16	sample homogenized	Grey	Drywall Joint Compound	**Yes**	Client ID: 027105-OH-05-A (Compound)	
							Chrysotile	1
							Cellulose	1
							Non-Fibers	98
1638285-85	1	30-Aug-16					Client ID: 027105-OH-05-B (Compound)	
							not analyzed	
1638285-86	1	30-Aug-16					Client ID: 027105-OH-05-C (Compound)	
							not analyzed	
1638285-87	1	30-Aug-16	sample homogenized	Red	Caulking	No	Client ID: 027105-LH-01-DUP	
							MMVF	0.58
							Non-Fibers	98.42
							Other fibers	1

Certificate of Analysis

Client: **DST Consulting Engineers Inc. (Sudbury)**

Client PO:

Report Date: 19-Sep-2016

Order Date: 13-Sep-2016

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-88	2	30-Aug-16	sample homogenized	Light Grey	Parging Cement	No	Client ID: 027105-LH-03-A (Light Grey)	
							Non-Fibers	100
1638285-89	2	30-Aug-16	sample homogenized	Light Grey	Parging Cement	No	Client ID: 027105-LH-03-B (Light Grey)	
							Non-Fibers	100
1638285-90	2	30-Aug-16	sample homogenized	Light Grey	Parging Cement	No	Client ID: 027105-LH-03-C (Light Grey)	
							Non-Fibers	100
1638285-91	2	30-Aug-16	sample homogenized	Dark Grey	Parging Cement	No	Client ID: 027105-LH-03-A (Dark Grey)	
							Non-Fibers	100
1638285-92	2	30-Aug-16	sample homogenized	Dark Grey	Parging Cement	No	Client ID: 027105-LH-03-B (Dark Grey)	
							Non-Fibers	100
1638285-93	2	30-Aug-16	sample homogenized	Dark Grey	Parging Cement	No	Client ID: 027105-LH-03-C (Dark Grey)	
							Non-Fibers	100
1638285-94	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-LH-05-A	[AS-PRE]
							Non-Fibers	100
1638285-95	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-LH-05-B	[AS-PRE]
							Non-Fibers	100
1638285-96	1	30-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-LH-05-C	[AS-PRE]
							Non-Fibers	100
1638285-97	1	30-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-LH-06-A	[AS-PRE]
							Cellulose	5
							Non-Fibers	95
1638285-98	1	30-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-LH-06-B	[AS-PRE]
							Cellulose	5
							Non-Fibers	95
1638285-99	1	30-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-LH-06-C	[AS-PRE]
							Cellulose	5
							Non-Fibers	95
1638285-AA	2	30-Aug-16	sample homogenized	Light Grey	Parging Cement	No	Client ID: 027105-LH-03-DUP (Light Grey)	
							Non-Fibers	100
1638285-AB	2	30-Aug-16	sample homogenized	Dark Grey	Parging Cement	No	Client ID: 027105-LH-03-DUP (Dark Grey)	
							Non-Fibers	100
1638285-AC	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-WS-01-A (Caulking)	[AS-PRE]
							MMVF	0.56
							Non-Fibers	98.44
							Other fibers	1

PARACEL
LABORATORIES LTD.

Order #: 1638285

Certificate of Analysis
Client: DST Consulting Engineers Inc. (Sudbury)
Client PO:

Report Date: 19-Sep-2016
Order Date: 13-Sep-2016
Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1638285-AD	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-WS-01-B (Caulking)	[AS-PRE]
							MMVF	0.57
							Non-Fibers	98.43
							Other fibers	1
1638285-AE	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-WS-01-C (Caulking)	[AS-PRE]
							Non-Fibers	100
1638285-AF	2	29-Aug-16	sample homogenized	Grey	Vinyl Sheet Flooring	No	Client ID: 027105-WS-04-A (Vinyl)	[AS-PRE]
							Non-Fibers	100
1638285-AG	2	29-Aug-16	sample homogenized	Grey	Vinyl Sheet Flooring	No	Client ID: 027105-WS-04-B (Vinyl)	[AS-PRE]
							Non-Fibers	100
1638285-AH	2	29-Aug-16	sample homogenized	Grey	Vinyl Sheet Flooring	No	Client ID: 027105-WS-04-C (Vinyl)	[AS-PRE]
							Non-Fibers	100
1638285-AI	2	29-Aug-16	sample homogenized	Black	Shingle	**Yes**	Client ID: 027105-WS-05-A	[AS-PRE]
							Chrysotile	0.73
							Cellulose	39.27
							Non-Fibers	60
1638285-AJ	2	29-Aug-16					Client ID: 027105-WS-05-B	
							not analyzed	
1638285-AK	2	29-Aug-16					Client ID: 027105-WS-05-C	
							not analyzed	
1638285-AL	2	29-Aug-16	sample homogenized	Grey	Parging Cement	No	Client ID: 027105-WS-06-A	
							Non-Fibers	100
1638285-AM	2	29-Aug-16	sample homogenized	Grey	Parging Cement	No	Client ID: 027105-WS-06-B	
							Non-Fibers	100
1638285-AN	2	29-Aug-16	sample homogenized	Grey	Parging Cement	No	Client ID: 027105-WS-06-C	
							Non-Fibers	100
1638285-AO	1	29-Aug-16	sample homogenized	White	Caulking	No	Client ID: 027105-WS-01-DUP	[AS-PRE]
							MMVF	0.54
							Non-Fibers	98.46
							Other fibers	1
1638285-AP	2	29-Aug-16	sample homogenized	Grey	Transite	**Yes**	Client ID: 027105-S1-01-A	
							Chrysotile	20
							Non-Fibers	80
1638285-AQ	2	29-Aug-16					Client ID: 027105-S1-01-B	
							not analyzed	

PARACEL LABORATORIES LTD.

Order #: 1638285

Certificate of Analysis

Report Date: 19-Sep-2016

Client: DST Consulting Engineers Inc. (Sudbury)

Order Date: 13-Sep-2016

Client PO:

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-AR	2	29-Aug-16					Client ID: 027105-S1-01-C	
							not analyzed	
1638285-AS	2	29-Aug-16	sample homogenized	Grey	Paneling	Yes	Client ID: 027105-S1-02-A	
							Chrysotile	20
							Non-Fibers	80
1638285-AT	2	29-Aug-16					Client ID: 027105-S1-02-B	
							not analyzed	
1638285-AU	2	29-Aug-16					Client ID: 027105-S1-02-C	
							not analyzed	
1638285-AV	1	29-Aug-16	sample homogenized	Grey	Caulking	Yes	Client ID: 027105-S1-03-A	[AS-PRE]
							Chrysotile	0.52
							Non-Fibers	99.48
1638285-AW	1	29-Aug-16					Client ID: 027105-S1-03-B	
							not analyzed	
1638285-AX	1	29-Aug-16					Client ID: 027105-S1-03-C	
							not analyzed	
1638285-AY	2	29-Aug-16	sample homogenized	Grey	Paneling	Yes	Client ID: 027105-S2-01-A	
							Chrysotile	20
							Non-Fibers	80
1638285-AZ	2	29-Aug-16					Client ID: 027105-S2-01-B	
							not analyzed	
1638285-BA	2	29-Aug-16					Client ID: 027105-S2-01-C	
							not analyzed	
1638285-BB	2	29-Aug-16					Client ID: 027105-S2-01-DUP	
							not analyzed	
1638285-BC	2	29-Aug-16	sample homogenized	Grey	Transite	Yes	Client ID: 027105-S2-02-A	
							Chrysotile	20
							Non-Fibers	80
1638285-BD	2	29-Aug-16					Client ID: 027105-S2-02-B	
							not analyzed	
1638285-BE	2	29-Aug-16					Client ID: 027105-S2-02-C (Transite)	
							not analyzed	
1638285-BF	2	29-Aug-16	sample homogenized	Grey	Caulking	Yes	Client ID: 027105-S2-02-C (Caulking)	[AS-PRE]
							Chrysotile	0.52
							Non-Fibers	99.48

Certificate of Analysis

Client: DST Consulting Engineers Inc. (Sudbury)

Client PO:

Report Date: 19-Sep-2016

Order Date: 13-Sep-2016

Project Description: GV TB 027105

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-BG	1	29-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-S2-03-A	[AS-PRE]
							Non-Fibers	99
							Other fibers	1
1638285-BH	1	29-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-S2-03-B	[AS-PRE]
							Non-Fibers	99
							Other fibers	1
1638285-BI	1	29-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-S2-03-C	[AS-PRE]
							Non-Fibers	99
							Other fibers	1
1638285-BJ	1	29-Aug-16	sample homogenized	Grey	Caulking	No	Client ID: 027105-S2-03-DUP	[AS-PRE]
							Non-Fibers	99
							Other fibers	1
1638285-BK	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-01-A	[AS-PRE]
							Cellulose	40
							Non-Fibers	60
1638285-BL	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-01-B	[AS-PRE]
							Cellulose	40
							Non-Fibers	60
1638285-BM	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-01-C	[AS-PRE]
							Cellulose	40
							Non-Fibers	60
1638285-BN	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-02-A	[AS-PRE]
							Cellulose	20
							Non-Fibers	80
1638285-BO	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-02-B	[AS-PRE]
							Cellulose	20
							Non-Fibers	80
1638285-BP	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-02-C	[AS-PRE]
							Cellulose	20
							Non-Fibers	80
1638285-BQ	2	29-Aug-16	sample homogenized	Black	Shingle	No	Client ID: 027105-S3-02-DUP	[AS-PRE]
							Cellulose	20
							Non-Fibers	80

PARACEL LABORATORIES LTD.

Order #: 1638285

Certificate of Analysis | Report Date: 19-Sep-2016

Client: DST Consulting Engineers Inc. (Sudbury) | Order Date: 13-Sep-2016

Client PO: | **Project Description: GV TB 027105**

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.		Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1638285-BR	1	30-Aug-16	sample homogenized	Red	Caulking	No	Client ID: 027105-LH-01-A [AS-PRE]	
							MMVF	0.57
							Non-Fibers	98.43
							Other fibers	1
1638285-BS	1	30-Aug-16	sample homogenized	Red	Caulking	No	Client ID: 027105-LH-01-B [AS-PRE]	
							MMVF	0.58
							Non-Fibers	98.42
							Other fibers	1
1638285-BT	1	30-Aug-16	sample homogenized	Red	Caulking	No	Client ID: 027105-LH-01-C [AS-PRE]	
							MMVF	0.59
							Non-Fibers	98.41
							Other fibers	1

** MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool*

**** Analytes in bold indicate asbestos mineral content.**

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	1 - Mississauga	200863-0	19-Sep-16
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	2 - Ottawa West Lab	200812-0	19-Sep-16

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

Qualifier Notes

Sample Qualifiers :

AS-PRE: Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

Work Order Revisions / Comments

None

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e: paracel@paracellabs.com

Chain of Custody (Lab Use Only)

Client Name: DST Consulting Engineers	Project Reference: GV-TB-027105
Contact Name: Micheline Gervais	Quote #: 16-117
Address: 885 Regent Street, Suite 3-1B, Sudbury, ON P3E 5M4	PO #:
Telephone: (705) 523-6680 ext. 231	Email Address: mgervais@dstgroup.com, jwaddell@dstgroup.com

Turnaround Time: ☐ Immediate ☐ 4 Hour ☐ 8 Hour ☐ 1 Day ☐ 2 Day ☐ 3 Day ☑ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105-MD-01-A	Aug 29/16	-	PLM	Vinyl floor tile - light grey	Y	N	FT + Mastic KW
2	027105-MD-01-B	Aug "	-	PLM	" "	Y	N	
3	027105-MD-01-C	Aug "		PLM	" "	Y	N	
4	027105-MD-02-A	Aug "	-	PLM	Vinyl floor tile - dark grey	Y	N	
5	027105-MD-02-B	Aug "		PLM	" "	Y	N	
6	027105-MD-02-C	Aug "		PLM	" "	Y	N	
7	027105-MD-03-A	Aug "		PLM	Window Caulking - white	Y	N	
8	027105-MD-03-B	Aug "		PLM	" "	Y	N	
9	027105-MD-03-C	Aug "		PLM	" "	Y	N	
10	027105-MD-03 DUP	Aug "		PLM	" "	Y	N	
11	027105-MD-04-A	Aug "		PLM	Drywall Joint Compound	Y	Y	Analyze compound only
12	027105-MD-04-B	Aug "		PLM	" "	Y	Y	" "
13	027105-MD-04-C	Aug "		PLM	" "	Y	Y	" "
14	027105-MD-04-E	Aug "		PLM	" "	Y	Y	" "
15	027105-MD-04-D	Aug "		PLM	" "	Y	Y	" "

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabelled as 027107, please report as 027105. Test sample layers as confirmed with client. KW

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept 12/16 10am	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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Chain of Custody
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Page 2 of 9

Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B	PO #:	
	Sudbury, ON P3E 5M4	Email Address:	mgervais@dstgroup.com
Telephone:	(705) 523-6680 ext. 231		jwaddell@dstgroup.com

Turnaround Time: ☐ Immediate ☐ 4 Hour ☐ 8 Hour ☐ 1 Day ☐ 2 Day ☐ 3 Day ☑ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

M

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description (Asbestos - Bulk)	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105- MD-06-A	Aug 29/16		PLM	Window Caulking - grey	Y	N	
2	027105- MD-06-B	Aug "		PLM	"	Y	N	
3	027105- MD-06-C	Aug "		PLM	" "	Y	N	
4	027105- MD-07-A	Aug "		PLM	Window caulking - grey	Y	N	
5	027105- MD-07-B	Aug "		PLM	" "	Y	N	
6	027105- MD-07-C	Aug "		PLM	" "	Y	N	
7	027105- MD-09-A	Aug "		PLM	Exterior Caulking - black	Y	N	
8	027105- MD-09-B	Aug "		PLM	" "	Y	N	
9	027105- MD-09-C	Aug "		PLM	" "	Y	N	
10	027105- MD-07-DUP	Aug "		PLM	Window Caulking - grey	Y	N	white/grey
11	027105- DD-01-A	Aug 30/16		PLM	Drywall Joint Compound	Y	Y	Analyze compound only
12	027105- DD-01-B	Aug "		PLM	" "	Y	Y	" "
13	027105- DD-01-C	Aug "		PLM	" "	Y	Y	" "
14	027105- DD-01-E	Aug "		PLM	" "	Y	Y	" "
15	027105- DD-01-D	Aug "		PLM	" "	Y	Y	" "

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabeled as 027107, please report as 027105 - 027105 MD-05-A-C left out intentionally. - 027105-MD-08-A-C left out intentionally.

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16 10:00 AM	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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Chain of Custody (Lab Use Only)

Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B Sudbury, ON P3E 5M4	PO #:	
Telephone:	(705) 523-6680 ext. 231	Email Address:	mgervais@dstgroup.com jwaddell@dstgroup.com

Turnaround Time: ☐ Immediate ☐ 4 Hour ☐ 8 Hour ☐ 1 Day ☐ 2 Day ☐ 3 Day ☑ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description	Positive Stop? (Y / N)	Is the Sample Layered? (Y / N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	~~027105-DD-01-F~~	~~Aug 30/16~~		~~PLM~~	~~Drywall Joint Compound~~	~~Y~~	~~Y~~	~~Analyze compound only~~
2	~~027105-DD-01-G~~	~~Aug "~~		~~PLM~~	~~" "~~	~~Y~~	~~Y~~	~~" "~~
3	~~027105-DD-01-H~~	~~Aug "~~		~~PLM~~	~~" "~~	~~Y~~	~~Y~~	~~" "~~
4	027105-DD-01-DUP	Aug "		PLM	" "	Y	Y	" "
5	027105-DD-02-A	Aug "		PLM	Vinyl floor tile - white w/ brown specs	Y	N	FT + Mastic
6	027105-DD-02-B	Aug "		PLM	" "	Y	N	
7	027105-DD-02-C	Aug "		PLM	" "	Y	N	
8	027105-DD-03-A	Aug "		PLM	Bathroom Caulking - white	Y	N	
9	027105-DD-03-B	Aug "		PLM	" "	Y	N	
10	027105-DD-03-C	Aug "		PLM	" "	Y	N	
11	027105-DD-04-A	Aug "		PLM	Mastic	Y	Y	Analyze mastic only
12	027105-DD-04-B	Aug "		PLM	"	Y	Y	" "
13	027105-DD-04-C	Aug "		PLM	"	Y	Y	" "
14	027105-DD-03-DUP	Aug "		PLM	Bathroom Caulking - white	Y	N	
15	027105-DD-05-A	Aug "		PLM	Vinyl floor tile - white w/ green streaks.	Y	N	FT + Mastic if possible

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabelled as 027107, please report as 027105.
DD-01F-G-H Removed From sampling submission M.P

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16 10:00AM	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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Chain of Custody (Lab Use Only)

Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B	PO #:	
	Sudbury, ON P3E 5M4	Email Address:	mgervais@dstgroup.com
Telephone:	(705) 523-6680 ext. 231		jwaddell@dstgroup.com

Turnaround Time: ☐ Immediate ☐ 4 Hour ☐ 8 Hour ☐ 1 Day ☐ 2 Day ☐ 3 Day ☑ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description (Asbestos - Bulk)	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105-DD-05-B	Aug 30/16		PLM	Vinyl floor tile white & green streaks	Y	N	FT + Mastic if possible
2	027105-DD-05-C	Aug "		PLM	" "	Y	N	↓
3	027105-DD-07-A	Aug "		PLM	Exterior Caulking - grey	Y	N	
4	027105-DD-07-B	Aug "		PLM	" "	Y	N	
5	027105-DD-07-C	Aug "		PLM	" "	Y	N	
6	027105-DD-09-A	Aug "		PLM	Vinyl floor tile - green w/ white streaks	Y	N	
7	027105-DD-09-B	Aug "		PLM	" "	Y	N	
8	027105-DD-09-C	Aug "		PLM	" "	Y	N	
9	027105-DD-09-DUP	Aug "		PLM	" "	Y	N	
10	027105-DD-11-A	Aug "		PLM	Vinyl floor tile - Beige	Y	N	FT + Mastic
11	027105-DD-11-B	Aug "		PLM	" "	Y	N	FT + Mastic
12	027105-DD-11-C	Aug "		PLM	" "	Y	N	↓
13	027105-DH-01-A	Aug "		PLM	Shingles	Y	N	
14	027105-DH-01-B	Aug "		PLM	" "	Y	N	
15	027105-DH-01-C	Aug "		PLM	" "	Y	N	

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*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabeled as 027107, please report as 027105.
- Samples '027105-DD-06-A-C', '027105-DD-08-A-C', and '027105-DD-10-A-C' left out intentionally

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16 10:00AM	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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Chain of Custody
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Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B Sudbury, ON P3E 5M4	PO #:	
		Email Address:	mgervais@dstgroup.com jwaddell@dstgroup.com
Telephone:	(705) 523-6680 ext. 231		

Turnaround Time:
☐ Immediate ☐ 1 Day
☐ 4 Hour ☐ 2 Day
☐ 8 Hour ☐ 3 Day
☑ Regular
Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

T3

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105-OH-02-A	Aug 30/16		PLM	Vinyl floor tile - grey c white specs	Y	N	FT+Mastic ☆
2	027105-OH-02-B	Aug "		PLM	" "	Y	N	
3	027105-OH-02-C	Aug "		PLM	" "	Y	N	
4	027105-OH-02-DUP	Aug "		PLM	" "	Y	N	FT+Mastic ☆
5	027105-OH-04-A	Aug "		PLM	Exterior window Caulking - white	Y	N	Caulking ☆ (no wood)
6	027105-OH-04-B	Aug "		PLM	" "	Y	N	
7	027105-OH-04-C	Aug "		PLM	" "	Y	N	
8	027105-OH-05-A	Aug "		PLM	Drywall Joint Compound	Y	Y	Analyze compound only
9	027105-OH-05-B	Aug "		PLM	" "	Y	Y	" "
10	027105-OH-05-C	Aug "		PLM	" "	Y	Y	" "
11	~~027105-OH-05-D~~	~~Aug "~~		~~PLM~~	~~" "~~	~~Y~~	~~Y~~	~~" "~~
12	027105-OH-05-E	Aug "		PLM	" "	Y	Y	" "
13	027105-~~OH-06-A~~ JR LH-01-A	Aug "		PLM	Exterior Caulking - red	Y	N	
14	027105-~~OH-06-B~~ JR LH-01-B	Aug "		PLM	" "	Y	N	
15	027105-~~OH-06-C~~ JR LH-01-C	Aug "		PLM	" "	Y	N	

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabeled as 027107, please report as 027105.
Sample '027105-OH-03-A-C' left out intentionally. 05-D+E Removed for submission

Method of Delivery: Purolator

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Jennifer Rainville		[signature]	
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16 10:00 PM	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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Chain of Custody (Lab Use Only)

Page 6 of 9

Client Name: DST Consulting Engineers	Project Reference: GV-TB-027105	**Turnaround Time:**	
Contact Name: Micheline Gervais	Quote #: 16-117	☐ Immediate	☐ 1 Day
Address: 885 Regent Street, Suite 3-1B	PO #:	☐ 4 Hour	☐ 2 Day
Sudbury, ON P3E 5M4	Email Address: mgervais@dstgroup.com	☐ 8 Hour	☐ 3 Day
			☑ Regular
Telephone: (705) 523-6680 ext. 231	jwaddell@dstgroup.com	Date Required:	

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

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	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Asbestos - Bulk: Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105-LH-01-DUP	Aug 30/16		PLM	Exterior Caulking - Red	Y	N	
2	027105-LH-03-A	Aug "		PLM	Cementious Parging	Y	N	Light + Dark Grey ✱
3	027105-LH-03-B	Aug "		PLM	" "	Y	N	
4	027105-LH-03-C	Aug "		PLM	" "	Y	N	
5	027105-LH-05-A	Aug "		PLM	Interior caulking - white	Y	N	
6	027105-LH-05-B	Aug "		PLM	" "	Y	N	
7	027105-LH-05-C	Aug "		PLM	" "	Y	N	
8	027105-LH-06-A	Aug "		PLM	Exterior caulking - grey	Y	N	
9	027105-LH-06-B	Aug "		PLM	" "	Y	N	
10	027105-LH-06-C	Aug "		PLM	" "	Y	N	
11	027105-LH-03-DUP	Aug "		PLM	Cementious Parging	Y	N	Light Grey + Dark ✱
12	027105-WS-01-A	Aug 29/16		PLM	Exterior window Caulking	Y	Y	Analyze caulking only
13	027105-WS-01-B	Aug "		PLM	" "	Y	Y	" "
14	027105-WS-01-C	Aug "		PLM	" "	Y	Y	" "
15	027105-WS-04-A	Aug		PLM	Vinyl sheet flooring	Y	Y	Analyze vinyl only

KV

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabeled as 027107, please report as 027105.
Samples '027105-LH-02-A-C' and '027105-LH-04-A-C' left out intentionally.

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16 10:00AM	Date/Time:	Date/Time: 09/13/16 9:15AM	Date/Time:

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Chain of Custody (Lab Use Only)

Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B Sudbury, ON P3E 5M4	PO #:	
Telephone:	(705) 523-6680 ext. 231	Email Address:	mgervais@dstgroup.com jwaddell@dstgroup.com

Turnaround Time: ☐ Immediate ☐ 1 Day ☐ 4 Hour ☐ 2 Day ☐ 8 Hour ☐ 3 Day ☑ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

106

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105-WS-04-B	Aug 29/16		PLM	Vinyl Sheet Flooring	Y	~~Y~~	Analyze vinyl only
2	027105-WS-04 C	Aug "		PLM	"	Y	~~Y~~	" "
3	027105-WS-05-A	Aug "		PLM	Shingles	Y	N	
4	027105-WS-05 B	Aug "		PLM	Shingles	Y	N	
5	027105-WS-05-C	Aug "		PLM	Shingles	Y	N	
6	027105-WS-06-A	Aug "		PLM	Cement Parging	Y	N	
7	027105-WS-06-B	Aug "		PLM	" "	Y	N	
8	027105-WS-06-C	Aug "		PLM	" "	Y	N	
9	027105-WS-01-DUP	Aug "		PLM	Exterior Window Caulking	Y	N	
10	027105-S1-01-A	Aug "		PLM	Transite	Y	N	
11	027105-S1-01-B	Aug "		PLM	" "	Y	N	
12	027105-S1-01-C	Aug "		PLM	" "	Y	N	
13	027105-S1-02-A	Aug "		PLM	Paneling	Y	Y	**
14	027105-S1-02-B	Aug "		PLM	" "	Y	Y	**
15	027105-S1-02-C	Aug "		PLM	" "	Y	Y	**

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabeled as 027107, please report as 027105.
Samples '027105-WS-02-A-C' and '027105-WS-03 A-C' left out intentionally.

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Raimille	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Raimille			
Date/Time: Sept. 12/16 10:00am	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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e: paracel@paracellabs.com

Chain of Custody
(Lab Use Only)

Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B Sudbury, ON P3E 5M4	PO #:	
Telephone:	(705) 523-6680 ext. 231	Email Address:	mgervais@dstgroup.com jwaddell@dstgroup.com

Turnaround Time:
☐ Immediate ☐ 1 Day
☐ 4 Hour ☐ 2 Day
☐ 8 Hour ☐ 3 Day
☑ Regular
Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105- S1-03-A	Aug 29/16	-	PLM	Caulking	Y	N	
2	027105- S1-03-B	Aug 29/16	-	PLM	" "	Y	N	
3	027105- S1-03-C	Aug 29/16	-	PLM	" "	Y	N	
4	027105- S2-01-A	Aug 29/16	-	PLM	Paneling	Y	N	
5	027105- S2-01-B	Aug 29/16	-	PLM	Paneling	Y	N	
6	027105- S2-01-C	Aug 29/16	-	PLM	Paneling	Y	N	
7	027105- S2-01-DUP	Aug "		PLM	Paneling	Y	N	
8	027105- S2-02-A	Aug "		PLM	Transite	Y	N	
9	027105- S2-02-B	Aug "		PLM	" "	Y	N	
10	027105- S2-02-C	Aug "		PLM	" "	Y	N	Transite + Caulking
11	027105- S2-03-A	Aug "		PLM	Exterior Caulking - grey	Y	N	
12	027105- S2-03-B	Aug "		PLM	" "	Y	N	
13	027105- S2-03-C	Aug "		PLM	" "	Y	N	
14	027105- S2-03-DUP	Aug "		PLM	" "	Y	N	
15	027105- S3-01-A	Aug "		PLM	Shingles	Y	N	

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabeled as 027107, please report as 027105

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16 10:00Am	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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e: paracel@paracellabs.com

Chain of Custody (Lab Use Only)

Client Name:	DST Consulting Engineers	Project Reference:	GV-TB-027105
Contact Name:	Micheline Gervais	Quote #:	16-117
Address:	885 Regent Street, Suite 3-1B Sudbury, ON P3E 5M4	PO #:	
		Email Address:	mgervais@dstgroup.com jwaddell@dstgroup.com
Telephone:	(705) 523-6680 ext. 231		

Turnaround Time: ☐ Immediate ☐ 4 Hour ☐ 8 Hour ☐ 1 Day ☐ 2 Day ☐ 3 Day ☑ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☑ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:**

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM ☑ PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1638285

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	027105-S3-01-B	Aug 29/16		PLM	Shingles	Y	N	
2	027105-S3-01-C	Aug "		PLM	Shingles	Y	N	
3	027105-S3-02-A	Aug "		PLM	Shingles.	Y	N	
4	027105-S3-02-B	Aug "		PLM	" "	Y	N	
5	027105-S3-02-C	Aug "		PLM	" "	Y	N	
6	027105-S3-02-DUP.	Aug "		PLM	" "	Y	N	
7	027105-	Aug		PLM		Y		
8	027105-	Aug		PLM		Y		
9	027105-	Aug		PLM		Y		
10	027105-	Aug		PLM		Y		
11	027105-	Aug		PLM		Y		
12	027105-	Aug		PLM		Y		
13	027105-	Aug		PLM		Y		
14	027105-	Aug		PLM		Y		
15	027105-	Aug		PLM		Y		

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments: Sample bags mislabelled as 027107, please report as 027105.

Method of Delivery: Purolator

Relinquished By (Sign): Jennifer Rainville	Received at Depot:	Received at Lab: [signature]	Verified By:
Relinquished By (Print): Jennifer Rainville			
Date/Time: Sept. 12/16. 10:00am.	Date/Time:	Date/Time: 09/13/16 9:15am	Date/Time:

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Certificate of Analysis

DST Consulting Engineers Inc. (Sudbury)
1351 Kelly Lake Road, Unit 4
Sudbury, ON P3E 5P5
Attn: Micheline Gervais

Client PO:
Project: GV TS 027105
Custody:

Report Date: 1-Feb-2017
Order Date: 27-Jan-2017

Revised Report **Order #: 1704344**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
□□0□□□□□0□	02□□05□MD□LP□02
□□0□□□□□02	02□□05□DD□LP□02

□pproved B□□ Mark Foto

Mar□ Foto□M.Sc.
Lab Supervisor

PARACEL
LABORATORIES LTD.

Order #: 1704344

Certificate of Analysis

Client: DST Consulting Engineers Inc. (Sudbury)

Client PO:

Report Date□0□Feb□20□□

Order Date□2□□an□20□□

Project Description: GV TS 027105

Analysis Summary Table

□nal□sis	Method Reference□Description	□□traction Date	□nal□sis Date
Metals□ICP□O□S	based on MO□ □□□□0□ICP□O□S	□0□□an□□□	□0□□an□□□

Sample Data Revisions

□one

Work Order Revisions/Comments:

Revision □ □This report includes updated client Sample ID□s.

Other Report Notes:

n□a□not applicable
□D□□ot Detected
MDL□Method Detection Limit
Source Result□Data used as source for matri□and duplicate samples
□ R□C□Percent recover□.
RPD□Relative percent difference.

PARACEL
LABORATORIES LTD.

Order #: 1704344

Certificate of Analysis

Client: DST Consulting Engineers Inc. (Sudbury)

Client PO:

Report Date□0□Feb□20□□

Order Date□2□□an□20□□

Project Description: GV TS 027105

Sample Results

Lead				**Matrix: Paint** **Sample Date: 29-Aug-16**
Paracel ID	**Client ID**	**Units**	**MDL**	**Result**
□□0□□□□□0□	02□□05□MD□LP□02	ug□g	20	□□□
□□0□□□□□02	02□□05□DD□LP□02	ug□g	20	□20

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**20**	**ug/g**						
Matrix Duplicate									
Lead	**222**	**20**	**ug/g**	**183**			**19.2**	**30**	
Matrix Spike									
Lead	□□□		ug□L	□□.□	□□.□	□0□□□0			

1704344

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Page 1 of 1

Client Name: Dst Consulting Eng	Project Reference: GV-TS-027105
Contact Name: Micheline Cervais	Quote #
Address: 885 Regent St. suite 3-1B ~~Sud~~ Sudbury ON	PO #
	Email Address:
Telephone: 705 562-2486	mgervais@dstgroup.com

Turnaround Time: ☐ 1 Day ☐ 3 Day ☐ 2 Day ☒ Regular

Date Required:

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ____ ☐ Other: ____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Paracel Order Number: 1704344

Required Analyses

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Lead in Paint						
1	027105-MD-LP2/Mud Room	P		1			☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
2	027105-MD-LP2/Basement white	P		1			☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
3							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10	Samples taken Aug 29th as per						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments: Micheline -RS.

Method of Delivery: Purolator

Relinquished By (Sign): M. Gervais	Received by Driver/Depot:	Received at Lab: Rachel Subject	Verified By: Rachel Subject
Relinquished By (Print): Micheline Cervais	Date/Time:	Date/Time: Jan 27/17 8:45	Date/Time: Jan 27/17 12:58
Date/Time: Jan 26/17	Temperature: ____ °C	Temperature: ____ °C	pH Verified [X] By: N/A

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Certificate of Analysis

DST Consulting Engineers Inc. (Sudbury)

1351 Kelly Lake Road, Unit 4
Sudbury, ON P3E 5P5
Attn: Jonathan Waddell

Client PO:
Project: GV TB 027105
Custody:

Report Date: 1-Feb-2017
Order Date: 1-Feb-2017

Revised Report **Order #: 1705200**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
□□05200□0□	02□□05□MD□LP□0□
□□05200□02	02□□05□DD□LP□05
□□05200□0□	02□□05□OH□LP□0□
□□05200□0□	02□□05□MD□LP□0□
□□05200□05	02□□05□DD□LP□0□
□□05200□0□	02□□05□DD□LP□0□
□□05200□0□	02□□05□Diesel□LP□0□

□pproved B□□

Mar□ Foto□M.Sc.
Lab Supervisor

Certificate of Analysis | Report Date□0□Feb□20□□
Client: DST Consulting Engineers Inc. (Sudbury) | Order Date□□□Feb□20□□
Client PO: | **Project Description: GV TB 027105**

Analysis Summary Table

□nal□sis	Method Reference□Description	□□traction Date	□nal□sis Date
Metals□ICP□O□S	based on MO□ □□□□0□ICP□O□S	□□Feb□□□	□□Feb□□□

Sample Data Revisions

□one

Work Order Revisions/Comments:

Revision □ □This report includes an updated client Sample ID.

Other Report Notes:

n□a□not applicable
□D□□ot Detected
MDL□Method Detection Limit
Source Result□Data used as source for matri□and duplicate samples
□ R□C□Percent recover□.
RPD□Relative percent difference.

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Order #: 1705200

Certificate of Analysis

Report Date□0□Feb□20□□

Client: DST Consulting Engineers Inc. (Sudbury)

Order Date□□□Feb□20□□

Client PO:

Project Description: GV TB 027105

Sample Results

Lead				**Matrix: Paint** **Sample Date: 29-Aug-16**
Paracel ID	**Client ID**	**Units**	**MDL**	**Result**
□□05200□0□	02□□05□MD□LP□0□	ug□g	20	□□0
□□05200□0□	02□□05□MD□LP□0□	ug□g	20	□□□00
□□05200□0□	02□□05□Diesel□LP□0□	ug□g	20	□□2

Lead				**Matrix: Paint** **Sample Date: 30-Aug-16**
Paracel ID	**Client ID**	**Units**	**MDL**	**Result**
□□05200□02	02□□05□DD□LP□05	ug□g	20	2□
□□05200□0□	02□□05□OH□LP□0□	ug□g	20	552
□□05200□05	02□□05□DD□LP□0□	ug□g	20	□0□0
□□05200□0□	02□□05□DD□LP□0□	ug□g	20	□□□0

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**20**	**ug/g**						
Matrix Duplicate									
Lead	**594**	**20**	**ug/g**	**591**			**0.5**	**30**	
Matrix Spike									
Lead	5□□		ug□L	2□□	□□.□	□0□□□0			

Paracel ID: 1705200

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Page 1 of 1

Client Name: DST Consulting Engineers	Project Reference: GV-TB-027105
Contact Name: Jonathan Waddell	Quote #
Address: 885 Regent Street, Suite 3-1 B Sudbury, Ontario, P3E 5M4	PO #
	Email Address: jwaddell@dstgroup.com
Telephone: 705-523-6680 x232	

TAT: ☐ Regular ☐ 3 Day ☐ 2 Day ☑ 1 Day

Date Required:

Criteria: ☐ O. Reg. 153/04 (As Amended) Table ___ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ________ ☐ Other: ________

Matrix Type: S (Soil/Sed.) **GW** (Ground Water) **SW** (Surface Water) **SS** (Storm/Sanitary Sewer) **P** (Paint) **A** (Air) **O** (Other)

Paracel Order Number: 1705200.

Required Analyses

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Lead Paint						
1	027105-MD-LP-09	P			Aug 29 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
2	027105-DD-LP-03	P			Aug 30 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
3	027105-OH-LP-04	P			Aug 30 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
4	027105-MD-LP-07	P			Aug 29 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
5	027105-DD-LP-01	P			Aug 30 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
6	027105-DD-LP-03	P			Aug 30 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
7	027105-Diesel-LP-01	P			Aug 29 2016		☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
8							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

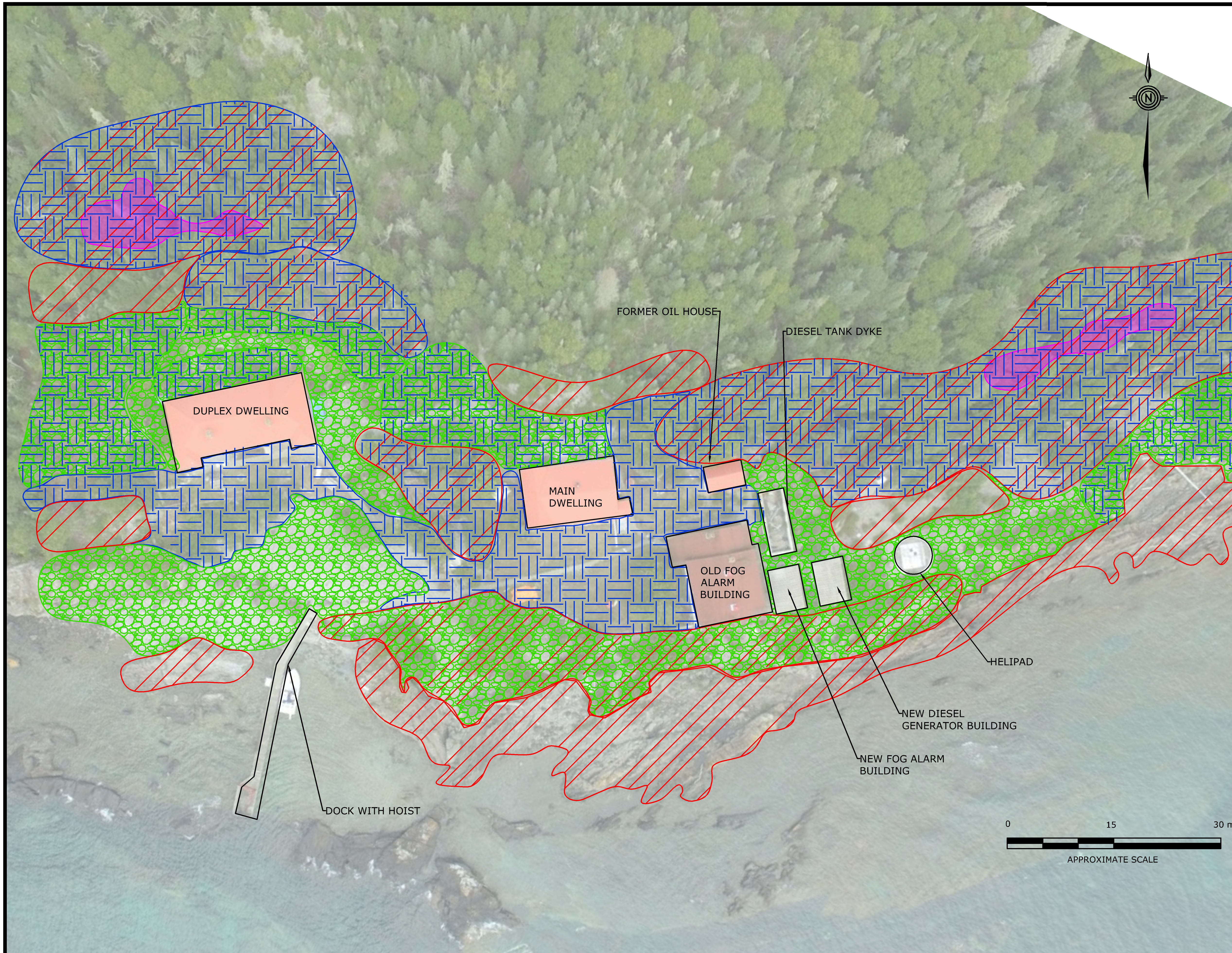
Method of Delivery: Purolator

Relinquished By (Sign): S. Waddell	Received by Driver/Depot:	Received at Lab:	Verified By: Rachel Subject
Relinquished By (Print): Jonathan Waddell	Date/Time:	Date/Time: Feb 1/17 8:52a	Date/Time: Feb 1/17 10:53
Date/Time: JAN 31 2017	Temperature: ___ °C	Temperature: ___ °C	pH Verified [X] By: N/A

Appendix C

Soil Sampling Investigation

Figures



DST
consulting engineers
885 REGENT STREET, UNIT 3-1B
SUDBURY, ON, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

- SHALLOW SOIL
- COBBLES AND GRAVEL
- BEDROCK
- STRUCTURE
- DUMP SITE LOCATION

NOTE:

1. TWO OR MORE MATERIAL TYPES ARE OVERLAPPING TO INDICATE MIXED SURFACE CONDITIONS

REV	DATE	ISSUE	APPROVAL
1	3/29/17	FINAL	CS
0	8/12/16	DRAFT	CS

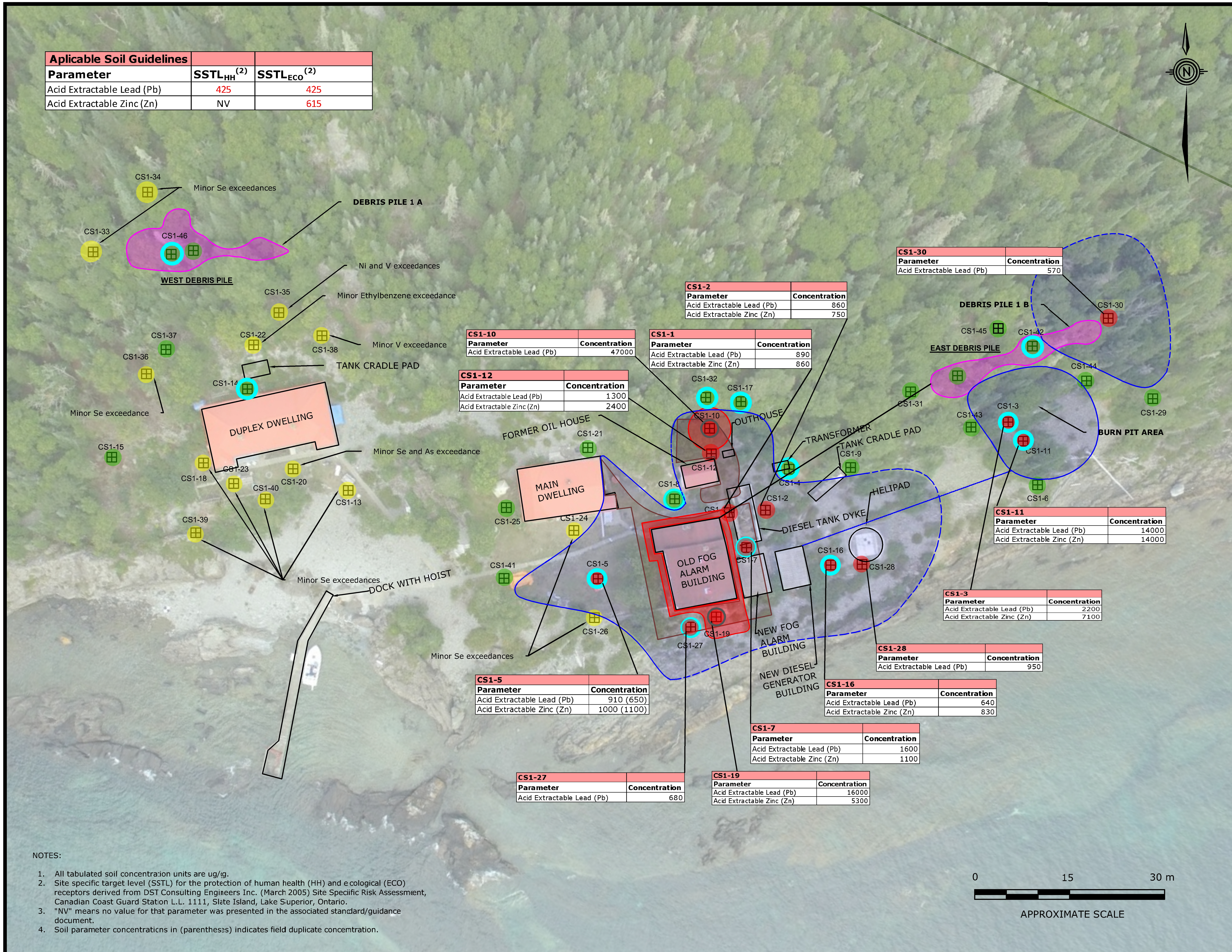
PROJECT TITLE

ENVIRONMENTAL PROGRAM REPORT - SLATE ISLAND COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE

CS-1 (MAIN SITE)
SURFICIAL COVER

DESIGNED BY JW	SCALE As Shown
DRAWN BY JR	DATE MARCH 2017
APPROVED BY CS	PROJECT NO.: GV-TB-027105
FIGURE NO. FIGURE 12	



Aplicable Soil Guidelines		
Parameter	$SSTL_{HH}$ (2)	$SSTL_{ECO}$ (2)
Acid Extractable Lead (Pb)	425	425
Acid Extractable Zinc (Zn)	NV	615

CS1-30	
Parameter	Concentration
Acid Extractable Lead (Pb)	570

CS1-2	
Parameter	Concentration
Acid Extractable Lead (Pb)	860
Acid Extractable Zinc (Zn)	750

CS1-10	
Parameter	Concentration
Acid Extractable Lead (Pb)	47000

CS1-1	
Parameter	Concentration
Acid Extractable Lead (Pb)	890
Acid Extractable Zinc (Zn)	860

CS1-12	
Parameter	Concentration
Acid Extractable Lead (Pb)	1300
Acid Extractable Zinc (Zn)	2400

CS1-11	
Parameter	Concentration
Acid Extractable Lead (Pb)	14000
Acid Extractable Zinc (Zn)	14000

CS1-3	
Parameter	Concentration
Acid Extractable Lead (Pb)	2200
Acid Extractable Zinc (Zn)	7100

CS1-28	
Parameter	Concentration
Acid Extractable Lead (Pb)	950

CS1-5	
Parameter	Concentration
Acid Extractable Lead (Pb)	910 (650)
Acid Extractable Zinc (Zn)	1000 (1100)

CS1-16	
Parameter	Concentration
Acid Extractable Lead (Pb)	640
Acid Extractable Zinc (Zn)	830

CS1-7	
Parameter	Concentration
Acid Extractable Lead (Pb)	1600
Acid Extractable Zinc (Zn)	1100

CS1-27	
Parameter	Concentration
Acid Extractable Lead (Pb)	680

CS1-19	
Parameter	Concentration
Acid Extractable Lead (Pb)	16000
Acid Extractable Zinc (Zn)	5300

NOTES:

1. All tabulated soil concentration units are ug/g.
2. Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario.
3. "NV" means no value for that parameter was presented in the associated standard/guidance document.
4. Soil parameter concentrations in (parentheses) indicates field duplicate concentration.

DST
consulting engineers
885 REGENT STREET, UNIT 3-1B
SUDBURY, ON, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

- Analyzed parameters meet all applicable guidelines (CCME, MOE, SSTL)
- Concentration exceeds 2005 SSTL
- Parameter concentration exceeds generic guidelines or previous maximum concentrations (parameter indicated)
- Concentration meets Reg. 347, Schedule 4: Leachate Quality Criteria.
- Concentration exceeds Reg. 347 , Schedule 4: Leachate Quality Criteria.
- Soil sample location
- Approximate location of debris pile
- Estimated extents of contaminated soil exceeding 2005 SSTLs
- Estimated extents of leachate hazardous soil
- Historical contaminated soil delineation (DST 2005)

NOTES:
1. Exceedances of CCME pH guidelines not shown on this figure
2. Soil parameter results based on laboratory analysis.
3. Dashed line indicates impacts not delineated

1	3/29/17	FINAL	CS
0	8/12/16	DRAFT	CS
REV	DATE	ISSUE	APPROVAL

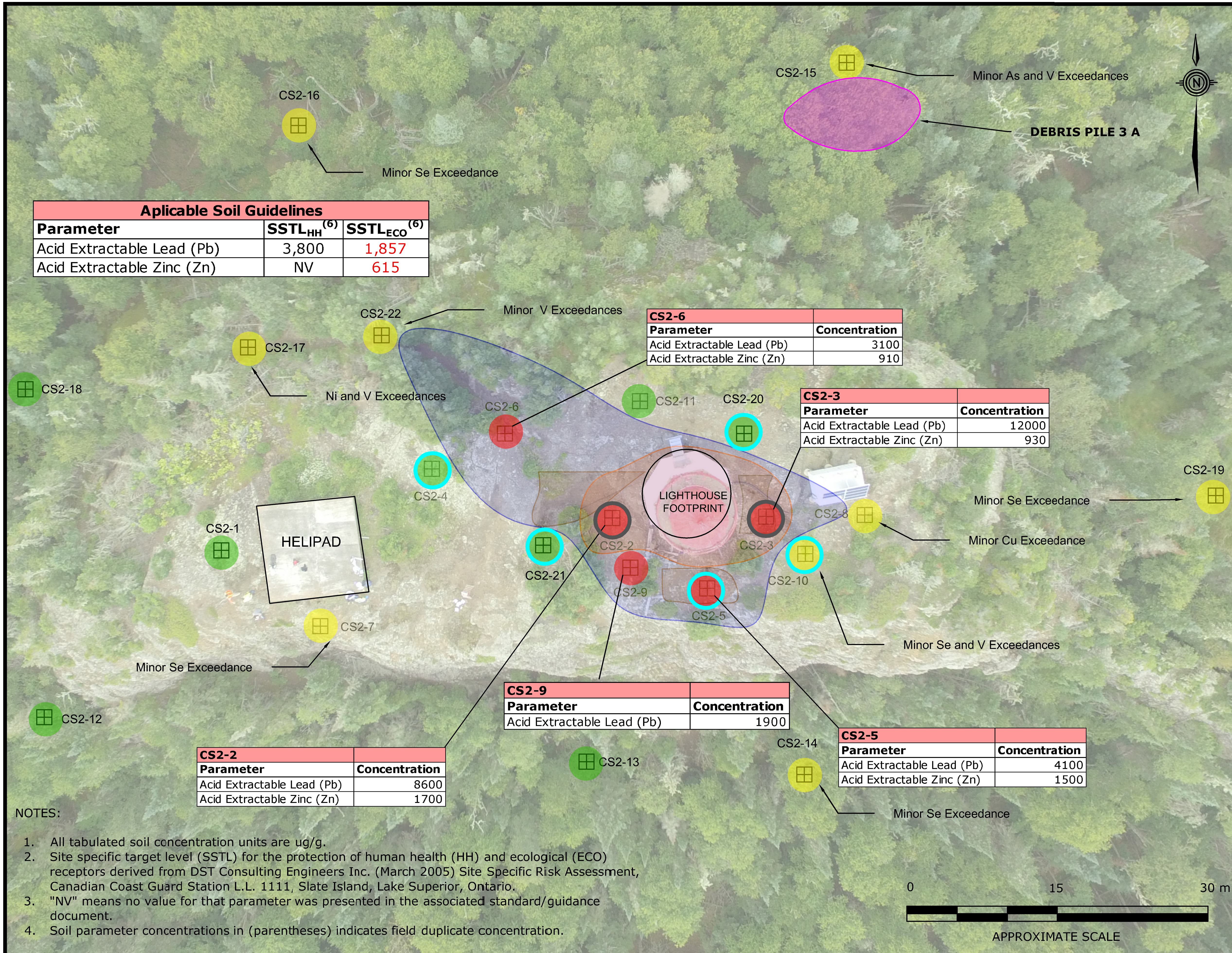
PROJECT TITLE

ENVIRONMENTAL PROGRAM REPORT, SLATE ISLAND COAST GUARD SITE PATTERSON ISLAND, LAKE SUPERIOR, ON

DRAWING TITLE

MAIN SITE (CS-1) SOIL SAMPLING LOCATIONS AND CONTAMINATION EXTENTS

DESIGNED BY: JW	SCALE: As Shown
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO.: GV-TB-027105
FIGURE NO.:	FIGURE 13



Aplicable Soil Guidelines		
Parameter	**$SSTL_{HH}$ (6)**	**$SSTL_{ECO}$ (6)**
Acid Extractable Lead (Pb)	3,800	1,857
Acid Extractable Zinc (Zn)	NV	615

CS2-6	
Parameter	**Concentration**
Acid Extractable Lead (Pb)	3100
Acid Extractable Zinc (Zn)	910

CS2-3	
Parameter	**Concentration**
Acid Extractable Lead (Pb)	12000
Acid Extractable Zinc (Zn)	930

CS2-9	
Parameter	**Concentration**
Acid Extractable Lead (Pb)	1900

CS2-2	
Parameter	**Concentration**
Acid Extractable Lead (Pb)	8600
Acid Extractable Zinc (Zn)	1700

CS2-5	
Parameter	**Concentration**
Acid Extractable Lead (Pb)	4100
Acid Extractable Zinc (Zn)	1500

NOTES:

1. All tabulated soil concentration units are ug/g.
2. Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario.
3. "NV" means no value for that parameter was presented in the associated standard/guidance document.
4. Soil parameter concentrations in (parentheses) indicates field duplicate concentration.

DST consulting engineers
885 REGENT STREET, UNIT 3-1B
SUDBURY, ON, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

- Analyzed parameters meet all applicable guidelines (CCME, MOE, SSTL)
- Concentration exceeds 2005 SSTL
- Parameter concentration exceeds generic guidelines or previous maximum concentrations (parameter indicated)
- Concentration meets Reg. 347, Schedule 4: Leachate Quality Criteria.
- Concentration exceeds Reg. 347 , Schedule 4: Leachate Quality Criteria.
- Soil sample location
- Approximate location of debris pile
- Estimated extents of contaminated soil exceeding 2005 SSTLs
- Estimated extents of leachate hazardous soil
- Historical contaminated soil delineation (DST 2005)

NOTES:
1. Exceedances of CCME pH guidelines not shown on this figure
2. Soil parameter results based on laboratory analysis.

REV	DATE	ISSUE	APPROVAL
1	3/29/17	FINAL	CS
0	8/12/16	FINAL	CS

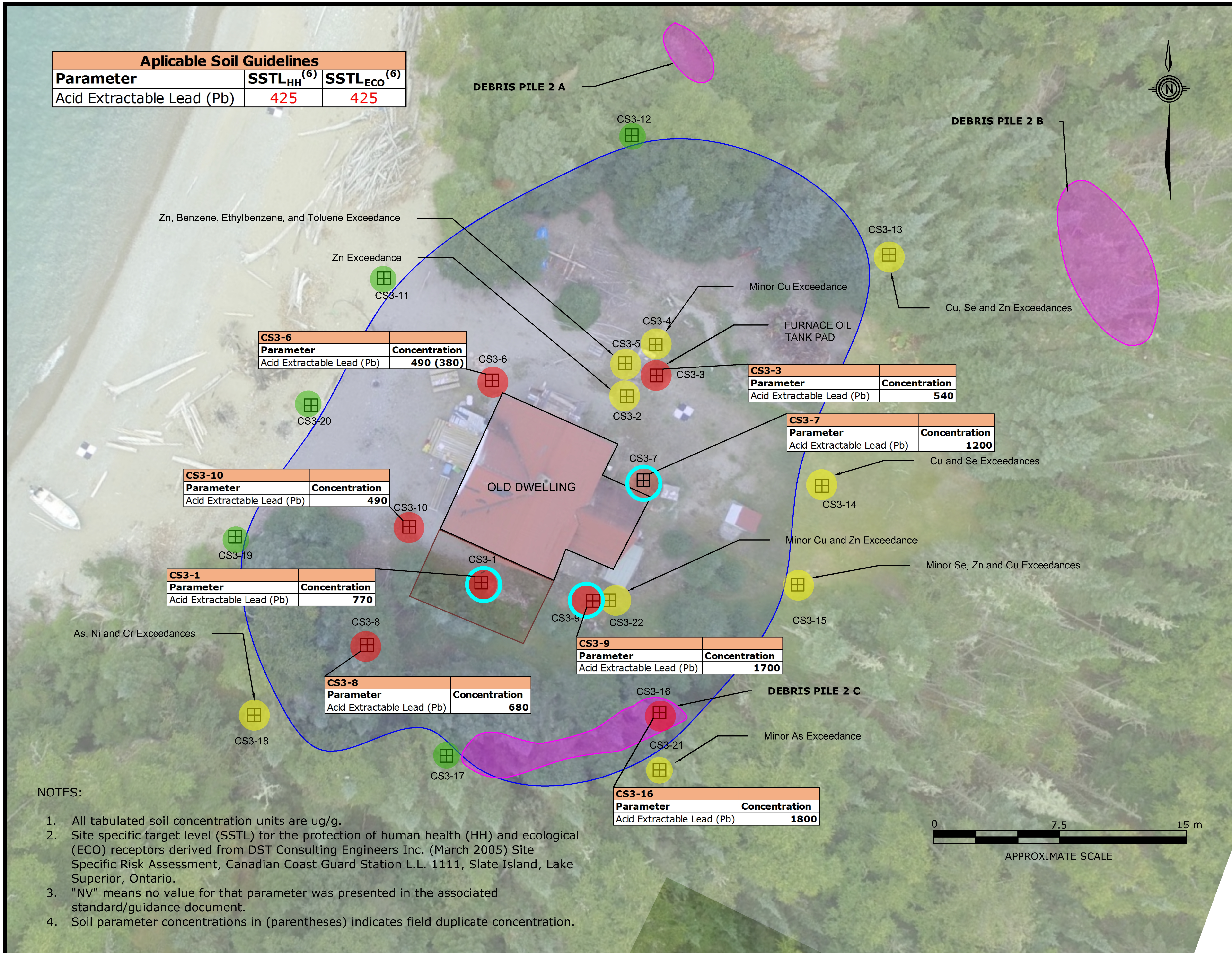
PROJECT TITLE

ENVIRONMENTAL PROGRAM REPORT,
SLATE ISLAND COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE

LIGHTHOUSE (CS-2)
SOIL SAMPLING LOCATIONS AND
CONTAMINATION EXTENTS

DESIGNED BY: JW	SCALE: As Shown
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO.: GV-TB-027105
FIGURE NO.: FIGURE 14	



Aplicable Soil Guidelines		
Parameter	$SSTL_{HH}$ (6)	$SSTL_{ECO}$ (6)
Acid Extractable Lead (Pb)	425	425

CS3-6	
Parameter	Concentration
Acid Extractable Lead (Pb)	490 (380)

CS3-3	
Parameter	Concentration
Acid Extractable Lead (Pb)	540

CS3-7	
Parameter	Concentration
Acid Extractable Lead (Pb)	1200

CS3-10	
Parameter	Concentration
Acid Extractable Lead (Pb)	490

CS3-1	
Parameter	Concentration
Acid Extractable Lead (Pb)	770

CS3-9	
Parameter	Concentration
Acid Extractable Lead (Pb)	1700

CS3-8	
Parameter	Concentration
Acid Extractable Lead (Pb)	680

CS3-16	
Parameter	Concentration
Acid Extractable Lead (Pb)	1800

NOTES:

1. All tabulated soil concentration units are ug/g.
2. Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario.
3. "NV" means no value for that parameter was presented in the associated standard/guidance document.
4. Soil parameter concentrations in (parentheses) indicates field duplicate concentration.

DST
consulting engineers
885 REGENT STREET, UNIT 3-1B
SUDBURY, ON, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

- Analyzed parameters meet all applicable guidelines (CCME, MOE, SSTL)
- Concentration exceeds 2005 SSTL
- Parameter concentration exceeds generic guidelines or previous maximum concentrations (parameter indicated)
- Concentration meets Reg. 347, Schedule 4: Leachate Quality Criteria.
- Concentration exceeds Reg. 347 , Schedule 4: Leachate Quality Criteria.
- Soil sample location
- Approximate location of debris pile
- Estimated extents of contaminated soil exceeding 2005 SSTLs
- Estimated extents of leachate hazardous soil .
- Historical contaminated soil delineation (DST 2005)

NOTES:
1. Exceedances of CCME pH guidelines not shown on this figure
2. Soil parameter results based on laboratory analysis.

REV	DATE	ISSUE	APPROVAL
1	3/29/17	FINAL	CS
0	8/12/16	FINAL	CS

PROJECT TITLE

ENVIRONMENTAL PROGRAM REPORT,
SLATE ISLAND COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE

OLD DWELLING (CS-3)
SOIL SAMPLING LOCATIONS AND
CONTAMINATION EXTENTS

DESIGNED BY: JW	SCALE: As Shown
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO.: GV-TB-027105
FIGURE NO.: FIGURE 15	

Tables

Table 7
Sample Log

Site Location	Sampling ID	Horizontal Coordinates (□)		Correction Factor	Date Sampled	Sample Depth (m)	CVC (ppm)	XRF lead reading (ppm) (2)	Description at sampling location (3)
		□asting	□orthing						
CS□□ Main Site	CS□□□	5□□52□2.□5	5002□0.□□	□0 cm	□□□ug□□□	0.05	□5	663	B
CS□□ Main Site	CS□□2	5□□52□□.2□	5002□5.□□	□□ cm	□□□ug□□□	0.□0	□5	205	□
CS□□ Main Site	CS□□□	5□□52□5.50	500□□5.2□	□□ cm	□□□ug□□□	0.05	□5	812	□
CS□□ Main Site	CS□□□	5□□52□0.□5	5002□□.□5	□2 cm	□□□ug□□□	0.□0	□5	NA (4)	B
CS□□ Main Site	CS□□5	5□□52□2.□□	5002□□.□0	5□ cm	□□□ug□□□	0.□0	□5	593	B
CS□□ Main Site	CS□□□	5□□52□□.5□	500□□□.□0	□□ cm	□□□ug□□□	0.05	□5	111	□
CS□□ Main Site	CS□□□	5□□52□□.□□	5002□2.0□	□.5 m	□□□ug□□□	0.□0	□5	265	□
CS□□ Main Site	CS□□□	5□□52□□.□□	5002□□.05	□□ cm	□□□ug□□□	0.□0	□5	NA	B
CS□□ Main Site	CS□□□	52□52□□.□5	500□□0.□5	□□ cm	□□□ug□□□	0.□0	□5	NA	B
CS□□ Main Site	CS□□□0	5□□52□□.5□	5002□□.2□	5□ cm	□□□ug□□□	0.□0	□5	53610	B
CS□□ Main Site	CS□□□□	5□□52□□.00	500□□0.2□	□□ cm	□□□ug□□□	0.05	□5	1760	B
CS□□ Main Site	CS□□□2	5□□52□5.5□	5002□□.□□	□.5 m	□□□ug□□□	0.05	□5	NA	B
CS□□ Main Site	CS□□□□	5□□52□□.□□	5002□□.□□	□.□ m	□□□ug□□□	0.□2	□5	NA	B
CS□□ Main Site	CS□□□□	5□□52□□.□□	50020□.□□	5□ cm	□□□ug□□□	0.05	□5	NA	□
CS□□ Main Site	CS□□□5	5□□52□□.5□	500□□5.□□	□.□ m	□□□ug□□□	0.□0	□5	NA	□
CS□□ Main Site	CS□□□□	5□□52□□.50	500□□0.□5	□□ cm	□□□ug□□□	0.□5	□5	248	□
CS□□ Main Site	CS□□□□	5□□52□□.□5	5002□□.□□	□□ cm	□□□ug□□□	0.□0	□5	NA	B
CS□□ Main Site	CS□□□□	5□□52□2.□□	50020□.□□	□.□ m	□□□ug□□□	0.□0	□5	NA	□
CS□□ Main Site	CS□□□□	5□□525□.□□	5002□□.□□	□□ cm	□□□ug□□□	0.0□	□5	30500	□
CS□□ Main Site	CS□□20	5□□52□□.□□	50022□.22	5□ cm	□□□ug□□□	0.□0	□5	NA	B
CS□□ Main Site	CS□□2□	5□□52□5.□□	5002□5.5□	□.□ m	□□□ug□□□	0.□5	□5	NA	□
CS□□ Main Site	CS□□22	5□□5□02.□□	5002□2.□□	□.□ m	□□□ug□□□	0.02	□5	NA	□
CS□□ Main Site	CS□□2□	5□□52□□.2□	50020□.□□	5□ cm	□□□ug□□□	0.□0	□5	NA	B
CS□□ Main Site	CS□□2□	5□□52□2.□□	5002□□.□□	□□ cm	□□□ug□□□	0.□0	□5	213	B
CS□□ Main Site	CS□□25	5□□52□□.□□	50025□.5□	□□ cm	□□□ug□□□	0.□0	□5	69	B
CS□□ Main Site	CS□□2□	5□□5255.05	5002□□.□□	□.□ m	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□2□	5□□5255.□0	5002□□.□5	□□ cm	□□□Oct□□□	0.□0	□□	NA	□
CS□□ Main Site	CS□□2□	5□□52□5.□□	500□□□.2□	□.5 m	□□□Oct□□□	0.□0	□□	585	□
CS□□ Main Site	CS□□2□	5□□52□□.□□	500□□2.2□	□.□ m	□□□Oct□□□	0.□0	□□	NA	□
CS□□ Main Site	CS□□□0	5□□5□□0.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□□	82	B
CS□□ Main Site	CS□□□□	5□□52□□.00	500□2□.00	□ m	□□□Oct□□□	0.□0	□□	24	B
CS□□ Main Site	CS□□□2	5□□52□2.□□	5002□□.□□	□ m	□□□Oct□□□	0.□0	□□	75	B
CS□□ Main Site	CS□□□□	5□□5□□□.□2	500□□□.□□	□.□ m	□□□Oct□□□	0.□0	□□	32	B
CS□□ Main Site	CS□□□□	5□□5□2□.□□	500□□□.2□	□□ cm	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□□5	5□□5□0□.□□	5002□□.□□	□□ cm	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□□□	5□□52□□.□□	500□□5.□2	□.□ m	□□□Oct□□□	0.□0	□□	46	□
CS□□ Main Site	CS□□□□	5□□52□□.□□	500□□□.□□	□.□ m	□□□Oct□□□	0.□0	□□	NA	□
CS□□ Main Site	CS□□□□	5□□5□0□.□0	50022□.□□	□.□ m	□□□Oct□□□	0.□0	□□	NA	□
CS□□ Main Site	CS□□□□	5□□52□□.□5	500□□□.0□	□□ cm	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□□0	5□□52□□.□□	5002□□.□2	□0 cm	□□□Oct□□□	0.□0	□□	34	B
CS□□ Main Site	CS□□□□	5□□52□0.□□	5002□□.□□	□.□ m	□□□Oct□□□	0.□0	□□	6	B
CS□□ Main Site	CS□□□2	5□□5□0□.□0	500□□□.50	□□	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□□□	5□□52□□.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□□□	5□□52□□.□□	500□5□.2□	□.□ m	□□□Oct□□□	0.□0	□□	44	B
CS□□ Main Site	CS□□□5	5□□5□0□.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□□	NA	B
CS□□ Main Site	CS□□□□	5□□5□□□.00	5002□□.00	□ m	□□□Oct□□□	0.□0	□□	NA	B
□ast Dump	□ast Dump	5□□52□5.□5	500□2□.□□	□ m	□□□Oct□□□	0.□0	□□	NA	B
□ est Dump	□ est Dump	5□□5□□□.□□	500□□□.□2	□.□ m	□□□ug□□□	0.□0	□□	NA	B
CS□2 Lighthouse □rea	CS2□□	5□□5□□□.0□	5002□2.□□	55 cm	□□□ug□□□	0.05	□□	NA	C
CS□2 Lighthouse □rea	CS2□2	5□□5□□2.□5	500□□0.□□	□□ cm	□□□ug□□□	0.05	□□	4930	C
CS□2 Lighthouse □rea	CS2□□	5□□5□□□.0□	500□22.□2	□□ cm	□□□ug□□□	0.05	□□	9408	C
CS□2 Lighthouse □rea	CS2□□	5□□5□□□.□□	5002□5.□□	□.□ m	□□□ug□□□	0.□0	□□	140	C
CS□2 Lighthouse □rea	CS2□5	5□□5□□5.□□	500□□□.□5	□□ cm	□□□ug□□□	0.05	□□	2782	C
CS□2 Lighthouse □rea	CS2□□	5□□5□□□.□0	500□0□.5□	□.□ m	□□□ug□□□	0.05	□□	2760	C
CS□2 Lighthouse □rea	CS2□□	5□□5□□□.□□	5002□□.5□	□.□ m	□□□ug□□□	0.05	□□	NA	C
CS□2 Lighthouse □rea	CS2□□	5□□5□□0.□□	500□□□.□0	□.0 m	□□□ug□□□	0.05	□□	1072	C
CS□2 Lighthouse □rea	CS2□□	5□□5□□□.□□	500□□□.□5	□.□ m	□□□ug□□□	0.05	□□	5392	C
CS□2 Lighthouse □rea	CS2□□0	5□□55□□□.□□	500□2□.□□	2 m	□□□ug□□□	0.05	□□	2531	C
CS□2 Lighthouse □rea	CS2□□□	5□□5□□5.50	500□□□.20	□.5 m	□□□ug□□□	0.05	□□	3223	C
CS□2 Lighthouse □rea	CS2□□2	5□□55□5□.□□	5002□□.5□	□ m	□□□Oct□□□	0.□0	□5	NA	B
CS□2 Lighthouse □rea	CS2□□□	5□□5□00.00	500□00.00	□ m	□□□Oct□□□	0.□0	□5	NA	B
CS□2 Lighthouse □rea	CS2□□□	5□□5□□□.00	500□2□.00	5 m	□□□Oct□□□	0.□0	□5	98	B
CS□2 Lighthouse □rea	CS2□□5	5□□5□□0.00	500□2□.00	□ m	□□□Oct□□□	0.□0	□5	43	B
CS□2 Lighthouse □rea	CS2□□□	5□□5□□□.0□	5002□□.□□	□□ cm	□□□Oct□□□	0.□0	□5	NA	B
CS□2 Lighthouse □rea	CS2□□□	5□□5□55.00	5002□□.00	□ m	□□□Oct□□□	0.□0	□5	105	C
CS□2 Lighthouse □rea	CS2□□□	5□□5□55.00	50025□.00	□ m	□□□Oct□□□	0.□0	□5	NA	B
CS□2 Lighthouse □rea	CS2□□□	5□□5□2□.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□5	NA	B
CS□2 Lighthouse □rea	CS2□20	5□□5□□□.□5	500□2□.□□	5.□ m	□□□Oct□□□	0.□0	□5	2919	C
CS□2 Lighthouse □rea	CS2□2□	5□□55□□□.0□	500□0□.02	□.2 m	□□□Oct□□□	0.□0	□5	1113	C
CS□2 Lighthouse □rea	CS2□22	5□□5□52.□5	5002□0.22	□.□ m	□□□Oct□□□	0.□0	□5	199	C
CS□□ Old D□elling Site	CS□□□	5□□5□□0.20	500□□0.□0	□.2 m	□□□ug□□□	0.□0	□5	283	D
CS□□ Old D□elling Site	CS□□2	5□□5□55.0□	500□□2.2□	□.□ m	□□□ug□□□	0.□0	□5	188	D
CS□□ Old D□elling Site	CS□□□	5□□5□5□.□0	500□□5.□0	2.2 m	□□□ug□□□	0.□0	□5	35	D
CS□□ Old D□elling Site	CS□□□	5□□5□5□.□2	500□□□.2□	□.□ m	□□□ug□□□	0.□0	□5	NA	D
CS□□ Old D□elling Site	CS□□5	5□□5□5□.□□	500□□2.□□	□.2 m	□□□ug□□□	0.□0	□5	NA	D
CS□□ Old D□elling Site	CS□□□	5□□5□5□.□□	500□□2.2□	□0 cm	□□□ug□□□	0.□0	□5	203	D
CS□□ Old D□elling Site	CS□□□	5□□5□50.5□	500□□□.5□	□0 cm	□□□ug□□□	0.□0	□5	351	D
CS□□ Old D□elling Site	CS□□□	5□□5□□□.□□	500□□□.□0	□□ cm	□□□ug□□□	0.□0	□5	32	B
CS□□ Old D□elling Site	CS□□□	5□□5□□0.55	500□□□.0□	□.5 m	□□□ug□□□	0.□0	□5	185	D
CS□□ Old D□elling Site	CS□□□0	5□□5□□□.0□	500□□□.□2	5 m	□□□ug□□□	0.□0	□5	221	D
CS□□ Old D□elling Site	CS□□□□	5□□5□□2.□5	500□□5.02	□.□ m	□□□Oct□□□	0.□0	□5	NA	D
CS□□ Old D□elling Site	CS□□□2	5□□5□□5.00	500□□□.00	□0 m	□□□Oct□□□	0.□0	□5	51	B
CS□□ Old D□elling Site	CS□□□□	5□□5□□□.00	500□0□.00	□ m	□□□Oct□□□	0.□0	□5	53	B
CS□□ Old D□elling Site	CS□□□□	5□□5□5□.□5	500□0□.□□	□.□ m	□□□Oct□□□	0.□0	□5	59	D
CS□□ Old D□elling Site	CS□□□5	5□□5□□□.5□	500□0□.02	□.□ m	□□□Oct□□□	0.□0	□5	71	D
CS□□ Old D□elling Site	CS□□□□	5□□5□□0.00	500□00.00	□ m	□□□Oct□□□	0.□0	□5	110	B
CS□□ Old D□elling Site	CS□□□□	5□□5□□□.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□5	97	B
CS□□ Old D□elling Site	CS□□□□	5□□5□□2.00	500□□2.00	□ m	□□□Oct□□□	0.□0	□5	101	B
CS□□ Old D□elling Site	CS□□□□	5□□5□□□.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□5	119	B
CS□□ Old D□elling Site	CS□□20	5□□5□5□.□□	500□□2.□□	□.□ m	□□□Oct□□□	0.□0	□5	NA	B
CS□□ Old D□elling Site	CS□□2□	5□□5□□□.00	500□□□.00	□ m	□□□Oct□□□	0.□0	□5	NA	B
CS□□ Old D□elling Site	CS□□22	5□□5□□□.00	500□□0.00	□ m	□□□Oct□□□	0.□0	□5	130	D

Notes:

□) Hori□ontal coordinates provided in Canadian Spatial Referencing S□stem (CSRS) □orth □merican Datum □□□□ (□□D□□) □niversal Transverse Mercator (□TM) □one □□ (□orth).

2) "ppm" means parts per million.

□) Soil Description□

□ □ coarse□te□tured gravel a□□ cobbles□□ith dar□bro□n□organic□rich topsoil□shallo□ a□□ discontiunous
B □ Organic Litter□Fibric a□□ Humus (LFH) hori□ons. □□□erl□ing the LFH hori□ons□mineral soils □ere fou□□ to have a coarse sa□□□loam te□ture □ith some gravel

C □ Discontinuous sa□□□gravel □ith some cobbles in lo□□□ing patches on the rugged bedroc□surface.

D □ Medium to coarse grained sa□□ □ith some gravel.

□) "□□" means no data available.

Table 8
Soil Analytical Results
CS-1 Main Site

Parameter	Units	CCME Residential (4)	MOE Table 1 (5)	$SSTL_{HH}$ (6)	$SSTL_{ECO}$ (6)	CS1-1	CS1-2	CS1-3	CS1-4	CS1-5	CS10-5	CS1-6	CS1-7	CS1-8	CS1-9	CS10-9	CS1-10	CS1-11	CS1-12	CS1-13	CS1-14	CS1-15	CS1-16	CS1-17
Sample Location						CS-1 Main Site																		
Date						31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16
XRF Lead Reading (ppm (1))						663	205	812	ND (2)	593	593	111	265	ND	ND	ND	53610	1760	NA (3)	NA	NA	NA	248	NA
Sample Depth (m)						0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
											Field Duplicate of CS1-5					Field Duplicate of CS1-9								
Petroleum Hydrocarbons																								
F1 (C6-C10)	µg/g	30	25	450 (8) (9)	NV (7)	<20	<10	-	<10	<10	<10	<10	<10	<10	<50	<40	<30	<20	<20	-	-	-	-	-
F1 (C6-C10) - BTEX	µg/g	30	25	450 (9)	NV	<20	<10	-	<10	<10	<10	<10	<10	<10	<50	<40	<30	<20	<20	-	-	-	-	-
F2 (C10-C16)	µg/g	150	10	54,000 (9)	NV	14	<10	-	<10	<10	12	<10	<10	<10	36	120	29	68	18	-	-	-	-	-
F3 (C16-C34)	µg/g	300	240	7,200 (9)	NV	180	94	-	<50	72	100	75	180	<50	250	1,100	350	3,200	190	-	-	-	-	-
F4 (C34-C50)	µg/g	2,800	120	NV	NV	160	<50	-	<50	<50	<50	<50	100	<50	<100	270	76	1,300	110	-	-	-	-	-
Reached Baseline at C50	µg/g	NV	-	NV	NV	NO	YES	-	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	NO	-	-	-	-	-
F4G (Gravimetric)	µg/g	2,800	120	NV	NV	180	-	-	-	-	-	-	150	-	-	-	-	-	<100	-	-	-	-	-
VOC																								
Benzene	µg/g	0.030	0.02	NV	NV	**0.039**	0.03	-	<0.0060	**0.071**	**0.084**	<0.0060	0.014	<0.0060	<0.030	<0.024	<0.018	**0.27**	**0.041**	-	-	-	-	-
Ethylbenzene	µg/g	0.082	0.05	NV	NV	**0.089**	0.033	-	<0.010	**0.094**	0.059	<0.010	0.02	<0.010	<0.050	<0.040	<0.030	0.053	0.044	-	-	-	-	-
Toluene	µg/g	0.37	0.2	NV	NV	0.27	0.15	-	<0.020	0.35	0.29	<0.020	0.076	<0.020	<0.10	<0.080	<0.060	0.15	0.21	-	-	-	-	-
p+m-Xylene	µg/g	NV	NV	NV	NV	0.33	0.14	-	<0.020	0.44	0.23	<0.020	0.088	<0.020	<0.10	0.11	<0.060	0.15	0.21	-	-	-	-	-
o-Xylene	µg/g	NV	NV	NV	NV	0.21	0.093	-	<0.020	0.37	0.19	<0.020	0.064	<0.020	<0.10	<0.080	<0.060	0.051	0.096	-	-	-	-	-
Total Xylenes	µg/g	11	0.05	NV	NV	0.54	0.24	-	<0.020	0.81	0.42	<0.020	0.15	<0.020	<0.10	0.11	<0.060	0.2	0.3	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																								
Acenaphthene	µg/g	0.28	0.072	NV	NV	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	<0.05	-	-	-	-	-
Acenaphthylene	µg/g	320	0.093	NV	NV	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	**0.09**	-	-	-	-	-
Anthracene	µg/g	2.5	0.16	NV	NV	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	<0.05	-	-	-	-	-
Benzo(a)anthracene	µg/g	1	0.36	NV	NV	0.05	0.24	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	0.14	-	-	-	-	-
Benzo(a)pyrene	µg/g	0.6	0.3	NV	NV	0.06	0.25	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	0.13	-	-	-	-	-
Benzo(b/j)fluoranthene	µg/g	1	0.47	NV	NV	0.09	0.36	-	<0.05	<0.05	0.05	<0.05	0.09	<0.05	<0.1	<0.1	<0.1	0.08	0.25	-	-	-	-	-
Benzo(g,h,i)perylene	µg/g	NV	0.68	NV	NV	0.06	0.17	-	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.1	<0.1	<0.1	0.07	0.14	-	-	-	-	-
Benzo(k)fluoranthene	µg/g	1	0.48	NV	NV	<0.05	0.12	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	0.07	-	-	-	-	-
Chrysene	µg/g	6.2	2.8	NV	NV	0.08	0.24	-	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.1	<0.1	<0.1	<0.05	0.15	-	-	-	-	-
Dibenz(a,h)anthracene	µg/g	1	0.1	NV	NV	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	<0.05	-	-	-	-	-
Fluoranthene	µg/g	15.4	0.56	NV	NV	0.15	0.39	-	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.1	<0.1	<0.1	<0.05	0.24	-	-	-	-	-
Fluorene	µg/g	0.25	0.12	NV	NV	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	<0.05	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/g	1	0.23	NV	NV	0.06	0.19	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	0.14	-	-	-	-	-
1-Methylnaphthalene	µg/g	NV	0.59	NV	NV	0.13	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.1	<0.1	<0.1	0.34	<0.05	-	-	-	-	-
2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	0.22	0.06	-	<0.05	0.07	<0.05	<0.05	0.12	<0.05	<0.1	<0.1	<0.1	**0.84**	0.07	-	-	-	-	-
1+2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	0.35	<0.071	-	<0.071	<0.071	<0.071	<0.071	0.21	<0.071	<0.14	<0.14	<0.14	**1.2**	0.071					
Naphthalene	µg/g	0.013	0.09	3.2 (9)	3.2 (9)	0.11	<0.05	-	<0.05	0.05	*<0.05*	<0.05	0.06	<0.05	<0.1	<0.1	<0.1	0.37	<0.05	-	-	-	-	-
Phenanthrene	µg/g	0.046	0.69	NV	NV	**0.14**	**0.13**	-	*<0.05*	*<0.05*	*<0.05*	*<0.05*	**0.09**	*<0.05*	*<0.1*	*<0.1*	*<0.1*	**0.3**	**0.05**	-	-	-	-	-
Pyrene	µg/g	7.7	1	NV	NV	0.17	0.33	-	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.1	<0.1	<0.1	0.33	0.2	-	-	-	-	-
Benzo(a)pyrene Total Potency Equivalents	µg/g	5.3	NV	NV	NV	0.106	0.370	-	0.061	0.061	0.063	0.061	0.068	0.061	0.121	0.121	0.121	0.066	0.218	-	-	-	-	-
Metals																								
Acid Extractable Antimony (Sb)	µg/g	20	1.3	NV	NV	2.6	6.7	15	0.34	1.9	1.8	1.2	3.1	0.47	0.24	<0.20	**580**	**74**	1.5	0.24	0.52	0.42	1.8	0.37
Acid Extractable Arsenic (As)	µg/g	12	18	NV	NV	6.4	6.6	12	1.1	6.7	6.9	5.9	7.1	3.3	1.3	<1.0	**14**	**21**	5.3	4.5	7.5	3.3	5.3	2.9
Acid Extractable Barium (Ba)	µg/g	500	220	1,480 (9)	1,480 (9)	250	350	540	240	240	240	140	310	48	200	190	400	**2,600**	290	110	180	140	190	300
Acid Extractable Beryllium (Be)	µg/g	4	2.5	NV	NV	0.66	1.5	<0.20	<0.20	0.37	0.35	0.24	0.58	<0.20	<0.20	<0.20	<2.0	0.44	<0.20	0.43	0.31	<0.20	0.85	<0.20
Acid Extractable Cadmium (Cd)	µg/g	10	1.2	NV	NV	1.8	5.3	**160**	0.27	1.6	1.7	0.54	3.4	0.32	1	0.6	1.6	**63**	**14**	0.72	0.86	1	1.2	0.96
Acid Extractable Chromium (Cr)	µg/g	64	70	149 (9)	149 (9)	39	49	74	16	56	48	53	70	21	8.8	5.9	23	**380**	37	34	53	8.7	17	21
Acid Extractable Cobalt (Co)	µg/g	50	21	NV	NV	11	13	17	5.4	26	25	16	16	14	3.4	2.3	4.5	47	14	10	14	2	8.8	5.2
Acid Extractable Copper (Cu)	µg/g	63	92	744 (9)	744 (9)	94	170	**3,100**	20	120	120	92	210	31	23	19	50	**2,300**	74	110	36	29	160	26
Acid Extractable Lead (Pb)	µg/g	140	120	425	425	**890**	**860**	**2,200**	91	**910**	**650**	290	**1,600**	76	62	36	**47,000**	**14,000**	**1,300**	34	120	53	**640**	220
Acid Extractable Molybdenum (Mo)	µg/g	10	2	NV	NV	1.2	1.5	6.3	0.56	1.6	1.2	0.69	1.9	0.55	<0.50	<0.50	*<5.0*	**38**	1.4	1.7	1.1	1	1.9	0.81
Acid Extractable Nickel (Ni)	µg/g	45	82	111 (9)	111 (9)	28	37	87	12	86	80	42	51	50	9.4	6.4	18	**120**	29	28	32	7	19	14
Acid Extractable Selenium (Se)	µg/g	1	1.5	NV	NV	0.95	**1.5**	0.95	<0.50	1	0.89	0.8	**1.4**	<0.50	0.56	<0.50	*<5.0*	1	0.89	**1.7**	0.78	0.94	**1.2**	0.89
Acid Extractable Silver (Ag)	µg/g	20	0.5	NV	NV	<0.20	0.26	1.3	<0.20	0.25	0.24	<0.20	0.29	<0.20	<0.20	<0.20	*<2.0*	8	<0.20	0.26	<0.20	<0.20	<0.20	0.23
Acid Extractable Thallium (Tl)	µg/g	1	1	NV	NV	0.25	0.28	0.32	0.071	0.21	0.085	0.054	0.31	<0.050	0.064	0.053	<0.50	**1.7**	0.26	0.082	0.097	0.085	0.19	0.085
Acid Extractable Uranium (U)	µg/g	23	2.5	NV	NV	0.61	0.87	0.33	0.81	1.5	1.4	0.4	0.65	0.23	0.13	0.12	<0.50	0.85	0.32	1.7	0.49	0.45	0.63	0.28
Acid Extractable Vanadium (V)	µg/g	130	86	151 (9)	151 (9)	61	47	16	29	95	87	35	54	19	11	6.9	<50	49	41	66	44	8.1	25	22
Acid Extractable Zinc (Zn)	µg/g	200	290	NV	615	**860**	**750**	**7,100**	150	**1,000**	**1,100**	86	**1,100**	110	400	350	250	**14,000**	**2,400**	85	150	190	**830**	130
Miscellaneous																								
Available (CaCl2) pH	pH	6 - 8	NV	NV	NV	6.82	7.02	**5.83**	6	**5.66**	**5.56**	6.3	7.17	**5.82**	**5.04**	**5.49**	**5.07**	6.7	**5.47**	**4.7**	**4.68**	**4.83**	**5.64**	**3.9**

Notes

1) "ppm" means parts per million.
2) "ND" means not detected.
3) "NA" means no field parameter reading was taken at that sample location
4) CCME guidelines were derived from the following, for residential land use:
- For PHCs - CCME (2008), *Canada Wide Standard for Petroleum Hydrocarbons in Soil - Technical Supplement* ; Table 3: Tier 1 levels for coarse grained surface soils. Guideline values are the most stringent of all pathways excluding the protection of potable groundwater.
- For VOCs - CCME (1999, as revised), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* ; Coarse Soil. Guideline for 10^{-5} incremental lifetime cancer risk was used for benzene guideline.
- For PAHs - CCME (2010), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* ; Table 2: Soil Quality Guidelines for Carcinogenic and Other PAHs. Includes the lowest value of all pathways except potable water.
  - Includes Interim Soil Quality Criteria and provisional values.
  - Benzo(a)pyrene Total Potency Equivalent derived from the carcinogenic effects of PAHs, based on 1 x 10^{-5} incremental lifetime cancer risk. Where input values are less than the reported detection limit, half the detection limit is used in calculation.
- For Inorganics - CCME (1999, as revised), *Canadian Soil Quality Guidelines, Soil Guidelines for the Protection of Environment and Human Health* ; Coarse Soil.

5) Values obtained from MOE (2011) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;* Table 1: Full Depth Background Site Condition Standards; Coarse-grained Soil, Residential Property Use.
6) Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) *Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario* .
7) "NV" means no value for that parameter was presented in the associated standard/guidance document.
8) The standard or guideline values that are considered "applicable" to this investigation (i.e. SSTLs, CCME guidelines or MOE standards) are indicated by red typeface.
9) Value represents previous maximum concentration measured at the Site, and considered to be no risk to receptors; not a calculated SSTL (DST, 2005).
10) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.
11) If applicable, where the laboratory detection limit is greater than the applicable guideline, it is indicated by *italic and underlined typeface* .

Table 8
Soil Analytical Results
CS-1 Main Site

					Sample Location	CS-1 Main Site																		
					Sample ID	CS1-18	CS1-19	CS1-20	CS1-21	CS1-22	CS1-23	CS10-23	CS1-24	CS1-25	CS1-26	CS1-27	CS1-28	CS1-29	CS1-30	CS1-31	CS1-32	CS1-33	CS1-34	CS1-35
					Date	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	31-Aug-16	13-Oct-16	12-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16
					XRF Lead Reading (ppm[1])	NA [3]	30500	NA	NA	NA	NA	ND [2]	213	69	ND	NA	585	ND	82	24	75	32	ND	ND
					Sample Depth (m)	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Parameter	**Units**	**CCME Residential [4]**	**MOE Table 1 [5]**	**$SSTL_{HH}$ [6]**	**$SSTL_{ECO}$ [6]**							Field Duplicate of CS1-23												
Petroleum Hydrocarbons																								
F1 (C6-C10)	µg/g	30	25	450 [8] [9]	NV [7]	-	-	-	-	<70	-	-	-	-	-	-	-	-	-	-	-	-	-	44
F1 (C6-C10) - BTEX	µg/g	30	25	450 [9]	NV	-	-	-	-	<70	-	-	-	-	-	-	-	-	-	-	-	-	-	44
F2 (C10-C16)	µg/g	150	10	54,000 [9]	NV	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	<10
F3 (C16-C34)	µg/g	300	240	7,200 [9]	NV	-	-	-	-	2,100	-	-	-	-	-	-	-	-	-	-	-	-	-	<50
F4 (C34-C50)	µg/g	2,800	120	NV	NV	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	<50
Reached Baseline at C50	µg/g	-	-	NV	NV	-	-	-	-	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	YES
F4G (Gravimetric)	µg/g	2,800	120	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VOC																								
Benzene	µg/g	0.030	0.02	NV	NV	-	-	-	-	*<0.042*	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.040
Ethylbenzene	µg/g	0.082	0.05	NV	NV	-	-	-	-	**0.35**	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.040
Toluene	µg/g	0.37	0.2	NV	NV	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.040
p+m-Xylene	µg/g	NV	NV	NV	NV	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.080
o-Xylene	µg/g	NV	NV	NV	NV	-	-	-	-	0.56	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.040
Total Xylenes	µg/g	11	0.05	NV	NV	-	-	-	-	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.080
Polycyclic Aromatic Hydrocarbons (PAHs)																								
Acenaphthene	µg/g	0.28	0.072	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Acenaphthylene	µg/g	320	0.093	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Anthracene	µg/g	2.5	0.16	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Benzo(a)anthracene	µg/g	1	0.36	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Benzo(a)pyrene	µg/g	0.6	0.3	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Benzo(b/j)fluoranthene	µg/g	1	0.47	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Benzo(g,h,i)perylene	µg/g	NA	0.68	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Benzo(k)fluoranthene	µg/g	1	0.48	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Chrysene	µg/g	6.2	2.8	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Dibenz(a,h)anthracene	µg/g	1	0.1	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Fluoranthene	µg/g	15.4	0.56	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Fluorene	µg/g	0.25	0.12	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Indeno(1,2,3-cd)pyrene	µg/g	1	0.23	NV	NV	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
1-Methylnaphthalene	µg/g	NV	0.59	NV	NV	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
1+2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	-	-	-	-	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Naphthalene	µg/g	0.013	0.09	3.2 [9]	3.2 [9]	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Phenanthrene	µg/g	0.046	0.69	NV	NV	-	-	-	-	*<0.1*	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Pyrene	µg/g	7.7	1	NV	NV	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050
Benzo(a)pyrene Total Potency Equivalents	µg/g	5.3	NV	NV	NV	-	-	-	-	0.121	-	-	-	-	-	-	-	-	-	-	-	-	-	0.006
Metals																								
Acid Extractable Antimony (Sb)	µg/g	20	1.3	NV	NV	0.24	3.3	0.38	0.42	0.35	0.31	0.33	<0.20	<0.20	0.41	2.5	2.9	0.57	3.7	0.45	0.47	0.39	0.56	<0.20
Acid Extractable Arsenic (As)	µg/g	12	18	NV	NV	4.9	7.2	**21**	2.9	3.5	7.1	9	4.6	2	7.3	4.3	**13**	2.9	4.8	4.9	7.4	5.3	9.2	2.2
Acid Extractable Barium (Ba)	µg/g	500	220	1,480 [9]	1,480 [9]	180	1100	340	110	200	95	100	120	67	240	140	170	22	140	140	270	57	170	81
Acid Extractable Beryllium (Be)	µg/g	4	2.5	NV	NV	0.42	0.36	0.56	0.22	<0.20	0.3	0.34	0.3	0.22	0.57	0.59	1.0	<0.20	<0.20	<0.20	<0.20	<0.20	0.32	0.33
Acid Extractable Cadmium (Cd)	µg/g	10	1.2	NV	NV	1.5	4	2.7	0.57	1.1	0.84	1	0.74	0.36	1.1	0.56	1.3	0.35	0.78	1.6	1.2	0.74	1.8	0.20
Acid Extractable Chromium (Cr)	µg/g	64	70	149 [9]	149 [9]	39	50	44	22	13	60	75	31	51	42	110	18	2.7	27	24	12	7.2	12	92
Acid Extractable Cobalt (Co)	µg/g	50	21	NV	NV	8.6	20	10	6.9	2.1	5.1	5.8	7.5	36	14	31	11	0.68	17	5.4	6.1	2.1	3.3	46
Acid Extractable Copper (Cu)	µg/g	63	92	744 [9]	744 [9]	600	110	220	52	27	110	140	77	55	88	70	68	6.8	30	49	85	22	150	54
Acid Extractable Lead (Pb)	µg/g	140	120	425	425	50	**16,000**	71	60	67	81	150	82	47	130	**680**	**950**	59	**570**	160	130	56	47	14
Acid Extractable Molybdenum (Mo)	µg/g	10	2	NV	NV	2.2	1.5	3.7	0.7	0.83	0.99	1	0.59	<0.50	1.4	0.89	2.7	0.65	0.74	1.2	1.3	1.1	1.2	<0.50
Acid Extractable Nickel (Ni)	µg/g	45	82	111 [9]	111 [9]	74	33	49	19	8.6	32	38	28	110	29	91	25	2.8	36	19	14	7.7	28	**130**
Acid Extractable Selenium (Se)	µg/g	1	1.5	NV	NV	**2.9**	**1.4**	**2.8**	0.67	0.96	**3.5**	**3.6**	**1.2**	0.63	**1.3**	0.56	**4.7**	0.68	0.76	1.0	0.73	**1.4**	**1.8**	<0.50
Acid Extractable Silver (Ag)	µg/g	20	0.5	NV	NV	0.61	0.43	0.42	<0.20	0.25	<0.20	0.23	<0.20	<0.20	0.27	<0.20	0.27	<0.20	<0.20	0.32	0.21	<0.20	0.35	<0.20
Acid Extractable Thallium (Tl)	µg/g	1	1	NV	NV	0.12	**2.1**	0.15	0.072	0.089	0.12	0.15	0.076	0.054	0.094	0.11	0.35	<0.050	0.22	0.078	0.090	0.060	0.088	<0.050
Acid Extractable Uranium (U)	µg/g	23	2.5	NV	NV	4	0.64	2.4	0.76	0.37	1.5	1.8	1.4	0.32	1.9	0.41	0.84	0.10	0.20	0.39	0.24	0.80	1.1	0.11
Acid Extractable Vanadium (V)	µg/g	130	86	151 [9]	151 [9]	60	32	50	21	11	40	46	31	130	55	79	31	<5.0	59	41	15	6.2	8.5	**160**
Acid Extractable Tin (Sn)	µg/g	200	290	NV	NV	<1.0	11	<1.0	2.1	1.4	1.3	1.6	<1.0	<1.0	230	290	540	12	150	120	280	31	94	100
Acid Extractable Zinc (Zn)	µg/g	200	290	NV	615	320	**5,300**	280	160	93	100	130	160	130	230	290	540	12	150	120	280	31	94	100
Miscellaneous																								
Available (CaCl2) pH	pH	6 - 8	NV	NV	NV	**5.69**	6.53	**5.15**	6.98	**3.58**	6.07	6.06	6.91	**5.65**	**5.99**	7.14	**5.63**	**3.39**	**4.90**	**3.40**	**4.44**	**3.26**	**5.39**	**4.93**

Notes
1) "ppm" means parts per million.
2) "ND" means not detected.
3) "NA" means no field parameter reading was taken at that sample location
4) CCME guidelines were derived from the following, for residential land use:
- For PHCs - CCME (2008), *Canada Wide Standard for Petroleum Hydrocarbons in Soil - Technical Supplement* ; Table 3: Tier 1 levels for coarse grained surface soils. Guideline values are the most stringent of all pathways excluding the protection of potable groundwater.
- For VOCs - CCME (1999, as revised), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* ; Coarse Soil. Guideline for 10^{-5} incremental lifetime cancer risk was used for benzene guideline.
- For PAHs - CCME (2010), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* ; Table 2: Soil Quality Guidelines for Carcinogenic and Other PAHs. Includes the lowest value of all pathways except potable water.
  - Includes Interim Soil Quality Criteria and provisional values.
  - Benzo(a)pyrene Total Potency Equivalent derived from the carcinogenic effects of PAHs, based on 1 x 10^{-5} incremental lifetime cancer risk. Where input values are less than the reported detection limit, half the detection limit is used in calculation.
- For Inorganics - CCME (1999, as revised), *Canadian Soil Quality Guidelines, Soil Guidelines for the Protection of Environment and Human Health* ; Coarse Soil.
5) Values obtained from MOE (2011) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;* Table 1: Full Depth Background Site Condition Standards; Coarse-grained Soil, Residential Property Use.
6) Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) *Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario* .
7) "NV" means no value for that parameter was presented in the associated standard/guidance document.
8) The standard or guideline values that are considered "applicable" to this investigation (i.e. SSTLs, CCME guidelines or MOE standards) are indicated by red typeface.
9) Value represents previous maximum concentration measured at the Site, and considered to be no risk to receptors; not a calculated SSTL (DST, 2005).
10) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.
11) If applicable, where the laboratory detection limit is greater than the applicable guideline, it is indicated by *italic and underlined typeface* .

Table 8
Soil Analytical Results
CS-1 Main Site

Sample Location						CS-1 Main Site													
Sample ID						CS1-36	CS1-37	CS1-38	CS1-39	CS1-40	CS1-41	CS1-410	CS1-42	CS1-43	CS1-44	CS1-45	CS1-46	East Dump	West Dump
Date						13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	13-Oct-16	1-Sep-16	1-Sep-16
XRF Lead Reading (ppm (1))						46	ND (2)	ND	ND	34	6	NA	NA (3)	ND	44	ND	ND	ND	ND
Sample Depth (m)						0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Parameter	Units	CCME Residential (4)	MOE Table 1 (5)	$SSTL_{HH}$ (6)	$SSTL_{ECO}$ (6)							Field Duplicate of CS1-41							
Petroleum Hydrocarbons																			
F1 (C6-C10)	µg/g	30 (5)	25	450 (8) (9)	NV (7)	<50	<100	<10	-	-		-	-	-	-	-	-	<60	<80
F1 (C6-C10) - BTEX	µg/g	30	25	450 (9)	NV	<50	<100	<10	-	-		-	-	-	-	-	-	<60	<80
F2 (C10-C16)	µg/g	150	10	54,000 (9)	NV	<20	<30	<10	-	-		-	-	-	-	-	-	<10	<20
F3 (C16-C34)	µg/g	300	240	7,200 (9)	NV	150	160	<50	-	-		-	-	-	-	-	-	300	190
F4 (C34-C50)	µg/g	2,800	120	NV	NV	<100	<150	<50	-	-		-	-	-	-	-	-	330	<100
Reached Baseline at C50	µg/g	-	-	NV	NV	YES	YES	YES	-	-		-	-	-	-	-	-	YES	YES
F4G (Gravimetric)	µg/g	2,800	120	NV	NV	-	-	-	-	-		-	-	-	-	-	-	-	-
VOC																			
Benzene	µg/g	0.030	0.02	NV	NV	<0.10	<0.20	<0.020	-	-		-	-	-	-	-	-	<0.036	<0.048
Ethylbenzene	µg/g	0.082	0.05	NV	NV	<0.10	<0.20	<0.020	-	-		-	-	-	-	-	-	<0.060	<0.080
Toluene	µg/g	0.37	0.2	NV	NV	<0.10	<0.20	<0.020	-	-		-	-	-	-	-	-	<0.12	<0.16
p+m-Xylene	µg/g	NV	NV	NV	NV	<0.20	<0.40	<0.040	-	-		-	-	-	-	-	-	<0.12	<0.16
o-Xylene	µg/g	NV	NV	NV	NV	<0.10	<0.20	<0.020	-	-		-	-	-	-	-	-	<0.12	<0.16
Total Xylenes	µg/g	11	0.05	NV	NV	<0.20	<0.40	<0.040	-	-		-	-	-	-	-	-	<0.12	<0.16
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Acenaphthene	µg/g	0.28	0.072	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/g	320	0.093	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/g	2.5	0.16	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	µg/g	1	0.36	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/g	0.6	0.3	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Benzo(b/j)fluoranthene	µg/g	1	0.47	NV	NV	<0.010	0.040	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/g	NA	0.68	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/g	1	0.48	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/g	6.2	2.8	NV	NV	<0.010	0.021	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	µg/g	1	0.1	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/g	15.4	0.56	NV	NV	0.012	0.027	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/g	0.25	0.12	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/g	1	0.23	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	µg/g	NV	0.59	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
1+2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	µg/g	0.013	0.09	3.2 (9)	3.2 (9)	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/g	0.046	0.69	NV	NV	<0.010	<0.015	<0.0050	-	-	-	-	-	-	-	-	-	-	-
	µg/g	7.7	1	NV	NV	<0.010	0.021	0.0065	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene Total Potency Equivalents	µg/g	5.3	NV	NV	NV	0.012	0.022	0.006	-	-	-	-	-	-	-	-	-	-	-
Metals																			
Acid Extractable Antimony (Sb)	µg/g	20	1.3	NV	NV	0.51	0.54	<0.20	0.50	0.44	<0.20	0.22	0.62	1.1	0.96	0.43	0.46	0.77	0.89
Acid Extractable Arsenic (As)	µg/g	12	18	NV	NV	4.6	4.7	2.4	8.1	7.5	1.5	1.7	2.7	3.1	5.6	2.0	4.2	11	3.2
Acid Extractable Barium (Ba)	µg/g	500	220	1,480 (9)	1,480 (9)	190	120	48	130	180	40	40	120	97	230	110	170	190	110
Acid Extractable Beryllium (Be)	µg/g	4	2.5	NV	NV	<0.20	<0.20	0.28	0.46	0.31	<0.20	<0.20	<0.20	<0.20	0.24	<0.20	0.20	0.28	<0.20
Acid Extractable Cadmium (Cd)	µg/g	10	1.2	NV	NV	0.53	0.52	0.19	1.0	1.5	0.22	0.14	0.74	0.59	9.4	0.24	1.5	1.8	1.7
Acid Extractable Chromium (Cr)	µg/g	64	70	149 (9)	149 (9)	4.9	3.6	62	51	31	18	18	13	7.4	18	5.6	32	30	7.0
Acid Extractable Cobalt (Co)	µg/g	50	21	NV	NV	1.1	0.85	41	7.8	12	3.5	3.6	2.5	1.2	3.8	1.3	12	5.8	1.8
Acid Extractable Copper (Cu)	µg/g	63	92	744 (9)	744 (9)	12	8.1	41	51	150	13	12	24	18	41	17	62	42	46
Acid Extractable Lead (Pb)	µg/g	140	120	425	425	44	56	14	83	83	14	13	110	100	140	29	170	190	240
Acid Extractable Molybdenum (Mo)	µg/g	10	2	NV	NV	1.3	1.0	0.51	1.9	1.3	<0.50	<0.50	1.0	1.0	1.1	0.63	1.3	1.5	2.7
Acid Extractable Nickel (Ni)	µg/g	45	82	111 (9)	111 (9)	4.1	3.0	100	24	47	9.3	10	10	5.0	15	9.0	30	20	6.8
Acid Extractable Selenium (Se)	µg/g	1	1.5	NV	NV	**1.4**	0.97	<0.50	**1.1**	**1.4**	<0.50	<0.50	0.99	1.0	1.0	0.89	0.97	1	1.1
Acid Extractable Silver (Ag)	µg/g	20	0.5	NV	NV	<0.20	<0.20	<0.20	0.22	0.27	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.33	<0.20	0.37
Acid Extractable Thallium (Tl)	µg/g	1	1	NV	NV	0.055	0.075	<0.050	0.068	0.086	0.051	<0.050	0.12	0.054	0.10	<0.050	0.084	0.13	<0.050
Acid Extractable Uranium (U)	µg/g	23	2.5	NV	NV	0.36	0.19	0.17	0.49	2.4	0.50	0.73	0.31	0.19	0.43	0.28	0.62	0.56	0.28
Acid Extractable Vanadium (V)	µg/g	130	86	151 (9)	151 (9)	5.8	5.1	**160**	39	38	18	20	14	6.7	20	<5.0	39	42	<5.0
Acid Extractable Tin (Sn)	µg/g	200	290	NV	NV	34	20	67	96	190	35	36	270	120	190	13	210	6.6	57
Acid Extractable Zinc (Zn)	µg/g	200	290	NV	615	34	20	67	96	190	35	36	270	120	190	13	210	120	130
Miscellaneous																			
Available (CaCl2) pH	pH	6 - 8	NV	NV	NV	**3.26**	**3.31**	**5.35**	**4.08**	6.30	6.91	6.93	**3.81**	**3.85**	**3.93**	**4.79**	**5.49**	**3.93**	**4.79**

Notes
1) "ppm" means parts per million.
2) "ND" means not detected.
3) "NA" means no field parameter reading was taken at that sample location
4) CCME guidelines were derived from the following, for residential land use:
- For PHCs - CCME (2008), *Canada Wide Standard for Petroleum Hydrocarbons in Soil - Technical Supplement* ; Table 3: Tier 1 levels for coarse grained surface soils. Guideline values are the most stringent of all pathways excluding the protection of potable groundwater.
- For VOCs - CCME (1999, as revised), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* ; Coarse Soil. Guideline for 10^{-5} incremental lifetime cancer risk was used for benzene guideline.
- For PAHs - CCME (2010), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* ; Table 2: Soil Quality Guidelines for Carcinogenic and Other PAHs. Includes the lowest value of all pathways except potable water.
  - Includes Interim Soil Quality Criteria and provisional values.
  - Benzo(a)pyrene Total Potency Equivalent derived from the carcinogenic effects of PAHs, based on 1 x 10^{-5} incremental lifetime cancer risk. Where input values are less than the reported detection limit, half the detection limit is used in calculation.
- For Inorganics - CCME (1999, as revised), *Canadian Soil Quality Guidelines, Soil Guidelines for the Protection of Environment and Human Health* ; Coarse Soil.
5) Values obtained from MOE (2011) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;* Table 1: Full Depth Background Site Condition Standards; Coarse-grained Soil, Residential Property Use.
6) Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) *Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario* .
7) "NV" means no value for that parameter was presented in the associated standard/guidance document.
8) The standard or guideline values that are considered "applicable" to this investigation (i.e. SSTLs, CCME guidelines or MOE standards) are indicated by red typeface.
9) Value represents previous maximum concentration measured at the Site, and considered to be no risk to receptors; not a calculated SSTL (DST, 2005).
10) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.
11) If applicable, where the laboratory detection limit is greater than the applicable guideline, it is indicated by *italic and underlined typeface* .

Table 9
Soil Analytical Results
CS-2 Lighthouse

Sample Location						CS-2 Lighthouse Area										
Sample ID						CS2-1	CS2-2	CS2-3	CS2-4	CS2-5	CS2-6	CS2-7	CS2-8	CS2-9	CS2-10	CS2-11
Date						Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016
XRF Lead Reading (ppm[1])						ND[2]	4930	9408	140	2782	2760	ND	1072	5392	2531	3223
Sample Depth (m)						0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Parameter	**Units**	**CCME Residential [3]**	**MOE Table 1 [4]**	**$SSTL_{HH}$ [5]**	**$SSTL_{ECO}$ [5]**											
Metals																
Acid Extractable Antimony (Sb)	µg/g	20 [5] [7]	1.3	NV[6]	NV	0.23	1.4	2.3	0.32	1.1	1.2	0.4	0.73	0.7	0.79	0.49
Acid Extractable Arsenic (As)	µg/g	12	18	NV	NV	2	6.5	6.7	3	5.5	6.3	4.3	9	4.4	9.8	2.8
Acid Extractable Barium (Ba)	µg/g	500	220	536	536	51	480	410	75	320	210	82	150	160	110	100
Acid Extractable Beryllium (Be)	µg/g	4	2.5	NV	NV	0.3	0.46	0.35	<0.20	1.3	0.29	0.29	0.38	0.51	0.49	0.24
Acid Extractable Cadmium (Cd)	µg/g	10	1.2	NV	NV	0.19	3	0.42	0.65	1.2	8.7	0.73	0.86	0.92	0.75	0.78
Acid Extractable Chromium (Cr)	µg/g	64	70	NV	NV	8.9	23	26	6.8	22	21	7.7	11	21	13	8.4
Acid Extractable Cobalt (Co)	µg/g	50	21	NV	NV	5.8	17	8.8	3.9	10	11	7.2	13	19	12	8.3
Acid Extractable Copper (Cu)	µg/g	63	92	NV	144	24	75	83	23	61	**210**	26	**180**	55	47	44
Acid Extractable Lead (Pb)	µg/g	140	120	3,800	1,857	14	**8,600**	**12,000**	100	**4,100**	**3,100**	53	1,000	**1,900**	1,200	1,200
Acid Extractable Molybdenum (Mo)	µg/g	10	2	NV	NV	2.4	5.9	7	1.2	4.6	2.9	2.1	2.4	3.4	3.9	2
Acid Extractable Nickel (Ni)	µg/g	45	82	NV	NV	3.5	11	4.8	4.5	8.6	8.3	5.1	8.3	16	8.2	5.5
Acid Extractable Selenium (Se)	µg/g	1	1.5	NV	NV	0.98	**1.2**	**1.9**	<0.50	**4.8**	0.83	**1.2**	1	**1.4**	**1.6**	0.53
Acid Extractable Silver (Ag)	µg/g	20	0.5	NV	NV	<0.20	0.35	0.4	<0.20	<0.20	0.53	<0.20	<0.20	<0.20	<0.20	<0.20
Acid Extractable Thallium (Tl)	µg/g	1	1	NV	NV	<0.050	0.12	0.12	0.11	0.05	0.16	0.083	0.16	0.079	0.088	0.067
Acid Extractable Uranium (U)	µg/g	23	2.5	NV	NV	0.64	0.63	1	0.44	1.5	0.45	0.69	0.54	0.69	0.64	0.46
Acid Extractable Vanadium (V)	µg/g	130	86	NV	144	120	140	130	57	140	85	100	96	**150**	**160**	120
Acid Extractable Zinc (Zn)	µg/g	200	290	NV	615	53	**1,700**	**930**	71	**1,500**	**910**	84	260	610	290	490
Miscellaneous																
pH	pH	6-8	NV	NV	NV	**3.94**	**4.55**	**4.07**	**3.68**	**4.63**	**4.45**	6.41	**3.98**	**4.24**	**4.2**	**3.88**

Sample Location	CS-2 Lighthouse Area											
Sample ID	CS20-11	CS2-12	CS2-13	CS2-14	CS2-15	CS2-16	CS2-17	CS2-18	CS2-19	CS2-20	CS2-200	CS2-21	CS2-22
Date	Aug 31, 2016	Oct 13, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 13, 2016	Oct 13, 2016	Oct 12, 2016	Oct 13, 2016
XRF Lead Reading (ppm[1])	3223	ND	ND	98	43	ND	105	ND	ND	2919	2919	1113	199
Sample Depth (m)	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Parameter	Field Duplicate of CS2-11										Field Duplicate of CS2-20		
Metals													
Acid Extractable Antimony (Sb)	0.31	0.60	0.24	0.53	0.46	0.31	0.31	0.30	0.21	0.44	0.38	0.23	0.26
Acid Extractable Arsenic (As)	2.5	8.3	1.7	5.7	**17**	9.2	4.1	4.9	1.8	2.6	2.5	2.9	4.5
Acid Extractable Barium (Ba)	81	100	27	70	68	87	51	73	32	110	86	84	46
Acid Extractable Beryllium (Be)	0.23	0.31	<0.20	<0.20	<0.20	0.51	0.34	<0.20	<0.20	0.22	0.24	<0.20	<0.20
Acid Extractable Cadmium (Cd)	0.53	0.83	0.60	0.67	0.38	0.69	0.28	1.1	0.81	0.76	0.76	0.62	0.14
Acid Extractable Chromium (Cr)	7.2	31	2.7	7.3	43	61	58	8.4	11	7.7	6.8	9.9	23
Acid Extractable Cobalt (Co)	7.4	12	4.0	3.3	8.7	17	19	6.3	1.8	8.7	10	5.4	8.5
Acid Extractable Copper (Cu)	35	53	24	21	13	27	48	55	22	47	45	23	31
Acid Extractable Lead (Pb)	720	120	61	60	34	19	170	61	17	1,000	560	320	180
Acid Extractable Molybdenum (Mo)	2.2	1.0	0.55	0.79	3.7	4.8	1.3	1.0	1.9	1.9	1.8	1.7	2.3
Acid Extractable Nickel (Ni)	4.6	23	3.3	10	20	24	**62**	9.4	8.5	5.1	5.5	6.4	19
Acid Extractable Selenium (Se)	0.71	0.86	0.69	**1.1**	0.82	**1.6**	0.72	0.90	**1.2**	0.57	0.69	0.84	<0.50
Acid Extractable Silver (Ag)	<0.20	0.30	<0.20	1.3	0.23	1.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Acid Extractable Thallium (Tl)	0.072	0.082	<0.050	0.067	0.10	0.081	0.081	<0.050	<0.050	0.17	0.16	0.12	0.077
Acid Extractable Uranium (U)	0.5	0.31	0.18	0.25	0.36	0.76	0.38	0.50	0.11	0.51	0.57	0.72	0.35
Acid Extractable Vanadium (V)	120	44	9.7	16	**160**	130	**210**	51	6.2	110	110	64	**170**
Acid Extractable Zinc (Zn)	330	180	170	87	110	140	170	98	160	300	280	120	82
Miscellaneous													
pH	**3.9**	**4.75**	**4.55**	**3.30**	**3.82**	**4.58**	**4.65**	**2.99**	**5.40**	**4.07**	**3.90**	**3.83**	**4.17**

Notes
1) "ppm" means parts per million.
2) ND means not detected.
3) CCME guidelines were derived from the following, for residential land use:
- For Inorganics - CCME (1999, as revised), *Canadian Soil Quality Guidelines, Soil Guidelines for the Protection of Environment and Human Health* ; Coarse Soil.
4) Values obtained from MOE (2011) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;* Table 1: Full Depth Background Site Condition Standards; Coarse-grained Soil, Residential Property Use.
5) Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) *Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario* .
6) "NV" means no value for that parameter was presented in the associated standard/guidance document.
7) The standard or guideline values that are considered "applicable" to this investigation (i.e. SSTLs, CCME guidelines or MOE standards) are indicated by red typeface.
8) Value represents previous maximum concentration measured at the Site, and considered to be no risk to receptors; not a calculated SSTL (DST, 2005).
9) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.
10) If applicable, where the laboratory detection limit is greater than the applicable guideline, it is indicated by *italic and underlined typeface* .

Table 10
Soil Analytical Results
CS-3 Old House

Parameter	Units	CCME Residential (3)	MOE Table 1 (4)	$SSTL_{HH}$ (5)	$SSTL_{ECO}$ (5)	CS3-1	CS3-2	CS3-3	CS3-4	CS3-5	CS3-6	CS30-6	CS3-7	CS3-8	CS3-9	CS3-10	CS3-11	CS3-110	CS3-12	CS3-13	CS3-14	CS3-15	CS3-16	CS3-17
Sample Location						CS-3 Old House Site																		
Date						Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016
XRF Lead Reading (ppm[1])						283	188	35	ND (2)	ND	203	ND	351	32	185	221	ND	NA	51	53	59	71	110	97
Sample Depth (m)						0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
												Field Duplicate of CS3-6						Field Duplicate of CS3-11						
Petroleum Hydrocarbons																								
F1 (C6-C10)	µg/g	30 (7)	25	NV (6)	NV	-	<10	<10	<10	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	-
F1 (C6-C10) - BTEX	µg/g	30	25	NV	NV	-	<10	<10	<10	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	-
F2 (C10-C16)	µg/g	150	10	NV	NV	-	92	25	<10	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/g	300	240	NV	NV	-	140	<50	<50	<50	-	<50	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/g	2,800	120	NV	NV	-	<50	<50	<50	<50	-	<50	-	-	-	-	-	-	-	-	-	-	-	-
Reached Baseline at C50	µg/g	NV	NV	NV	NV	-	YES	YES	YES	YES	-	YES	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds																								
Benzene	µg/g	0.030	0.02	NV	NV	-	<0.0060	<0.0060	0.0065	**0.60**	-	<0.0060	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	µg/g	0.082	0.05	NV	NV	-	<0.010	<0.010	<0.010	**0.23**	-	**0.087**	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	µg/g	0.37	0.2	NV	NV	-	<0.020	<0.020	0.021	**1.7**	-	0.16	-	-	-	-	-	-	-	-	-	-	-	-
p+m-Xylene	µg/g	NV	NV	NV	NV	-	<0.020	<0.020	0.036	0.67	-	0.23	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	µg/g	NV	NV	NV	NV	-	<0.020	<0.020	0.027	0.46	-	0.21	-	-	-	-	-	-	-	-	-	-	-	-
Total Xylenes	µg/g	11	0.05	NV	NV	-	<0.020	<0.020	0.063	1.1	-	0.45	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																								
Acenaphthene	µg/g	0.28	0.072	NV	NV	-	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/g	320	0.093	NV	NV	-	<0.0050	<0.0050	0.0064	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/g	2.5	0.16	NV	NV	-	<0.0050	<0.0050	0.0051	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	µg/g	1	0.36	NV	NV	-	<0.0050	<0.0050	0.016	0.012	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/g	0.6	0.3	NV	NV	-	<0.0050	0.0051	0.016	0.013	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b/j)fluoranthene	µg/g	1	0.47	NV	NV	-	0.0069	<0.0050	0.023	0.017	-	0.014	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/g	NV	0.68	NV	NV	-	0.008	<0.0050	0.01	0.0073	-	0.0061	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/g	1	0.48	NV	NV	-	<0.0050	<0.0050	0.0082	0.0056	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/g	6.2	2.8	NV	NV	-	0.0054	<0.0050	0.015	0.011	-	0.0096	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	µg/g	1	0.1	NV	NV	-	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/g	15.4	0.56	NV	NV	-	0.0059	<0.0050	0.031	0.025	-	0.018	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/g	0.25	0.12	NV	NV	-	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/g	1	0.23	NV	NV	-	0.0061	<0.0050	0.012	0.0086	-	0.0073	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	µg/g	NV	0.59	NV	NV	-	0.052	<0.0050	<0.0050	0.0057	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	-	0.067	0.0071	<0.0050	0.0074	-	0.0057	-	-	-	-	-	-	-	-	-	-	-	-
1+2-Methylnaphthalene	µg/g	NV	0.59	NV	NV	-	0.12	0.0071	<0.0071	0.013	-	<0.0071	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	µg/g	0.013	0.09	NV	NV	-	<0.050	<0.0050	<0.0050	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/g	0.046	0.69	NV	NV	-	0.02	<0.0050	0.0083	0.011	-	0.0065	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	µg/g	7.7	1	NV	NV	-	0.0064	<0.0050	0.026	0.02	-	0.016	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene Total Potency Equivalents	µg/g	5.3	NV	NV	NV	-	0.007	0.006	0.025	0.020	-	0.016	-	-	-	-	-	-	-	-				
Metals																								
Acid Extractable Antimony (Sb)	µg/g	20	1.3	NV	NV	1.5	1.1	1.3	0.26	0.64	0.53	0.71	1.2	0.69	6.6	1.2	0.69	1.2	<0.20	0.54	0.58	1.7	2.6	0.26
Acid Extractable Arsenic (As)	µg/g	12	18	NV	NV	4.8	5.6	8.1	5.9	6.8	10	6.2	9.5	11	6.1	5.4	4.3	2.9	4.6	12	3.7	9.1	**36**	4.2
Acid Extractable Barium (Ba)	µg/g	500	220	NV	NV	63	40	140	38	60	37	57	62	64	130	83	51	53	27	220	51	95	**520**	85
Acid Extractable Beryllium (Be)	µg/g	4	2.5	NV	NV	<0.20	<0.20	0.39	<0.20	0.25	<0.20	0.27	0.22	0.28	<0.20	<0.20	<0.20	<0.20	<0.20	0.37	0.28	0.44	2.1	<0.20
Acid Extractable Cadmium (Cd)	µg/g	10	1.2	NV	NV	0.99	0.52	1.1	0.3	0.71	0.57	0.86	2.2	0.89	1.5	1.5	0.24	0.19	0.23	1.7	0.89	1.9	1.8	0.55
Acid Extractable Chromium (Cr)	µg/g	64	70	NV	NV	25	21	28	23	25	20	23	27	26	30	25	15	14	17	32	16	32	29	19
Acid Extractable Cobalt (Co)	µg/g	50	21	NV	NV	13	12	18	11	13	12	13	15	16	9.5	12	6.2	5.3	10	16	7.0	20	18	3.1
Acid Extractable Copper (Cu)	µg/g	63	92	NV	NV	32	50	44	**81**	46	**69**	51	**72**	**73**	**110**	44	15	13	12	**130**	**140**	**88**	**200**	24
Acid Extractable Lead (Pb)	µg/g	140	120	425	425	**770**	280	**540**	260	350	**490**	380	**1,200**	**680**	**1,700**	**490**	130	150	25	110	200	240	**1,800**	25
Acid Extractable Molybdenum (Mo)	µg/g	10	2	NV	NV	0.52	0.57	0.76	0.52	0.62	0.66	0.68	1.4	1	0.69	0.76	<0.50	<0.50	<0.50	2.3	0.60	0.90	3.3	0.87
Acid Extractable Nickel (Ni)	µg/g	45	82	NV	NV	22	19	26	22	23	20	22	19	21	17	23	16	13	15	22	20	31	31	9.6
Acid Extractable Selenium (Se)	µg/g	1	1.5	NV	NV	<0.50	<0.50	0.73	0.63	0.75	<0.50	0.89	0.96	0.65	0.71	0.57	<0.50	<0.50	<0.50	**1.9**	**1.7**	**1.6**	**1.5**	0.79
Acid Extractable Silver (Ag)	µg/g	20	0.5	NV	NV	0.28	<0.20	0.24	0.22	0.27	<0.20	0.27	0.23	0.24	0.45	0.24	<0.20	<0.20	<0.20	0.24	0.48	0.67	0.76	<0.20
Acid Extractable Thallium (Tl)	µg/g	1	1	NV	NV	<0.050	<0.050	0.072	<0.050	0.061	<0.050	0.059	0.3	0.13	0.25	0.1	<0.050	<0.050	<0.050	0.099	0.085	0.094	0.52	<0.050
Acid Extractable Uranium (U)	µg/g	23	2.5	NV	NV	0.17	0.2	0.4	0.36	0.39	0.19	0.42	0.39	0.31	0.21	0.14	0.12	0.13	0.13	4.4	1.5	0.98	0.89	0.36
Acid Extractable Vanadium (V)	µg/g	130	86	NV	NV	17	16	23	21	21	14	19	16	22	19	15	13	11	13	25	9.7	24	30	12
Acid Extractable Zinc (Zn)	µg/g	200	290	NV	NV	**610**	**210**	**350**	140	**270**	**260**	**270**	**330**	**250**	**420**	**540**	100	100	61	**260**	150	**230**	**970**	56
Miscellaneous																								
pH	pH	6 - 8	NV	NV	NV	**5.93**	6.48	7.52	6.78	6.85	**5.52**	6.73	**4.81**	**4.13**	**5.01**	6.67	**5.86**	**5.73**	**4.70**	**4.83**	6.64	**4.83**	**4.71**	**3.64**

Notes
1) "ppm" means parts per million.
2) "ND" means not detected.
3) CCME guidelines were derived from the following, for residential land use:
- For PHCs - CCME (2008), *Canada Wide Standard for Petroleum Hydrocarbons in Soil - Technical Supplement* ; Table 3: Tier 1 levels for coarse grained surface soils. Guideline values are the most stringent of all pathways excluding the protection of potable groundwater.
- For VOCs - CCME (1999, as revised), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* ; Coarse Soil. Guideline for 10^{-5} incremental lifetime cancer risk was used for benzene guideline.
- For PAHs - CCME (2010), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* ; Table 2: Soil Quality Guidelines for Carcinogenic and Other PAHs. Includes the lowest value of all pathways except potable water.
  - Includes Interim Soil Quality Criteria and provisional values.
  - Benzo(a)pyrene Total Potency Equivalent derived from the carcinogenic effects of PAHs, based on 1 x 10^{-5} incremental lifetime cancer risk. Where input values are less than the reported detection limit, half the detection limit is used in calculation.
- For Inorganics - CCME (1999, as revised), *Canadian Soil Quality Guidelines, Soil Guidelines for the Protection of Environment and Human Health* ; Coarse Soil.

4) Values obtained from MOE (2011) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;* Table 1: Full Depth Background Site Condition Standards; Coarse-grained Soil, Residential Property Use.
5) Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) *Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario* .
6) "NV" means no value for that parameter was presented in the associated standard/guidance document.
7) The standard or guideline values that are considered "applicable" to this investigation (i.e. SSTLs, CCME guidelines or MOE standards) are indicated by red typeface.
8) Value represents previous maximum concentration measured at the Site, and considered to be no risk to receptors; not a calculated SSTL (DST, 2005).
9) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.
10) If applicable, where the laboratory detection limit is greater than the applicable guideline, it is indicated by *italic and underlined typeface* .

Table 10
Soil Analytical Results
CS-3 Old House

Sample Location						CS-3 Old House					
Sample ID						CS3-18	CS3-19	CS3-20	CS3-200	CS3-21	CS3-22
Date						Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016	Oct 12, 2016
XRF Lead Reading (ppm[1])						101	119	ND	NA	ND	130
Sample Depth (m)						0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0.5-0.6
Parameter	Units	CCME Residential [3]	MOE Table 1 [4]	$SSTL_{HH}$ [5]	$SSTL_{ECO}$ [5]				Field Duplicate of CS3-20		
Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	30 [7]	25	NV [6]	NV	-	-	-	-	-	-
F1 (C6-C10) - BTEX	ug/g	30	25	NV	NV	-	-	-	-	-	-
F2 (C10-C16)	ug/g	150	10	NV	NV	-	-	-	-	-	-
F3 (C16-C34)	ug/g	300	240	NV	NV	-	-	-	-	-	-
F4 (C34-C50)	ug/g	2800	120	NV	NV	-	-	-	-	-	-
Reached Baseline at C50	ug/g	NV	NV	NV	NV	-	-	-	-	-	-
Volatile Organic Compounds											
Benzene	ug/g	0.030	0.02	NV	NV	-	-	-	-	-	-
Ethylbenzene	ug/g	0.082	0.05	NV	NV	-	-	-	-	-	-
Toluene	ug/g	0.37	0.2	NV	NV	-	-	-	-	-	-
p+m-Xylene	ug/g	NV	NV	NV	NV	-	-	-	-	-	-
o-Xylene	ug/g	NV	NV	NV	NV	-	-	-	-	-	-
Total Xylenes	ug/g	11	0.05	NV	NV	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)											
Acenaphthene	ug/g	0.28	0.072	NV	NV	-	-	-	-	-	-
Acenaphthylene	ug/g	320	0.093	NV	NV	-	-	-	-	-	-
Anthracene	ug/g	2.5	0.16	NV	NV	-	-	-	-	-	-
Benzo(a)anthracene	ug/g	1	0.36	NV	NV	-	-	-	-	-	-
Benzo(a)pyrene	ug/g	0.6	0.3	NV	NV	-	-	-	-	-	-
Benzo(b/j)fluoranthene	ug/g	1	0.47	NV	NV	-	-	-	-	-	-
Benzo(g,h,i)perylene	ug/g	NV	0.68	NV	NV	-	-	-	-	-	-
Benzo(k)fluoranthene	ug/g	1	0.48	NV	NV	-	-	-	-	-	-
Chrysene	ug/g	6.2	2.8	NV	NV	-	-	-	-	-	-
Dibenz(a,h)anthracene	ug/g	1	0.1	NV	NV	-	-	-	-	-	-
Fluoranthene	ug/g	15.4	0.56	NV	NV	-	-	-	-	-	-
Fluorene	ug/g	0.25	0.12	NV	NV	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	ug/g	1	0.23	NV	NV	-	-	-	-	-	-
1-Methylnaphthalene	ug/g	NV	0.59	NV	NV	-	-	-	-	-	-
2-Methylnaphthalene	ug/g	NV	0.59	NV	NV	-	-	-	-	-	-
1+2-Methylnaphthalene	ug/g	NV	0.59	NV	NV	-	-	-	-	-	-
Naphthalene	ug/g	0.013	0.09	NV	NV	-	-	-	-	-	-
Phenanthrene	ug/g	0.046	0.69	NV	NV	-	-	-	-	-	-
Pyrene	ug/g	7.7	1	NV	NV	-	-	-	-	-	-
Benzo(a)pyrene Total Potency Equivalents	µg/g	5.3	NV	NV	NV	-	-	-	-	-	-
Metals											
Acid Extractable Antimony (Sb)	ug/g	20	1.3	NV	NV	0.24	<0.20	0.64	0.23	0.48	0.60
Acid Extractable Arsenic (As)	ug/g	12	18	NV	NV	**28**	5.4	3.1	2.9	**20**	6.5
Acid Extractable Barium (Ba)	ug/g	500	220	NV	NV	53	20	36	84	76	37
Acid Extractable Beryllium (Be)	ug/g	4	2.5	NV	NV	0.42	<0.20	<0.20	<0.20	0.25	<0.20
Acid Extractable Cadmium (Cd)	ug/g	10	1.2	NV	NV	0.71	0.27	0.36	0.62	1.4	0.90
Acid Extractable Chromium (Cr)	ug/g	64	70	NV	NV	**350**	18	18	9.9	16	19
Acid Extractable Cobalt (Co)	ug/g	50	21	NV	NV	17	9.7	9.0	5.4	9.9	16
Acid Extractable Copper (Cu)	ug/g	63	92	NV	NV	26	25	27	23	47	**78**
Acid Extractable Lead (Pb)	ug/g	140	120	425	425	160	18	150	320	45	31
Acid Extractable Molybdenum (Mo)	ug/g	10	2	NV	NV	<0.50	<0.50	0.59	1.7	1.9	0.52
Acid Extractable Nickel (Ni)	ug/g	45	82	NV	NV	**170**	22	19	6.4	29	14
Acid Extractable Selenium (Se)	ug/g	1	1.5	NV	NV	1.0	<0.50	<0.50	0.84	0.85	<0.50
Acid Extractable Silver (Ag)	ug/g	20	0.5	NV	NV	0.25	<0.20	<0.20	<0.20	0.67	<0.20
Acid Extractable Thallium (Tl)	ug/g	1	1	NV	NV	0.075	<0.050	<0.050	0.12	0.12	<0.050
Acid Extractable Uranium (U)	ug/g	23	2.5	NV	NV	0.36	0.093	0.23	0.72	0.43	0.19
Acid Extractable Vanadium (V)	ug/g	130	86	NV	NV	38	13	11	64	23	16
Acid Extractable Zinc (Zn)	ug/g	200	290	NV	NV	52	77	99	120	130	**340**
Miscellaneous											
pH	pH	6 - 8	NV	NV	NV	**5.00**	6.15	6.33	6.30	**3.34**	**4.66**

Notes

1) "ppm" means parts per million.
2) "ND" means not detected.
3) CCME guidelines were derived from the following, for residential land use:
- For PHCs - CCME (2008), *Canada Wide Standard for Petroleum Hydrocarbons in Soil - Technical Supplement* ; Table 3: Tier 1 levels for coarse grained surface soils. Guideline values are the most stringent of all pathways excluding the protection of potable groundwater.
- For VOCs - CCME (1999, as revised), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* ; Coarse Soil. Guideline for 10^{-5} incremental lifetime cancer risk was used for benzene guideline.
- For PAHs - CCME (2010), *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, Polycyclic Aromatic Hydrocarbons* ; Table 2: Soil Quality Guidelines for Carcinogenic and Other PAHs. Includes the lowest value of all pathways except potable water.
  - Includes Interim Soil Quality Criteria and provisional values.
  - Benzo(a)pyrene Total Potency Equivalent derived from the carcinogenic effects of PAHs, based on 1 x 10^{-5} incremental lifetime cancer risk. Where input values are less than the reported detection limit, half the detection limit is used in calculation.
- For Inorganics - CCME (1999, as revised), *Canadian Soil Quality Guidelines, Soil Guidelines for the Protection of Environment and Human Health* ; Coarse Soil.

4) Values obtained from MOE (2011) *Soils, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;* Table 1: Full Depth Background Site Condition Standards; Coarse-grained Soil, Residential Property Use.
5) Site specific target level (SSTL) for the protection of human health (HH) and ecological (ECO) receptors derived from DST Consulting Engineers Inc. (March 2005) *Site Specific Risk Assessment, Canadian Coast Guard Station L.L. 1111, Slate Island, Lake Superior, Ontario* .
6) "NV" means no value for that parameter was presented in the associated standard/guidance document. "N/A" means not applicable.
7) The standard or guideline values that are considered "applicable" to this investigation (i.e. SSTLs, CCME guidelines or MOE standards) are indicated by red typeface.
8) Value represents previous maximum concentration measured at the Site, and considered to be no risk to receptors; not a calculated SSTL (DST, 2005).
9) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.
10) If applicable, where the laboratory detection limit is greater than the applicable guideline, it is indicated by *italic and underlined typeface* .

Table 11
TCLP Analytical Results

		Sample Location	CS-1 Main Site															CS-2 Lighthouse Area						CS-3 Old Dwelling Site		
		Sample ID	CS1-3	CS1-4	CS1-5	CS1-7	CS1-8	CS1-10	CS1-11	CS1-14	CS1-16	CS1-17	CS1-19	CS1-27	CS1-32	CS1-42	CS1-46	CS2-2	CS2-4	CS2-5	CS2-20	CS2-200	CS2-21	CS3-1	CS3-7	CS3-9
		Date	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Oct 12, 2016	Oct 12, 2016	Oct 13, 2016	Oct 13, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016	Oct 13, 2016	Oct 12, 2016	Oct 12, 2016	Aug 31, 2016	Aug 31, 2016	Aug 31, 2016
		Depth (cm)	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Parameter	**Units**	**Schedule 4** [1]																				Field Duplicate of CS2-20				
Metals																										
Leachable Arsenic (As)	mg/L	2.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Leachable Barium (Ba)	mg/L	100	0.6	1.1	0.5	0.7	<0.2	0.9	4.1	0.3	0.6	0.4	1.8	0.6	0.5	0.3	0.3	1	<0.2	0.5	0.2	<0.2	0.3	<0.2	<0.2	<0.2
Leachable Boron (B)	mg/L	500	0.3	0.2	0.4	0.2	0.2	0.7	0.2	0.3	0.3	1	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	<0.1	<0.1	0.2	0.2	0.2
Leachable Cadmium (Cd)	mg/L	0.5	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Leachable Chromium (Cr)	mg/L	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Leachable Lead (Pb)	mg/L	5	<0.1	<0.1	<0.1	0.1	<0.1	**36**	2.3	<0.1	0.2	<0.1	**12**	0.3	<0.1	<0.1	<0.1	**14**	<0.1	2.7	0.3	0.1	0.1	0.3	<0.1	<0.1
Leachable Mercury (Hg)	mg/L	0.1	-	<0.0010	-	<0.0011	<0.0012	-	-	-	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	-	-
Leachable Selenium (Se)	mg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Leachable Silver (Ag)	mg/L	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Leachable Uranium (U)	mg/L	10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
TCLP Volatile Organic Compounds (VOCs)																										
Leachable Benzene	µg/L	500	<0.020	-	<0.020	-	-	<0.020	-	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020			<0.020	<0.020	<0.020	<0.020	-	-
TCLP Semi-volatiles (SVOCs)																										
Leachable Benzo(a)pyrene	µg/L	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Notes:
1) R.R.O. Reg. 347 of the Ontario Environmental Protection Act, Schedule 4: Leachate Quality Criteria (as amended).
2) Concentrations that exceed the applicable guidelines are illustrated by **bold, underlined and red typeface**.

Table 12
Relative Percent Differences (RPD)

		Sample Location	CS1-5		RPD	CS1-9		RPD	CS1-23		RPD	CS1-41		RPD	CS2-11		RPD	CS2-20		RPD	CS3-6		RPD
		Sample ID	CS1-5	CS10-5		CS1-9	CS10-9		CS1-23	CS10-23		CS1-41	CS1-410		CS2-11	CS20-11		CS2-20	CS2-200		CS3-6	CS30-6	
Parameter	**Units**	**Alert Limit (%)**																					
Petroleum Hydrocarbons																							
F1 (C6-C10)	µg/g	100	<10	<10	NA	<50	<40	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F1 (C6-C10) - BTEX	µg/g	100	<10	<10	NA	<50	<40	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F2 (C10-C16)	µg/g	100	<10	12	NA	36	120	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/g	100	72	100	33%	250	1,100	**126%**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/g	100	<50	<50	NA	<100	270	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reached Baseline at C50	µg/g	100	YES	YES	NA	YES	YES	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4G (Gravimetric)	µg/g	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX																							
Benzene	µg/g	100	0.071	0.084	17%	<0.030	<0.024	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	µg/g	100	0.094	0.059	46%	<0.050	<0.040	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	µg/g	100	0.35	0.29	19%	<0.10	<0.080	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p+m-Xylene	µg/g	100	0.44	0.23	63%	<0.10	0.11	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	µg/g	100	0.37	0.19	64%	<0.10	<0.080	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Xylenes	µg/g	100	0.81	0.42	63%	<0.10	0.11	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																							
1+2-Methylnaphthalene	µg/g	100	<0.071	<0.071	NA	<0.14	<0.14	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b/j)fluoranthene	µg/g	100	<0.05	0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	µg/g	100	0.07	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	µg/g	100	0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	µg/g	100	<0.05	<0.05	NA	<0.1	<0.1	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB																							
Aroclor 1242	µg/g	100	-	-	-	-	-	-	-	-	-	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	NA	-	-	-
Aroclor 1248	µg/g	100	-	-	-	-	-	-	-	-	-	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	NA	-	-	-
Aroclor 1254	µg/g	100	-	-	-	-	-	-	-	-	-	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	NA	-	-	-
Aroclor 1260	µg/g	100	-	-	-	-	-	-	-	-	-	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	NA	-	-	-
Total Polychlorinated Biphenyls (PCBs)	µg/g	100	-	-	-	-	-	-	-	-	-	<1.0	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	NA	-	-	-
Metals																							
Acid Extractable Antimony (Sb)	µg/g	100	1.9	1.8	5%	0.24	<0.20	NA	0.31	0.33	NA	<0.20	0.22	NA	0.49	0.31	NA	0.44	0.38	NA	0.53	0.71	NA
Acid Extractable Arsenic (As)	µg/g	100	6.7	6.9	3%	1.3	<1.0	NA	7.1	9	24%	1.5	1.7	12%	2.8	2.5	11%	2.6	2.5	4%	10	6.2	47%
Acid Extractable Barium (Ba)	µg/g	100	240	240	0%	200	190	5%	95	100	5%	40	40	0%	100	81	21%	110	86	24%	37	57	43%
Acid Extractable Beryllium (Be)	µg/g	100	0.37	0.35	NA	<0.20	<0.20	NA	0.3	0.34	NA	<0.20	<0.20	NA	0.24	0.23	NA	0.22	0.24	NA	<0.20	0.27	NA
Acid Extractable Cadmium (Cd)	µg/g	100	1.6	1.7	6%	1	0.6	50%	0.84	1	17%	0.22	0.14	44%	0.78	0.53	38%	0.76	0.76	0%	0.57	0.86	41%
Acid Extractable Chromium (Cr)	µg/g	100	56	48	15%	8.8	5.9	39%	60	75	22%	18	18	0%	8.4	7.2	15%	7.7	6.8	12%	20	23	14%
Acid Extractable Cobalt (Co)	µg/g	100	26	25	4%	3.4	2.3	39%	5.1	5.8	13%	3.50	3.6	3%	8.3	7.4	11%	8.7	10	14%	12	13	8%
Acid Extractable Copper (Cu)	µg/g	100	120	120	0%	23	19	19%	110	140	24%	13	12	8%	44	35	23%	47	45	4%	69	51	30%
Acid Extractable Lead (Pb)	µg/g	100	910	650	33%	62	36	53%	81	150	60%	14	13	7%	1200	720	50%	1000	560	56%	490	380	25%
Acid Extractable Molybdenum (Mo)	µg/g	100	1.6	1.2	29%	<0.50	<0.50	NA	0.99	1	1%	<0.50	<0.50	NA	2	2.2	10%	1.9	1.8	5%	0.66	0.68	3%
Acid Extractable Nickel (Ni)	µg/g	100	86	80	7%	9.4	6.4	38%	32	38	17%	9.3	10	7%	5.5	4.6	18%	5.1	5.5	8%	20	22	10%
Acid Extractable Selenium (Se)	µg/g	100	1	0.89	12%	0.56	<0.50	NA	3.5	3.6	3%	<0.50	<0.50	NA	0.53	0.71	29%	0.57	0.69	19%	<0.50	0.89	NA
Acid Extractable Silver (Ag)	µg/g	100	0.25	0.24	4%	<0.20	<0.20	NA	<0.20	0.23	NA	<0.20	<0.20	NA	<0.20	<0.20	NA	<0.20	<0.20	NA	<0.20	0.27	NA
Acid Extractable Thallium (Tl)	µg/g	100	0.21	0.085	NA	0.064	0.053	19%	0.12	0.15	22%	0.051	<0.050	NA	0.067	0.072	7%	0.17	0.16	6%	<0.050	0.059	NA
Acid Extractable Uranium (U)	µg/g	100	1.5	1.4	7%	0.13	0.12	8%	1.5	1.8	18%	0.5	0.73	37%	0.46	0.5	8%	0.51	0.57	11%	0.19	0.42	75%
Acid Extractable Vanadium (V)	µg/g	100	95	87	9%	11	6.9	46%	40	46	14%	18	20	11%	120	120	0%	110	110	0%	14	19	30%
Acid Extractable Tin (Sn)	µg/g	100	7.2	6.6	9%	2.4	1.9	23%	1.3	1.6	21%	35.0	36.0	3%	-	-	-	-	-	-	-	-	-
Acid Extractable Zinc (Zn)	µg/g	100	1,000	1,100	10%	400	350	13%	100	130	26%	35.0	36.0	3%	490	330	39%	300	280	7%	260	270	4%

Notes:

1) Alert Limits only applicable if both sample values are 5 times greater than the laboratory reportable detection limit
2) "NA" indicates that the RPD could not be calculated as both analyte concentrations were less than 5 times the reportable detection limit.
3) An exceedance of the alert limit, if applicable, is shown as **red, bold and underlined** text.
4) "<" Less than the laboratory Reportable Detection Limit.

Photographs

Photograph 1: View of cobble stone soil, New Diesel Generation Building, Old Fog Alarm / Generator building and Former Oil House, facing northeast.

Photograph 2: View of grassed area near the Old Fog Alarm / Generator Building, facing southeast.

Photograph 3: View of Former Oil House, facing northeast.

Photograph 4: View of Old Fog Alarm / Generator Building, facing north.

Photograph 5: View of cobble stone soils near Duplex Dwelling, facing southeast.

Photograph 6: View of waste pile in East Dump containing empty oil pails, facing east.

Photograph 7: View of waste pile in East Dump, facing west.

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Photograph 8: View of waste in West Dump, facing west.

Photograph 9: View of waste pile in West Dump, facing west.

Photograph10: View of soil surrounding Lighthouse, facing West.

Photograph 11: View of soil surrounding Lighthouse, facing East.

Photograph 12: View of Old Dwelling Building, facing southeast.

Photograph 13: View of Old Dwelling Building, facing northeast.

Photographs 14: View of soil along Old Dwelling perimeter, facing west.

Photograph 15: View soil grassed area near Old Dwelling Buidling, facing southwest.

Laboratory Certificates of Analysis

Your Project #: GV-TB-027105
Site Location: MAIN SILT
Your C.O.C. #: 59245, 59248, 59250

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/10/07
Report #: R4194053
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6I9077
Received: 2016/09/02, 16:20

Sample Matrix: Soil
Samples Received: 28

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	14	N/A	2016/09/16	CAM SOP-00301	EPA 8270D m
Petroleum Hydrocarbons F2-F4 in Soil (1)	14	2016/09/10	2016/09/12	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	3	2016/09/14	2016/09/14	CAM SOP-00316	CCME PHC-CWS m
Mercury (TCLP Leachable) (mg/L)	3	N/A	2016/10/05	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	18	2016/09/09	2016/09/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	2	2016/09/09	2016/09/13	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	6	2016/09/12	2016/09/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	2	2016/09/12	2016/09/13	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	8	2016/09/13	2016/09/15	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	3	2016/10/04	2016/10/05	CAM SOP-00447	EPA 6020B m
PAH Compounds by GC/MS (SIM) (2)	14	2016/09/13	2016/09/14	CAM SOP - 00318	EPA 8270 m
Moisture	2	N/A	2016/09/08	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	12	N/A	2016/09/09	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Leachate by GC/MS (SIM)	8	2016/09/13	2016/09/14	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil	1	2016/09/09	2016/09/10	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT	5	2016/09/08	2016/09/08	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	16	2016/09/09	2016/09/09	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	7	2016/09/12	2016/09/12	CAM SOP-00413	EPA 9045 D m
TCLP - % Solids	8	2016/09/12	2016/09/13	CAM SOP-00401	EPA 1311 Update I m
TCLP - % Solids	3	2016/10/03	2016/10/04	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	8	N/A	2016/09/13	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	3	N/A	2016/10/04	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	8	N/A	2016/09/13	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	3	N/A	2016/10/04	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	4	2016/09/14	2016/09/15	CAM SOP-00430	EPA 1311 m
Volatile Organic Compounds and F1 PHCs	14	N/A	2016/09/08	CAM SOP-00230	EPA 8260 m
VOCs in ZHE Leachates	4	2016/09/15	2016/09/15	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: GV-TB-027105
Site Location: MAIN SILT
Your C.O.C. #: 59245, 59248, 59250

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/10/07
Report #: R4194053
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6I9077
Received: 2016/09/02, 16:20

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
(2) Sample(s) analyzed using methodologies that have not been subjected to Maxxam's standard validation process for the submitted matrix and is not an Accredited method. Analysis performed with client consent, however results should be viewed with discretion

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Augustyna Dobosz, Project Manager
Email: ADobosz@maxxam.ca
Phone# (905)817-5700 Ext:5798
==
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW622		CZW623	CZW625	CZW626	CZW627		
Sampling Date		2016/08/31 08:00		2016/08/31 08:15	2016/08/31 09:15	2016/08/31 09:20	2016/08/31 09:30		
COC Number		59245		59245	59245	59245	59245		
	UNITS	**CS1-1**	**RDL**	**CS1-2**	**CS1-4**	**CS1-5**	**CS1-6**	**RDL**	**QC Batch**
Volatile Organics									
Acetone (2-Propanone)	ug/g	<1.0	1.0	<0.50	<0.50	<0.50	<0.50	0.50	4650611
Benzene	ug/g	0.039	0.012	0.030	<0.0060	0.071	<0.0060	0.0060	4650611
Bromodichloromethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Bromoform	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Bromomethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Carbon Tetrachloride	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Chlorobenzene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Chloroform	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Dibromochloromethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,2-Dichlorobenzene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,3-Dichlorobenzene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,4-Dichlorobenzene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Dichlorodifluoromethane (FREON 12)	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1-Dichloroethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,2-Dichloroethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1-Dichloroethylene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
cis-1,2-Dichloroethylene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
trans-1,2-Dichloroethylene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,2-Dichloropropane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
cis-1,3-Dichloropropene	ug/g	<0.060	0.060	<0.030	<0.030	<0.030	<0.030	0.030	4650611
trans-1,3-Dichloropropene	ug/g	<0.080	0.080	<0.040	<0.040	<0.040	<0.040	0.040	4650611
Ethylbenzene	ug/g	0.089	0.020	0.033	<0.010	0.094	<0.010	0.010	4650611
Ethylene Dibromide	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Hexane	ug/g	<0.10	0.10	<0.050	<0.050	0.067	<0.050	0.050	4650611
Methylene Chloride(Dichloromethane)	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Methyl Isobutyl Ketone	ug/g	<1.0	1.0	<0.50	<0.50	<0.50	<0.50	0.50	4650611
Methyl Ethyl Ketone (2-Butanone)	ug/g	<1.0	1.0	<0.50	<0.50	<0.50	<0.50	0.50	4650611
Methyl t-butyl ether (MTBE)	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Styrene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1,1,2-Tetrachloroethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1,2,2-Tetrachloroethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Tetrachloroethylene	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Toluene	ug/g	0.27	0.040	0.15	<0.020	0.35	<0.020	0.020	4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW622		CZW623	CZW625	CZW626	CZW627		
Sampling Date		2016/08/31 08:00		2016/08/31 08:15	2016/08/31 09:15	2016/08/31 09:20	2016/08/31 09:30		
COC Number		59245		59245	59245	59245	59245		
	UNITS	**CS1-1**	**RDL**	**CS1-2**	**CS1-4**	**CS1-5**	**CS1-6**	**RDL**	**QC Batch**
1,1,1-Trichloroethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1,2-Trichloroethane	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Trichloroethylene	ug/g	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4650611
Vinyl Chloride	ug/g	<0.040	0.040	<0.020	<0.020	<0.020	<0.020	0.020	4650611
p+m-Xylene	ug/g	0.33	0.040	0.14	<0.020	0.44	<0.020	0.020	4650611
o-Xylene	ug/g	0.21	0.040	0.093	<0.020	0.37	<0.020	0.020	4650611
Total Xylenes	ug/g	0.54	0.040	0.24	<0.020	0.81	<0.020	0.020	4650611
Chloroethane	ug/g	<0.40	0.40	<0.20	<0.20	<0.20	<0.20	0.20	4650611
Chloromethane	ug/g	<0.80	0.80	<0.40	<0.40	<0.40	<0.40	0.40	4650611
Trichlorofluoromethane (FREON 11)	ug/g	<0.10	0.10	<0.050	<0.050	<0.050	<0.050	0.050	4650611
F1 (C6-C10)	ug/g	<20	20	<10	<10	<10	<10	10	4650611
F1 (C6-C10) - BTEX	ug/g	<20	20	<10	<10	<10	<10	10	4650611
Gasoline	ug/g	<20	20	<10	<10	<10	<10	10	4650611
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	14	10	<10	<10	<10	<10	10	4655381
F3 (C16-C34 Hydrocarbons)	ug/g	180	50	94	<50	72	75	50	4655381
F4 (C34-C50 Hydrocarbons)	ug/g	160	50	<50	<50	<50	<50	50	4655381
Reached Baseline at C50	ug/g	No		Yes	Yes	Yes	Yes		4655381
Surrogate Recovery (%)									
o-Terphenyl	%	96		96	97	97	100		4655381
4-Bromofluorobenzene	%	101		101	101	102	100		4650611
D10-o-Xylene	%	92		95	105	95	90		4650611
D4-1,2-Dichloroethane	%	85		86	87	86	86		4650611
D8-Toluene	%	92		92	92	93	93		4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW628	CZW628	CZW629		CZW630		CZW631		
Sampling Date		2016/08/31 10:00	2016/08/31 10:00	2016/08/31 10:30		2016/08/31 10:35		2016/08/31 10:40		
COC Number		59245	59245	59245		59245		59245		
	UNITS	**CS1-7**	**CS1-7 Lab-Dup**	**CS1-8**	**RDL**	**CS1-9**	**RDL**	**CS1-10**	**RDL**	**QC Batch**
Volatile Organics										
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	0.50	2.8	2.5	<1.5	1.5	4650611
Benzene	ug/g	0.014	0.015	<0.0060	0.0060	<0.030	0.030	<0.018	0.018	4650611
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Bromoform	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Bromomethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Chloroform	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	0.030	<0.15	0.15	<0.090	0.090	4650611
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	0.040	<0.20	0.20	<0.12	0.12	4650611
Ethylbenzene	ug/g	0.020	0.020	<0.010	0.010	<0.050	0.050	<0.030	0.030	4650611
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Hexane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	0.50	<2.5	2.5	<1.5	1.5	4650611
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	0.50	<2.5	2.5	<1.5	1.5	4650611
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Styrene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW628	CZW628	CZW629		CZW630		CZW631		
Sampling Date		2016/08/31 10:00	2016/08/31 10:00	2016/08/31 10:30		2016/08/31 10:35		2016/08/31 10:40		
COC Number		59245	59245	59245		59245		59245		
	UNITS	**CS1-7**	**CS1-7 Lab-Dup**	**CS1-8**	**RDL**	**CS1-9**	**RDL**	**CS1-10**	**RDL**	**QC Batch**
Toluene	ug/g	0.076	0.075	<0.020	0.020	<0.10	0.10	<0.060	0.060	4650611
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
Trichloroethylene	ug/g	<0.010	<0.010	<0.010	0.010	<0.050	0.050	<0.030	0.030	4650611
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	0.020	<0.10	0.10	<0.060	0.060	4650611
p+m-Xylene	ug/g	0.088	0.087	<0.020	0.020	<0.10	0.10	<0.060	0.060	4650611
o-Xylene	ug/g	0.064	0.063	<0.020	0.020	<0.10	0.10	<0.060	0.060	4650611
Total Xylenes	ug/g	0.15	0.15	<0.020	0.020	<0.10	0.10	<0.060	0.060	4650611
Chloroethane	ug/g	<0.20	<0.20	<0.20	0.20	<1.0	1.0	<0.60	0.60	4650611
Chloromethane	ug/g	<0.40	<0.40	<0.40	0.40	<2.0	2.0	<1.2	1.2	4650611
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	0.050	<0.25	0.25	<0.15	0.15	4650611
F1 (C6-C10)	ug/g	<10	<10	<10	10	<50	50	<30	30	4650611
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	10	<50	50	<30	30	4650611
Gasoline	ug/g	<10	<10	<10	10	<50	50	<30	30	4650611
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10		<10	10	36	20	29	10	4655381
F3 (C16-C34 Hydrocarbons)	ug/g	180		<50	50	250	100	350	50	4655381
F4 (C34-C50 Hydrocarbons)	ug/g	100		<50	50	<100	100	76	50	4655381
Reached Baseline at C50	ug/g	No		Yes		Yes		Yes		4655381
Surrogate Recovery (%)										
o-Terphenyl	%	97		98		84		104		4655381
4-Bromofluorobenzene	%	101	100	100		103		103		4650611
D10-o-Xylene	%	91	91	92		98		92		4650611
D4-1,2-Dichloroethane	%	88	88	87		87		86		4650611
D8-Toluene	%	91	92	92		92		92		4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW633	CZW634		CZW645		CZW649		
Sampling Date		2016/08/31 10:45	2016/08/31 10:50		2016/08/31 11:55		2016/08/31 10:35		
COC Number		59248	59248		59250		59250		
	UNITS	**CS1-11**	**CS1-12**	**RDL**	**CS1-22**	**RDL**	**CS10-9**	**RDL**	**QC Batch**
Inorganics									
Moisture	%					1.0	56	1.0	4653840
Volatile Organics									
Acetone (2-Propanone)	ug/g	<1.0	1.0	1.0	<3.5	3.5	3.3	2.0	4650611
Benzene	ug/g	0.27	0.041	0.012	<0.042	0.042	<0.024	0.024	4650611
Bromodichloromethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Bromoform	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Bromomethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Carbon Tetrachloride	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Chlorobenzene	ug/g	0.15	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Chloroform	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Dibromochloromethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,2-Dichlorobenzene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,3-Dichlorobenzene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,4-Dichlorobenzene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Dichlorodifluoromethane (FREON 12)	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,1-Dichloroethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,2-Dichloroethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,1-Dichloroethylene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
cis-1,2-Dichloroethylene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
trans-1,2-Dichloroethylene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,2-Dichloropropane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
cis-1,3-Dichloropropene	ug/g	<0.060	<0.060	0.060	<0.21	0.21	<0.12	0.12	4650611
trans-1,3-Dichloropropene	ug/g	<0.080	<0.080	0.080	<0.28	0.28	<0.16	0.16	4650611
Ethylbenzene	ug/g	0.053	0.044	0.020	0.35	0.070	<0.040	0.040	4650611
Ethylene Dibromide	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Hexane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Methylene Chloride(Dichloromethane)	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Methyl Isobutyl Ketone	ug/g	<1.0	<1.0	1.0	<3.5	3.5	<2.0	2.0	4650611
Methyl Ethyl Ketone (2-Butanone)	ug/g	<1.0	<1.0	1.0	<3.5	3.5	<2.0	2.0	4650611
Methyl t-butyl ether (MTBE)	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Styrene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,1,1,2-Tetrachloroethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,1,2,2-Tetrachloroethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Tetrachloroethylene	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW633	CZW634		CZW645		CZW649		
Sampling Date		2016/08/31 10:45	2016/08/31 10:50		2016/08/31 11:55		2016/08/31 10:35		
COC Number		59248	59248		59250		59250		
	UNITS	**CS1-11**	**CS1-12**	**RDL**	**CS1-22**	**RDL**	**CS10-9**	**RDL**	**QC Batch**
Toluene	ug/g	0.15	0.21	0.040	0.25	0.14	<0.080	0.080	4650611
1,1,1-Trichloroethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
1,1,2-Trichloroethane	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
Trichloroethylene	ug/g	<0.020	<0.020	0.020	<0.070	0.070	<0.040	0.040	4650611
Vinyl Chloride	ug/g	<0.040	<0.040	0.040	<0.14	0.14	<0.080	0.080	4650611
p+m-Xylene	ug/g	0.15	0.21	0.040	1.6	0.14	0.11	0.080	4650611
o-Xylene	ug/g	0.051	0.096	0.040	0.56	0.14	<0.080	0.080	4650611
Total Xylenes	ug/g	0.20	0.30	0.040	2.1	0.14	0.11	0.080	4650611
Chloroethane	ug/g	<0.40	<0.40	0.40	<1.4	1.4	<0.80	0.80	4650611
Chloromethane	ug/g	<0.80	<0.80	0.80	<2.8	2.8	<1.6	1.6	4650611
Trichlorofluoromethane (FREON 11)	ug/g	<0.10	<0.10	0.10	<0.35	0.35	<0.20	0.20	4650611
F1 (C6-C10)	ug/g	<20	<20	20	<70	70	<40	40	4650611
F1 (C6-C10) - BTEX	ug/g	<20	<20	20	<70	70	<40	40	4650611
Gasoline	ug/g	<20	<20	20	<70	70	<40	40	4650611
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	68	18	10	250	20	120	20	4655381
F3 (C16-C34 Hydrocarbons)	ug/g	3200	190	50	2100	100	1100	100	4655381
F4 (C34-C50 Hydrocarbons)	ug/g	1300	110	50	<100	100	270	100	4655381
Reached Baseline at C50	ug/g	Yes	No		Yes		Yes		4655381
Surrogate Recovery (%)									
o-Terphenyl	%	107	96		118		76		4655381
4-Bromofluorobenzene	%	100	98		101		110		4650611
D10-o-Xylene	%	87	85		88		110		4650611
D4-1,2-Dichloroethane	%	86	107		87		85		4650611
D8-Toluene	%	91	94		91		91		4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW650		
Sampling Date		2016/08/31 09:20		
COC Number		59250		
	UNITS	**CS10-5**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	14	1.0	4654236
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	4650611
Benzene	ug/g	0.084	0.0060	4650611
Bromodichloromethane	ug/g	<0.050	0.050	4650611
Bromoform	ug/g	<0.050	0.050	4650611
Bromomethane	ug/g	<0.050	0.050	4650611
Carbon Tetrachloride	ug/g	<0.050	0.050	4650611
Chlorobenzene	ug/g	<0.050	0.050	4650611
Chloroform	ug/g	<0.050	0.050	4650611
Dibromochloromethane	ug/g	<0.050	0.050	4650611
1,2-Dichlorobenzene	ug/g	<0.050	0.050	4650611
1,3-Dichlorobenzene	ug/g	<0.050	0.050	4650611
1,4-Dichlorobenzene	ug/g	<0.050	0.050	4650611
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	4650611
1,1-Dichloroethane	ug/g	<0.050	0.050	4650611
1,2-Dichloroethane	ug/g	<0.050	0.050	4650611
1,1-Dichloroethylene	ug/g	<0.050	0.050	4650611
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	4650611
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	4650611
1,2-Dichloropropane	ug/g	<0.050	0.050	4650611
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	4650611
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	4650611
Ethylbenzene	ug/g	0.059	0.010	4650611
Ethylene Dibromide	ug/g	<0.050	0.050	4650611
Hexane	ug/g	<0.050	0.050	4650611
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	4650611
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	4650611
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	4650611
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	4650611
Styrene	ug/g	<0.050	0.050	4650611
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	4650611
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	4650611
Tetrachloroethylene	ug/g	<0.050	0.050	4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW650		
Sampling Date		2016/08/31 09:20		
COC Number		59250		
	UNITS	**CS10-5**	**RDL**	**QC Batch**
Toluene	ug/g	0.29	0.020	4650611
1,1,1-Trichloroethane	ug/g	<0.050	0.050	4650611
1,1,2-Trichloroethane	ug/g	<0.050	0.050	4650611
Trichloroethylene	ug/g	<0.010	0.010	4650611
Vinyl Chloride	ug/g	<0.020	0.020	4650611
p+m-Xylene	ug/g	0.23	0.020	4650611
o-Xylene	ug/g	0.19	0.020	4650611
Total Xylenes	ug/g	0.42	0.020	4650611
Chloroethane	ug/g	<0.20	0.20	4650611
Chloromethane	ug/g	<0.40	0.40	4650611
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	4650611
F1 (C6-C10)	ug/g	<10	10	4650611
F1 (C6-C10) - BTEX	ug/g	<10	10	4650611
Gasoline	ug/g	<10	10	4650611
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	12	10	4655381
F3 (C16-C34 Hydrocarbons)	ug/g	100	50	4655381
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	4655381
Reached Baseline at C50	ug/g	Yes		4655381
Surrogate Recovery (%)				
o-Terphenyl	%	98		4655381
4-Bromofluorobenzene	%	105		4650611
D10-o-Xylene	%	98		4650611
D4-1,2-Dichloroethane	%	83		4650611
D8-Toluene	%	93		4650611
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW622	CZW623			CZW624			CZW625		
Sampling Date		2016/08/31 08:00	2016/08/31 08:15			2016/08/31 09:00			2016/08/31 09:15		
COC Number		59245	59245			59245			59245		
	UNITS	**CS1-1**	**CS1-2**	**RDL**	**QC Batch**	**CS1-3**	**RDL**	**QC Batch**	**CS1-4**	**RDL**	**QC Batch**
Metals											
Acid Extractable Antimony (Sb)	ug/g	2.6	6.7	0.20	4656068	15	0.20	4654389	0.34	0.20	4656068
Acid Extractable Arsenic (As)	ug/g	6.4	6.6	1.0	4656068	12	1.0	4654389	1.1	1.0	4656068
Acid Extractable Barium (Ba)	ug/g	250	350	0.50	4656068	540	0.50	4654389	240	0.50	4656068
Acid Extractable Beryllium (Be)	ug/g	0.66	1.5	0.20	4656068	<0.20	0.20	4654389	<0.20	0.20	4656068
Acid Extractable Cadmium (Cd)	ug/g	1.8	5.3	0.10	4656068	160	0.10	4654389	0.27	0.10	4656068
Acid Extractable Chromium (Cr)	ug/g	39	49	1.0	4656068	74	1.0	4654389	16	1.0	4656068
Acid Extractable Cobalt (Co)	ug/g	11	13	0.10	4656068	17	0.10	4654389	5.4	0.10	4656068
Acid Extractable Copper (Cu)	ug/g	94	170	0.50	4656068	3100	0.50	4654389	20	0.50	4656068
Acid Extractable Lead (Pb)	ug/g	890	860	1.0	4656068	2200	1.0	4654389	91	1.0	4656068
Acid Extractable Molybdenum (Mo)	ug/g	1.2	1.5	0.50	4656068	6.3	0.50	4654389	0.56	0.50	4656068
Acid Extractable Nickel (Ni)	ug/g	28	37	0.50	4656068	87	0.50	4654389	12	0.50	4656068
Acid Extractable Selenium (Se)	ug/g	0.95	1.5	0.50	4656068	0.95	0.50	4654389	<0.50	0.50	4656068
Acid Extractable Silver (Ag)	ug/g	<0.20	0.26	0.20	4656068	1.3	0.20	4654389	<0.20	0.20	4656068
Acid Extractable Thallium (Tl)	ug/g	0.25	0.28	0.050	4656068	0.32	0.050	4654389	0.071	0.050	4656068
Acid Extractable Tin (Sn)	ug/g	22	24	1.0	4656068	72	1.0	4654389	<1.0	1.0	4656068
Acid Extractable Uranium (U)	ug/g	0.61	0.87	0.050	4656068	0.33	0.050	4654389	0.81	0.050	4656068
Acid Extractable Vanadium (V)	ug/g	61	47	5.0	4656068	16	5.0	4654389	29	5.0	4656068
Acid Extractable Zinc (Zn)	ug/g	860	750	5.0	4656068	7100	25	4654389	150	5.0	4656068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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DST Consulting Engineers Inc
Client Project #: GV-TB-027105
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CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW626		CZW627		CZW628		CZW629		
Sampling Date		2016/08/31 09:20		2016/08/31 09:30		2016/08/31 10:00		2016/08/31 10:30		
COC Number		59245		59245		59245		59245		
	UNITS	**CS1-5**	**QC Batch**	**CS1-6**	**QC Batch**	**CS1-7**	**QC Batch**	**CS1-8**	**RDL**	**QC Batch**
Metals										
Acid Extractable Antimony (Sb)	ug/g	1.9	4656068	1.2	4654389	3.1	4656068	0.47	0.20	4654389
Acid Extractable Arsenic (As)	ug/g	6.7	4656068	5.9	4654389	7.1	4656068	3.3	1.0	4654389
Acid Extractable Barium (Ba)	ug/g	240	4656068	140	4654389	310	4656068	48	0.50	4654389
Acid Extractable Beryllium (Be)	ug/g	0.37	4656068	0.24	4654389	0.58	4656068	<0.20	0.20	4654389
Acid Extractable Cadmium (Cd)	ug/g	1.6	4656068	0.54	4654389	3.4	4656068	0.32	0.10	4654389
Acid Extractable Chromium (Cr)	ug/g	56	4656068	53	4654389	70	4656068	21	1.0	4654389
Acid Extractable Cobalt (Co)	ug/g	26	4656068	16	4654389	16	4656068	14	0.10	4654389
Acid Extractable Copper (Cu)	ug/g	120	4656068	92	4654389	210	4656068	31	0.50	4654389
Acid Extractable Lead (Pb)	ug/g	910	4656068	290	4654389	1600	4656068	76	1.0	4654389
Acid Extractable Molybdenum (Mo)	ug/g	1.6	4656068	0.69	4654389	1.9	4656068	0.55	0.50	4654389
Acid Extractable Nickel (Ni)	ug/g	86	4656068	42	4654389	51	4656068	50	0.50	4654389
Acid Extractable Selenium (Se)	ug/g	1.0	4656068	0.80	4654389	1.4	4656068	<0.50	0.50	4654389
Acid Extractable Silver (Ag)	ug/g	0.25	4656068	<0.20	4654389	0.29	4656068	<0.20	0.20	4654389
Acid Extractable Thallium (Tl)	ug/g	0.21	4656068	0.054	4654389	0.31	4656068	<0.050	0.050	4654389
Acid Extractable Tin (Sn)	ug/g	7.2	4656068	12	4654389	69	4656068	2.7	1.0	4654389
Acid Extractable Uranium (U)	ug/g	1.5	4656068	0.40	4654389	0.65	4656068	0.23	0.050	4654389
Acid Extractable Vanadium (V)	ug/g	95	4656068	35	4654389	54	4656068	19	5.0	4654389
Acid Extractable Zinc (Zn)	ug/g	1000	4656068	86	4654389	1100	4656068	110	5.0	4654389

RDL = Reportable Detection Limit
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CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW630			CZW631			CZW633		
Sampling Date		2016/08/31 10:35			2016/08/31 10:40			2016/08/31 10:45		
COC Number		59245			59245			59248		
	UNITS	**CS1-9**	**RDL**	**QC Batch**	**CS1-10**	**RDL**	**QC Batch**	**CS1-11**	**RDL**	**QC Batch**
Metals										
Acid Extractable Antimony (Sb)	ug/g	0.24	0.20	4654389	580	2.0	4656068	74	0.20	4654027
Acid Extractable Arsenic (As)	ug/g	1.3	1.0	4654389	14	10	4656068	21	1.0	4654027
Acid Extractable Barium (Ba)	ug/g	200	0.50	4654389	400	5.0	4656068	2600	2.5	4654027
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.20	4654389	<2.0	2.0	4656068	0.44	0.20	4654027
Acid Extractable Cadmium (Cd)	ug/g	1.0	0.10	4654389	1.6	1.0	4656068	63	0.10	4654027
Acid Extractable Chromium (Cr)	ug/g	8.8	1.0	4654389	23	10	4656068	380	1.0	4654027
Acid Extractable Cobalt (Co)	ug/g	3.4	0.10	4654389	4.5	1.0	4656068	47	0.10	4654027
Acid Extractable Copper (Cu)	ug/g	23	0.50	4654389	50	5.0	4656068	2300	0.50	4654027
Acid Extractable Lead (Pb)	ug/g	62	1.0	4654389	47000	50	4656068	14000	5.0	4654027
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.50	4654389	<5.0	5.0	4656068	38	0.50	4654027
Acid Extractable Nickel (Ni)	ug/g	9.4	0.50	4654389	18	5.0	4656068	120	0.50	4654027
Acid Extractable Selenium (Se)	ug/g	0.56	0.50	4654389	<5.0	5.0	4656068	1.0	0.50	4654027
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	4654389	<2.0	2.0	4656068	8.0	0.20	4654027
Acid Extractable Thallium (Tl)	ug/g	0.064	0.050	4654389	<0.50	0.50	4656068	1.7	0.050	4654027
Acid Extractable Tin (Sn)	ug/g	2.4	1.0	4654389	<10	10	4656068	200	1.0	4654027
Acid Extractable Uranium (U)	ug/g	0.13	0.050	4654389	<0.50	0.50	4656068	0.85	0.050	4654027
Acid Extractable Vanadium (V)	ug/g	11	5.0	4654389	<50	50	4656068	49	5.0	4654027
Acid Extractable Zinc (Zn)	ug/g	400	5.0	4654389	250	50	4656068	14000	25	4654027

RDL = Reportable Detection Limit
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CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW634	CZW635	CZW636	CZW637		CZW638	CZW639		
Sampling Date		2016/08/31 10:50	2016/08/31 10:55	2016/08/31 11:00	2016/08/31 11:05		2016/08/31 11:10	2016/08/31 11:15		
COC Number		59248	59248	59248	59248		59248	59248		
	UNITS	**CS1-12**	**CS1-13**	**CS1-14**	**CS1-15**	**QC Batch**	**CS1-16**	**CS1-17**	**RDL**	**QC Batch**
Metals										
Acid Extractable Antimony (Sb)	ug/g	1.5	0.24	0.52	0.42	4654027	1.8	0.37	0.20	4654389
Acid Extractable Arsenic (As)	ug/g	5.3	4.5	7.5	3.3	4654027	5.3	2.9	1.0	4654389
Acid Extractable Barium (Ba)	ug/g	290	110	180	140	4654027	190	300	0.50	4654389
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.43	0.31	<0.20	4654027	0.85	<0.20	0.20	4654389
Acid Extractable Cadmium (Cd)	ug/g	14	0.72	0.86	1.0	4654027	1.2	0.96	0.10	4654389
Acid Extractable Chromium (Cr)	ug/g	37	34	53	8.7	4654027	17	21	1.0	4654389
Acid Extractable Cobalt (Co)	ug/g	14	10	14	2.0	4654027	8.8	5.2	0.10	4654389
Acid Extractable Copper (Cu)	ug/g	74	110	36	29	4654027	160	26	0.50	4654389
Acid Extractable Lead (Pb)	ug/g	1300	34	120	53	4654027	640	220	1.0	4654389
Acid Extractable Molybdenum (Mo)	ug/g	1.4	1.7	1.1	1.0	4654027	1.9	0.81	0.50	4654389
Acid Extractable Nickel (Ni)	ug/g	29	28	32	7.0	4654027	19	14	0.50	4654389
Acid Extractable Selenium (Se)	ug/g	0.89	1.7	0.78	0.94	4654027	1.2	0.89	0.50	4654389
Acid Extractable Silver (Ag)	ug/g	<0.20	0.26	<0.20	<0.20	4654027	<0.20	0.23	0.20	4654389
Acid Extractable Thallium (Tl)	ug/g	0.26	0.082	0.097	0.085	4654027	0.19	0.085	0.050	4654389
Acid Extractable Tin (Sn)	ug/g	7.1	<1.0	1.5	1.8	4654027	27	2.8	1.0	4654389
Acid Extractable Uranium (U)	ug/g	0.32	1.7	0.49	0.45	4654027	0.63	0.28	0.050	4654389
Acid Extractable Vanadium (V)	ug/g	41	66	44	8.1	4654027	25	22	5.0	4654389
Acid Extractable Zinc (Zn)	ug/g	2400	85	150	190	4654027	830	130	5.0	4654389

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW640			CZW641	CZW641			CZW642		
Sampling Date		2016/08/31 11:20			2016/08/31 11:25	2016/08/31 11:25			2016/08/31 11:45		
COC Number		59248			59248	59248			59248		
	UNITS	**CS1-18**	**RDL**	**QC Batch**	**CS1-19**	**CS1-19 Lab-Dup**	**RDL**	**QC Batch**	**CS1-20**	**RDL**	**QC Batch**
Metals											
Acid Extractable Antimony (Sb)	ug/g	0.24	0.20	4654389	3.3	3.2	0.20	4656068	0.38	0.20	4654389
Acid Extractable Arsenic (As)	ug/g	4.9	1.0	4654389	7.2	7.0	1.0	4656068	21	1.0	4654389
Acid Extractable Barium (Ba)	ug/g	180	0.50	4654389	1100	1000	0.50	4656068	340	0.50	4654389
Acid Extractable Beryllium (Be)	ug/g	0.42	0.20	4654389	0.36	0.36	0.20	4656068	0.56	0.20	4654389
Acid Extractable Cadmium (Cd)	ug/g	1.5	0.10	4654389	4.0	4.1	0.10	4656068	2.7	0.10	4654389
Acid Extractable Chromium (Cr)	ug/g	39	1.0	4654389	50	47	1.0	4656068	44	1.0	4654389
Acid Extractable Cobalt (Co)	ug/g	8.6	0.10	4654389	20	19	0.10	4656068	10	0.10	4654389
Acid Extractable Copper (Cu)	ug/g	600	0.50	4654389	110	110	0.50	4656068	220	0.50	4654389
Acid Extractable Lead (Pb)	ug/g	50	1.0	4654389	16000	17000	5.0	4656068	71	1.0	4654389
Acid Extractable Molybdenum (Mo)	ug/g	2.2	0.50	4654389	1.5	1.7	0.50	4656068	3.7	0.50	4654389
Acid Extractable Nickel (Ni)	ug/g	74	0.50	4654389	33	32	0.50	4656068	49	0.50	4654389
Acid Extractable Selenium (Se)	ug/g	2.9	0.50	4654389	1.4	1.4	0.50	4656068	2.8	0.50	4654389
Acid Extractable Silver (Ag)	ug/g	0.61	0.20	4654389	0.43	0.46	0.20	4656068	0.42	0.20	4654389
Acid Extractable Thallium (Tl)	ug/g	0.12	0.050	4654389	2.1	2.1	0.050	4656068	0.15	0.050	4654389
Acid Extractable Tin (Sn)	ug/g	<1.0	1.0	4654389	11	11	1.0	4656068	<1.0	1.0	4654389
Acid Extractable Uranium (U)	ug/g	4.0	0.050	4654389	0.64	0.62	0.050	4656068	2.4	0.050	4654389
Acid Extractable Vanadium (V)	ug/g	60	5.0	4654389	32	30	5.0	4656068	50	5.0	4654389
Acid Extractable Zinc (Zn)	ug/g	320	5.0	4654389	5300	5500	25	4656068	280	5.0	4654389

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW644	CZW645	CZW646	CZW647	CZW647	CZW648		
Sampling Date		2016/08/31 11:50	2016/08/31 11:55	2016/08/31 12:00	2016/08/31 12:05	2016/08/31 12:05	2016/08/31 12:07		
COC Number		59250	59250	59250	59250	59250	59250		
	UNITS	**CS1-21**	**CS1-22**	**CS1-23**	**CS1-24**	**CS1-24 Lab-Dup**	**CS1-25**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.42	0.35	0.31	<0.20	0.26	<0.20	0.20	4654389
Acid Extractable Arsenic (As)	ug/g	2.9	3.5	7.1	4.6	4.6	2.0	1.0	4654389
Acid Extractable Barium (Ba)	ug/g	110	200	95	120	120	67	0.50	4654389
Acid Extractable Beryllium (Be)	ug/g	0.22	<0.20	0.30	0.30	0.39	0.22	0.20	4654389
Acid Extractable Cadmium (Cd)	ug/g	0.57	1.1	0.84	0.74	0.71	0.36	0.10	4654389
Acid Extractable Chromium (Cr)	ug/g	22	13	60	31	33	51	1.0	4654389
Acid Extractable Cobalt (Co)	ug/g	6.9	2.1	5.1	7.5	7.5	36	0.10	4654389
Acid Extractable Copper (Cu)	ug/g	52	27	110	77	78	55	0.50	4654389
Acid Extractable Lead (Pb)	ug/g	60	67	81	82	80	47	1.0	4654389
Acid Extractable Molybdenum (Mo)	ug/g	0.70	0.83	0.99	0.59	0.86	<0.50	0.50	4654389
Acid Extractable Nickel (Ni)	ug/g	19	8.6	32	28	27	110	0.50	4654389
Acid Extractable Selenium (Se)	ug/g	0.67	0.96	3.5	1.2	1.3	0.63	0.50	4654389
Acid Extractable Silver (Ag)	ug/g	<0.20	0.25	<0.20	<0.20	<0.20	<0.20	0.20	4654389
Acid Extractable Thallium (Tl)	ug/g	0.072	0.089	0.12	0.076	0.13	0.054	0.050	4654389
Acid Extractable Tin (Sn)	ug/g	2.1	1.4	1.3	<1.0	1.3	<1.0	1.0	4654389
Acid Extractable Uranium (U)	ug/g	0.76	0.37	1.5	1.4	1.4	0.32	0.050	4654389
Acid Extractable Vanadium (V)	ug/g	21	11	40	31	31	130	5.0	4654389
Acid Extractable Zinc (Zn)	ug/g	160	93	100	160	160	130	5.0	4654389

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW649		CZW650		CZW651		
Sampling Date		2016/08/31 10:35		2016/08/31 09:20		2016/08/31 12:00		
COC Number		59250		59250		59250		
	UNITS	**CS10-9**	**QC Batch**	**CS10-5**	**QC Batch**	**CS10-23**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	<0.20	4654389	1.8	4656068	0.33	0.20	4654389
Acid Extractable Arsenic (As)	ug/g	<1.0	4654389	6.9	4656068	9.0	1.0	4654389
Acid Extractable Barium (Ba)	ug/g	190	4654389	240	4656068	100	0.50	4654389
Acid Extractable Beryllium (Be)	ug/g	<0.20	4654389	0.35	4656068	0.34	0.20	4654389
Acid Extractable Cadmium (Cd)	ug/g	0.60	4654389	1.7	4656068	1.0	0.10	4654389
Acid Extractable Chromium (Cr)	ug/g	5.9	4654389	48	4656068	75	1.0	4654389
Acid Extractable Cobalt (Co)	ug/g	2.3	4654389	25	4656068	5.8	0.10	4654389
Acid Extractable Copper (Cu)	ug/g	19	4654389	120	4656068	140	0.50	4654389
Acid Extractable Lead (Pb)	ug/g	36	4654389	650	4656068	150	1.0	4654389
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	4654389	1.2	4656068	1.0	0.50	4654389
Acid Extractable Nickel (Ni)	ug/g	6.4	4654389	80	4656068	38	0.50	4654389
Acid Extractable Selenium (Se)	ug/g	<0.50	4654389	0.89	4656068	3.6	0.50	4654389
Acid Extractable Silver (Ag)	ug/g	<0.20	4654389	0.24	4656068	0.23	0.20	4654389
Acid Extractable Thallium (Tl)	ug/g	0.053	4654389	0.085	4656068	0.15	0.050	4654389
Acid Extractable Tin (Sn)	ug/g	1.9	4654389	6.6	4656068	1.6	1.0	4654389
Acid Extractable Uranium (U)	ug/g	0.12	4654389	1.4	4656068	1.8	0.050	4654389
Acid Extractable Vanadium (V)	ug/g	6.9	4654389	87	4656068	46	5.0	4654389
Acid Extractable Zinc (Zn)	ug/g	350	4654389	1100	4656068	130	5.0	4654389

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

O.REG 153 PAHS (SOIL)

Maxxam ID		CZW622	CZW623	CZW625	CZW626		CZW627		
Sampling Date		2016/08/31 08:00	2016/08/31 08:15	2016/08/31 09:15	2016/08/31 09:20		2016/08/31 09:30		
COC Number		59245	59245	59245	59245		59245		
	UNITS	**CS1-1**	**CS1-2**	**CS1-4**	**CS1-5**	**QC Batch**	**CS1-6**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	26	23	6.5	16	4654236	8.4	1.0	4653840
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	0.35	<0.071	<0.071	<0.071	4648303	<0.071	0.071	4648303

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CZW628		CZW629		CZW630		CZW631		
Sampling Date		2016/08/31 10:00		2016/08/31 10:30		2016/08/31 10:35		2016/08/31 10:40		
COC Number		59245		59245		59245		59245		
	UNITS	**CS1-7**	**QC Batch**	**CS1-8**	**RDL**	**CS1-9**	**QC Batch**	**CS1-10**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	13	4654236	12	1.0	51	4653840	34	1.0	4654236
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	0.21	4648303	<0.071	0.071	<0.14	4648303	<0.14	0.14	4648303

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CZW633	CZW634			CZW645	CZW649		CZW650		
Sampling Date		2016/08/31 10:45	2016/08/31 10:50			2016/08/31 11:55	2016/08/31 10:35		2016/08/31 09:20		
COC Number		59248	59248			59250	59250		59250		
	UNITS	**CS1-11**	**CS1-12**	**RDL**	**QC Batch**	**CS1-22**	**CS10-9**	**RDL**	**CS10-5**	**RDL**	**QC Batch**
Inorganics											
Moisture	%	21	26	1.0	4651909	47		1.0		1.0	4653840
Calculated Parameters											
Methylnaphthalene, 2-(1-)	ug/g	1.2	0.071	0.071	4648303	0.37	<0.14	0.14	<0.071	0.071	4648303

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PCBS (SOIL)

Maxxam ID		CZW625		
Sampling Date		2016/08/31 09:15		
COC Number		59245		
	UNITS	**CS1-4**	**RDL**	**QC Batch**
PCBs				
Aroclor 1242	ug/g	<0.010	0.010	4654696
Aroclor 1248	ug/g	<0.010	0.010	4654696
Aroclor 1254	ug/g	<0.010	0.010	4654696
Aroclor 1260	ug/g	<0.010	0.010	4654696
Total PCB	ug/g	<0.010	0.010	4654696
Surrogate Recovery (%)				
Decachlorobiphenyl	%	85		4654696

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

O.REG 558 TCLP VOLATILE ORGANICS (SOIL)

Maxxam ID		CZW624	CZW626	CZW631	CZW641		
Sampling Date		2016/08/31 09:00	2016/08/31 09:20	2016/08/31 10:40	2016/08/31 11:25		
COC Number		59245	59245	59245	59248		
	UNITS	**CS1-3**	**CS1-5**	**CS1-10**	**CS1-19**	**RDL**	**QC Batch**
Charge/Prep Analysis							
Amount Extracted (Wet Weight) (g)	N/A	25	25	25	25	N/A	4659866
Volatile Organics							
Leachable Benzene	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	4661637
Surrogate Recovery (%)							
Leachable 4-Bromofluorobenzene	%	97	99	99	99		4661637
Leachable D4-1,2-Dichloroethane	%	102	102	103	104		4661637
Leachable D8-Toluene	%	98	100	100	98		4661637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

O.REG 558 TCLP BENZO(A)PYRENE

Maxxam ID		CZW624	CZW626	CZW626	CZW631	CZW633	CZW636	CZW638		
Sampling Date		2016/08/31 09:00	2016/08/31 09:20	2016/08/31 09:20	2016/08/31 10:40	2016/08/31 10:45	2016/08/31 11:00	2016/08/31 11:10		
COC Number		59245	59245	59245	59245	59248	59248	59248		
	UNITS	**CS1-3**	**CS1-5**	**CS1-5 Lab-Dup**	**CS1-10**	**CS1-11**	**CS1-14**	**CS1-16**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons										
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4658741
Surrogate Recovery (%)										
Leachable D10-Anthracene	%	108	111	104	100	104	107	96		4658741
Leachable D14-Terphenyl (FS)	%	86	94	87	75	91	97	88		4658741
Leachable D8-Acenaphthylene	%	97	102	95	92	86	94	93		4658741

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		CZW639	CZW641		
Sampling Date		2016/08/31 11:15	2016/08/31 11:25		
COC Number		59248	59248		
	UNITS	**CS1-17**	**CS1-19**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons					
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	0.10	4658741
Surrogate Recovery (%)					
Leachable D10-Anthracene	%	99	107		4658741
Leachable D14-Terphenyl (FS)	%	74	84		4658741
Leachable D8-Acenaphthylene	%	102	97		4658741

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		CZW624		CZW625		CZW626		CZW628		
Sampling Date		2016/08/31 09:00		2016/08/31 09:15		2016/08/31 09:20		2016/08/31 10:00		
COC Number		59245		59245		59245		59245		
	UNITS	**CS1-3**	**QC Batch**	**CS1-4**	**QC Batch**	**CS1-5**	**QC Batch**	**CS1-7**	**RDL**	**QC Batch**
Inorganics										
Final pH	pH	4.94	4656411	4.98	4686647	4.91	4656411	5.27		4686647
Initial pH	pH	6.75	4656411	6.25	4686647	7.04	4656411	8.38		4686647
TCLP - % Solids	%	100	4656406	100	4686645	100	4656406	100	0.2	4686645
TCLP Extraction Fluid	N/A	FLUID 1	4656410	FLUID 1	4686646	FLUID 1	4656410	FLUID 1		4686646

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CZW629		CZW631	CZW633	CZW636	CZW638	CZW639		
Sampling Date		2016/08/31 10:30		2016/08/31 10:40	2016/08/31 10:45	2016/08/31 11:00	2016/08/31 11:10	2016/08/31 11:15		
COC Number		59245		59245	59248	59248	59248	59248		
	UNITS	**CS1-8**	**QC Batch**	**CS1-10**	**CS1-11**	**CS1-14**	**CS1-16**	**CS1-17**	**RDL**	**QC Batch**
Inorganics										
Final pH	pH	4.98	4686647	4.93	5.85	4.85	4.96	4.83		4656411
Initial pH	pH	7.96	4686647	6.59	8.03	6.36	6.95	4.47		4656411
TCLP - % Solids	%	100	4686645	100	100	100	100	100	0.2	4656406
TCLP Extraction Fluid	N/A	FLUID 1	4686646	FLUID 1	FLUID 1	FLUID 1	FLUID 1	FLUID 1		4656410

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CZW641		
Sampling Date		2016/08/31 11:25		
COC Number		59248		
	UNITS	**CS1-19**	**RDL**	**QC Batch**
Inorganics				
Final pH	pH	5.16		4656411
Initial pH	pH	7.75		4656411
TCLP - % Solids	%	100	0.2	4656406
TCLP Extraction Fluid	N/A	FLUID 1		4656410

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

O.REG 558 TCLP METALS (SOIL)

Maxxam ID		CZW624		CZW625		CZW626		CZW628		
Sampling Date		2016/08/31 09:00		2016/08/31 09:15		2016/08/31 09:20		2016/08/31 10:00		
COC Number		59245		59245		59245		59245		
	UNITS	**CS1-3**	**QC Batch**	**CS1-4**	**QC Batch**	**CS1-5**	**QC Batch**	**CS1-7**	**RDL**	**QC Batch**
Metals										
Leachable Mercury (Hg)	mg/L		4687569	<0.0010	4687569		4687569	<0.0010	0.0010	4687569
Leachable Arsenic (As)	mg/L	<0.2	4658002	<0.2	4687842	<0.2	4658002	<0.2	0.2	4687842
Leachable Barium (Ba)	mg/L	0.6	4658002	1.1	4687842	0.5	4658002	0.7	0.2	4687842
Leachable Boron (B)	mg/L	0.3	4658002	0.2	4687842	0.4	4658002	0.2	0.1	4687842
Leachable Cadmium (Cd)	mg/L	0.19	4658002	<0.05	4687842	<0.05	4658002	<0.05	0.05	4687842
Leachable Chromium (Cr)	mg/L	<0.1	4658002	<0.1	4687842	<0.1	4658002	<0.1	0.1	4687842
Leachable Lead (Pb)	mg/L	<0.1	4658002	<0.1	4687842	<0.1	4658002	0.1	0.1	4687842
Leachable Selenium (Se)	mg/L	<0.1	4658002	<0.1	4687842	<0.1	4658002	<0.1	0.1	4687842
Leachable Silver (Ag)	mg/L	<0.01	4658002	<0.01	4687842	<0.01	4658002	<0.01	0.01	4687842
Leachable Uranium (U)	mg/L	<0.01	4658002	<0.01	4687842	<0.01	4658002	<0.01	0.01	4687842

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		CZW629		CZW631	CZW633	CZW636	CZW638	CZW639		
Sampling Date		2016/08/31 10:30		2016/08/31 10:40	2016/08/31 10:45	2016/08/31 11:00	2016/08/31 11:10	2016/08/31 11:15		
COC Number		59245		59245	59248	59248	59248	59248		
	UNITS	**CS1-8**	**QC Batch**	**CS1-10**	**CS1-11**	**CS1-14**	**CS1-16**	**CS1-17**	**RDL**	**QC Batch**
Metals										
Leachable Mercury (Hg)	mg/L	<0.0010	4687569						0.0010	4687569
Leachable Arsenic (As)	mg/L	<0.2	4687842	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	4658002
Leachable Barium (Ba)	mg/L	<0.2	4687842	0.9	4.1	0.3	0.6	0.4	0.2	4658002
Leachable Boron (B)	mg/L	0.2	4687842	0.7	0.2	0.3	0.3	1.0	0.1	4658002
Leachable Cadmium (Cd)	mg/L	<0.05	4687842	<0.05	0.06	<0.05	<0.05	<0.05	0.05	4658002
Leachable Chromium (Cr)	mg/L	<0.1	4687842	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4658002
Leachable Lead (Pb)	mg/L	<0.1	4687842	36	2.3	<0.1	0.2	<0.1	0.1	4658002
Leachable Selenium (Se)	mg/L	<0.1	4687842	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4658002
Leachable Silver (Ag)	mg/L	<0.01	4687842	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	4658002
Leachable Uranium (U)	mg/L	<0.01	4687842	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	4658002

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

O.REG 558 TCLP METALS (SOIL)

Maxxam ID		CZW641		
Sampling Date		2016/08/31 11:25		
COC Number		59248		
	UNITS	**CS1-19**	**RDL**	**QC Batch**
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	4658002
Leachable Barium (Ba)	mg/L	1.8	0.2	4658002
Leachable Boron (B)	mg/L	0.3	0.1	4658002
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	4658002
Leachable Chromium (Cr)	mg/L	<0.1	0.1	4658002
Leachable Lead (Pb)	mg/L	12	0.1	4658002
Leachable Selenium (Se)	mg/L	<0.1	0.1	4658002
Leachable Silver (Ag)	mg/L	<0.01	0.01	4658002
Leachable Uranium (U)	mg/L	<0.01	0.01	4658002

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CZW622	CZW623		CZW624		CZW625	CZW626	
Sampling Date		2016/08/31 08:00	2016/08/31 08:15		2016/08/31 09:00		2016/08/31 09:15	2016/08/31 09:20	
COC Number		59245	59245		59245		59245	59245	
	UNITS	**CS1-1**	**CS1-2**	**QC Batch**	**CS1-3**	**QC Batch**	**CS1-4**	**CS1-5**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	6.82	7.02	4654264	5.83	4653671	6.00	5.66	4654264

QC Batch = Quality Control Batch

Maxxam ID		CZW627		CZW628		CZW629	CZW630		CZW631	
Sampling Date		2016/08/31 09:30		2016/08/31 10:00		2016/08/31 10:30	2016/08/31 10:35		2016/08/31 10:40	
COC Number		59245		59245		59245	59245		59245	
	UNITS	**CS1-6**	**QC Batch**	**CS1-7**	**QC Batch**	**CS1-8**	**CS1-9**	**QC Batch**	**CS1-10**	**QC Batch**
Inorganics										
Available (CaCl2) pH	pH	6.30	4653671	7.17	4654264	5.82	5.04	4653671	5.07	4654264

QC Batch = Quality Control Batch

Maxxam ID		CZW633	CZW634	CZW635	CZW636	CZW637		CZW638	CZW639	
Sampling Date		2016/08/31 10:45	2016/08/31 10:50	2016/08/31 10:55	2016/08/31 11:00	2016/08/31 11:05		2016/08/31 11:10	2016/08/31 11:15	
COC Number		59248	59248	59248	59248	59248		59248	59248	
	UNITS	**CS1-11**	**CS1-12**	**CS1-13**	**CS1-14**	**CS1-15**	**QC Batch**	**CS1-16**	**CS1-17**	**QC Batch**
Inorganics										
Available (CaCl2) pH	pH	6.70	5.47	4.70	4.68	4.83	4652152	5.64	3.90	4653671

QC Batch = Quality Control Batch

Maxxam ID		CZW640	CZW640	CZW641	CZW642	CZW644	CZW645	CZW646	
Sampling Date		2016/08/31 11:20	2016/08/31 11:20	2016/08/31 11:25	2016/08/31 11:45	2016/08/31 11:50	2016/08/31 11:55	2016/08/31 12:00	
COC Number		59248	59248	59248	59248	59250	59250	59250	
	UNITS	**CS1-18**	**CS1-18 Lab-Dup**	**CS1-19**	**CS1-20**	**CS1-21**	**CS1-22**	**CS1-23**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	5.69	5.61	6.53	5.15	6.98	3.58	6.07	4653671

QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		CZW647	CZW648	CZW649		CZW650		CZW651	
Sampling Date		2016/08/31 12:05	2016/08/31 12:07	2016/08/31 10:35		2016/08/31 09:20		2016/08/31 12:00	
COC Number		59250	59250	59250		59250		59250	
	UNITS	**CS1-24**	**CS1-25**	**CS10-9**	**QC Batch**	**CS10-5**	**QC Batch**	**CS10-23**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	6.91	5.65	5.49	4653671	5.56	4654264	6.06	4653671

QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		CZW622	CZW623	CZW623	CZW625	CZW626	CZW627	CZW628		
Sampling Date		2016/08/31 08:00	2016/08/31 08:15	2016/08/31 08:15	2016/08/31 09:15	2016/08/31 09:20	2016/08/31 09:30	2016/08/31 10:00		
COC Number		59245	59245	59245	59245	59245	59245	59245		
	UNITS	**CS1-1**	**CS1-2**	**CS1-2 Lab-Dup**	**CS1-4**	**CS1-5**	**CS1-6**	**CS1-7**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Acenaphthylene	ug/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Anthracene	ug/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Benzo(a)anthracene	ug/g	0.05	0.24	0.20	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Benzo(a)pyrene	ug/g	0.06	0.25	0.20	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Benzo(b/j)fluoranthene	ug/g	0.09	0.36	0.29	<0.05	<0.05	<0.05	0.09	0.05	4659161
Benzo(g,h,i)perylene	ug/g	0.06	0.17	0.14	<0.05	<0.05	<0.05	0.05	0.05	4659161
Benzo(k)fluoranthene	ug/g	<0.05	0.12	0.09	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Chrysene	ug/g	0.08	0.24	0.18	<0.05	<0.05	<0.05	0.06	0.05	4659161
Dibenz(a,h)anthracene	ug/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Fluoranthene	ug/g	0.15	0.39	0.30	<0.05	<0.05	<0.05	0.08	0.05	4659161
Fluorene	ug/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4659161
Indeno(1,2,3-cd)pyrene	ug/g	0.06	0.19	0.16	<0.05	<0.05	<0.05	<0.05	0.05	4659161
1-Methylnaphthalene	ug/g	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.05	4659161
2-Methylnaphthalene	ug/g	0.22	0.06	<0.05	<0.05	0.07	<0.05	0.12	0.05	4659161
Naphthalene	ug/g	0.11	<0.05	<0.05	<0.05	0.05	<0.05	0.06	0.05	4659161
Phenanthrene	ug/g	0.14	0.13	0.08	<0.05	<0.05	<0.05	0.09	0.05	4659161
Pyrene	ug/g	0.17	0.33	0.26	<0.05	<0.05	<0.05	0.08	0.05	4659161
Surrogate Recovery (%)										
D10-Anthracene	%	75	76	75	81	78	79	78		4659161
D14-Terphenyl (FS)	%	70	73	72	76	74	76	73		4659161
D8-Acenaphthylene	%	67	66	66	70	69	71	70		4659161

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		CZW629		CZW630	CZW631		CZW633	CZW634		CZW645		
Sampling Date		2016/08/31 10:30		2016/08/31 10:35	2016/08/31 10:40		2016/08/31 10:45	2016/08/31 10:50		2016/08/31 11:55		
COC Number		59245		59245	59245		59248	59248		59250		
	UNITS	**CS1-8**	**RDL**	**CS1-9**	**CS1-10**	**RDL**	**CS1-11**	**CS1-12**	**RDL**	**CS1-22**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons												
Acenaphthene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	<0.05	0.05	<0.1	0.1	4659161
Acenaphthylene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.09	0.05	<0.1	0.1	4659161
Anthracene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	<0.05	0.05	<0.1	0.1	4659161
Benzo(a)anthracene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.14	0.05	<0.1	0.1	4659161
Benzo(a)pyrene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.13	0.05	<0.1	0.1	4659161
Benzo(b/j)fluoranthene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.08	0.25	0.05	<0.1	0.1	4659161
Benzo(g,h,i)perylene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.07	0.14	0.05	<0.1	0.1	4659161
Benzo(k)fluoranthene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.07	0.05	<0.1	0.1	4659161
Chrysene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.15	0.05	<0.1	0.1	4659161
Dibenz(a,h)anthracene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	<0.05	0.05	<0.1	0.1	4659161
Fluoranthene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.24	0.05	<0.1	0.1	4659161
Fluorene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	<0.05	0.05	<0.1	0.1	4659161
Indeno(1,2,3-cd)pyrene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	<0.05	0.14	0.05	<0.1	0.1	4659161
1-Methylnaphthalene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.34	<0.05	0.05	0.1	0.1	4659161
2-Methylnaphthalene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.84	0.07	0.05	0.2	0.1	4659161
Naphthalene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.37	<0.05	0.05	<0.1	0.1	4659161
Phenanthrene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.30	0.05	0.05	<0.1	0.1	4659161
Pyrene	ug/g	<0.05	0.05	<0.1	<0.1	0.1	0.33	0.20	0.05	0.4	0.1	4659161
Surrogate Recovery (%)												
D10-Anthracene	%	83		68	69		73	68		73		4659161
D14-Terphenyl (FS)	%	79		62	64		66	64		65		4659161
D8-Acenaphthylene	%	72		64	67		74	64		73		4659161

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		CZW649		CZW650		
Sampling Date		2016/08/31 10:35		2016/08/31 09:20		
COC Number		59250		59250		
	UNITS	**CS10-9**	**RDL**	**CS10-5**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons						
Acenaphthene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Acenaphthylene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Anthracene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Benzo(a)anthracene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Benzo(a)pyrene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Benzo(b/j)fluoranthene	ug/g	<0.1	0.1	0.05	0.05	4659161
Benzo(g,h,i)perylene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Benzo(k)fluoranthene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Chrysene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Dibenz(a,h)anthracene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Fluoranthene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Fluorene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Indeno(1,2,3-cd)pyrene	ug/g	<0.1	0.1	<0.05	0.05	4659161
1-Methylnaphthalene	ug/g	<0.1	0.1	<0.05	0.05	4659161
2-Methylnaphthalene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Naphthalene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Phenanthrene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Pyrene	ug/g	<0.1	0.1	<0.05	0.05	4659161
Surrogate Recovery (%)						
D10-Anthracene	%	65		74		4659161
D14-Terphenyl (FS)	%	59		73		4659161
D8-Acenaphthylene	%	64		70		4659161

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CZW622	CZW628	CZW634		
Sampling Date		2016/08/31 08:00	2016/08/31 10:00	2016/08/31 10:50		
COC Number		59245	59245	59248		
	UNITS	**CS1-1**	**CS1-7**	**CS1-12**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons						
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	180	150	<100	100	4659446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW622 **Collected:** 2016/08/31
Sample ID: CS1-1 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	4659446	2016/09/14	2016/09/14	Lovelpreet Thind
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW623 **Collected:** 2016/08/31
Sample ID: CS1-2 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW623 Dup **Collected:** 2016/08/31
Sample ID: CS1-2 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng

Maxxam ID: CZW624 **Collected:** 2016/08/31
Sample ID: CS1-3 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW625
Sample ID: CS1-4
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Mercury (TCLP Leachable) (mg/L)	CV/AA	4687569	N/A	2016/10/05	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4687842	2016/10/04	2016/10/05	Cristina Petran
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
Polychlorinated Biphenyl in Soil	GC/ECD	4654696	2016/09/09	2016/09/10	Mahmudul Khan
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
TCLP - % Solids	BAL	4686645	2016/10/03	2016/10/04	Walt Wang
TCLP - Extraction Fluid		4686646	N/A	2016/10/04	Walt Wang
TCLP - Initial and final pH	PH	4686647	N/A	2016/10/04	Walt Wang
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW626
Sample ID: CS1-5
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam ID: CZW626 Dup
Sample ID: CS1-5
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng

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Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW627
Sample ID: CS1-6
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/13	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4653840	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW628
Sample ID: CS1-7
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	4659446	2016/09/14	2016/09/14	Lovelpreet Thind
Mercury (TCLP Leachable) (mg/L)	CV/AA	4687569	N/A	2016/10/05	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4687842	2016/10/04	2016/10/05	Cristina Petran
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
TCLP - % Solids	BAL	4686645	2016/10/03	2016/10/04	Walt Wang
TCLP - Extraction Fluid		4686646	N/A	2016/10/04	Walt Wang
TCLP - Initial and final pH	PH	4686647	N/A	2016/10/04	Walt Wang
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW628 Dup
Sample ID: CS1-7
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW629
Sample ID: CS1-8
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Mercury (TCLP Leachable) (mg/L)	CV/AA	4687569	N/A	2016/10/05	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/13	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4687842	2016/10/04	2016/10/05	Cristina Petran
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW629
Sample ID: CS1-8
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	4653840	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
TCLP - % Solids	BAL	4686645	2016/10/03	2016/10/04	Walt Wang
TCLP - Extraction Fluid		4686646	N/A	2016/10/04	Walt Wang
TCLP - Initial and final pH	PH	4686647	N/A	2016/10/04	Walt Wang
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW630
Sample ID: CS1-9
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4653840	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW631
Sample ID: CS1-10
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/13	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW633 **Collected:** 2016/08/31
Sample ID: CS1-11 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654027	2016/09/09	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4651909	N/A	2016/09/08	Valentina Kaftani
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW634 **Collected:** 2016/08/31
Sample ID: CS1-12 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	4659446	2016/09/14	2016/09/14	Lovelpreet Thind
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654027	2016/09/09	2016/09/12	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4651909	N/A	2016/09/08	Valentina Kaftani
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW635 **Collected:** 2016/08/31
Sample ID: CS1-13 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654027	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW636 **Collected:** 2016/08/31
Sample ID: CS1-14 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654027	2016/09/09	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang

TEST SUMMARY

Maxxam ID: CZW636
Sample ID: CS1-14
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang

Maxxam ID: CZW637
Sample ID: CS1-15
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654027	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW638
Sample ID: CS1-16
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang

Maxxam ID: CZW639
Sample ID: CS1-17
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang

Maxxam ID: CZW640
Sample ID: CS1-18
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW640 Dup
Sample ID: CS1-18
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

Maxxam ID: CZW641
Sample ID: CS1-19
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4658002	2016/09/13	2016/09/15	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4658741	2016/09/13	2016/09/14	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
TCLP - % Solids	BAL	4656406	2016/09/12	2016/09/13	Jian (Ken) Wang
TCLP - Extraction Fluid		4656410	N/A	2016/09/13	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4656411	N/A	2016/09/13	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam ID: CZW641 Dup
Sample ID: CS1-19
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri

Maxxam ID: CZW642
Sample ID: CS1-20
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

Maxxam ID: CZW644
Sample ID: CS1-21
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

Maxxam ID: CZW645
Sample ID: CS1-22
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW645
Sample ID: CS1-22
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4653840	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW646
Sample ID: CS1-23
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

Maxxam ID: CZW647
Sample ID: CS1-24
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

Maxxam ID: CZW647 Dup
Sample ID: CS1-24
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri

Maxxam ID: CZW648
Sample ID: CS1-25
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

Maxxam ID: CZW649
Sample ID: CS10-9
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

TEST SUMMARY

Maxxam ID: CZW649
Sample ID: CS10-9
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4653840	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW650
Sample ID: CS10-5
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655381	2016/09/10	2016/09/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/13	Viviana Canzonieri
PAH Compounds by GC/MS (SIM)	GC/MS	4659161	2016/09/13	2016/09/14	Lingyun Feng
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654264	2016/09/12	2016/09/12	Neil Dassanayake
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW651
Sample ID: CS10-23
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654389	2016/09/09	2016/09/12	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4653671	2016/09/09	2016/09/09	Neil Dassanayake

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
Package 2	4.3°C
Package 3	4.0°C

Additional analyses added on: CS1-10, CS1-19, CS1-17, CS1-3, CS1-11, CS1-5, CS1-16, CS1-14

Sample CZW622-01 : VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.

Sample CZW624-01 : Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample CZW630-01 : pH Analysis: Sample was lightweight and absorbed all the extracting fluid when using the prescribed 1:2 extraction ratio. Due to highly absorbent nature the sample/fluid ratio was changed to 1:4.
VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.
F2-F4 Analysis:Detection limits were adjusted for high moisture content.
PAH analysis: Detection limits were adjusted for high moisture content.

Sample CZW631-01 : VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.
Metal Analysis:Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
PAH analysis: Detection limits were adjusted for high moisture content.

Sample CZW633-01 : VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.

Sample CZW634-01 : VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.

Sample CZW639-01 : pH Analysis: Sample was lightweight and absorbed all the extracting fluid when using the prescribed 1:2 extraction ratio. Due to highly absorbent nature the sample/fluid ratio was changed to 1:4.

Sample CZW645-01 : pH Analysis: Sample was lightweight and absorbed all the extracting fluid when using the prescribed 1:2 extraction ratio. Due to highly absorbent nature the sample/fluid ratio was changed to 1:4.
VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.
F2-F4 Analysis: Detection limits were adjusted for high moisture content.
PAH analysis: Detection limits were adjusted for high moisture content.

Sample CZW649-01 : pH Analysis: Sample was lightweight and absorbed all the extracting fluid when using the prescribed 1:2 extraction ratio. Due to highly absorbent nature the sample/fluid ratio was changed to 1:4.
VOC Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.
F2-F4 Analysis: Detection limits were adjusted for high moisture content.
PAH analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4650611	4-Bromofluorobenzene	2016/09/08	107	60 - 140	109	60 - 140	101	%				
4650611	D10-o-Xylene	2016/09/08	101	60 - 130	105	60 - 130	86	%				
4650611	D4-1,2-Dichloroethane	2016/09/08	84	60 - 140	90	60 - 140	94	%				
4650611	D8-Toluene	2016/09/08	101	60 - 140	99	60 - 140	90	%				
4654696	Decachlorobiphenyl	2016/09/10	92	60 - 130	91	60 - 130	88	%				
4655381	o-Terphenyl	2016/09/12	95	60 - 130	96	60 - 130	94	%				
4658741	Leachable D10-Anthracene	2016/09/13	108	50 - 130	105	50 - 130	107	%				
4658741	Leachable D14-Terphenyl (FS)	2016/09/13	91	50 - 130	89	50 - 130	93	%				
4658741	Leachable D8-Acenaphthylene	2016/09/13	95	50 - 130	93	50 - 130	93	%				
4659161	D10-Anthracene	2016/09/14	76	30 - 130	80	30 - 130	85	%				
4659161	D14-Terphenyl (FS)	2016/09/14	75	30 - 130	78	30 - 130	79	%				
4659161	D8-Acenaphthylene	2016/09/14	72	30 - 130	70	30 - 130	70	%				
4661637	Leachable 4-Bromofluorobenzene	2016/09/15	99	70 - 130	100	70 - 130	98	%				
4661637	Leachable D4-1,2-Dichloroethane	2016/09/15	95	70 - 130	101	70 - 130	102	%				
4661637	Leachable D8-Toluene	2016/09/15	103	70 - 130	100	70 - 130	99	%				
4650611	1,1,1,2-Tetrachloroethane	2016/09/08	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1,1-Trichloroethane	2016/09/08	82	60 - 140	82	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1,2,2-Tetrachloroethane	2016/09/08	89	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1,2-Trichloroethane	2016/09/08	82	60 - 140	87	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1-Dichloroethane	2016/09/08	82	60 - 140	82	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1-Dichloroethylene	2016/09/08	83	60 - 140	82	60 - 130	<0.050	ug/g	NC	50		
4650611	1,2-Dichlorobenzene	2016/09/08	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
4650611	1,2-Dichloroethane	2016/09/08	78	60 - 140	83	60 - 130	<0.050	ug/g	NC	50		
4650611	1,2-Dichloropropane	2016/09/08	88	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
4650611	1,3-Dichlorobenzene	2016/09/08	103	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
4650611	1,4-Dichlorobenzene	2016/09/08	104	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
4650611	Acetone (2-Propanone)	2016/09/08	81	60 - 140	92	60 - 140	<0.50	ug/g	NC	50		
4650611	Benzene	2016/09/08	89	60 - 140	91	60 - 130	<0.0060	ug/g	NC	50		
4650611	Bromodichloromethane	2016/09/08	86	60 - 140	89	60 - 130	<0.050	ug/g	NC	50		
4650611	Bromoform	2016/09/08	92	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
4650611	Bromomethane	2016/09/08	72	60 - 140	71	60 - 140	<0.050	ug/g	NC	50		

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Maxxam Job #: B6I9077
Report Date: 2016/10/07

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4650611	Carbon Tetrachloride	2016/09/08	84	60 - 140	83	60 - 130	<0.050	ug/g	NC	50		
4650611	Chlorobenzene	2016/09/08	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
4650611	Chloroethane	2016/09/08	78	60 - 140	79	60 - 130	<0.20	ug/g	NC	50		
4650611	Chloroform	2016/09/08	85	60 - 140	86	60 - 130	<0.050	ug/g	NC	50		
4650611	Chloromethane	2016/09/08	62	60 - 140	62	60 - 140	<0.40	ug/g	NC	50		
4650611	cis-1,2-Dichloroethylene	2016/09/08	92	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
4650611	cis-1,3-Dichloropropene	2016/09/08	93	60 - 140	96	60 - 130	<0.030	ug/g	NC	50		
4650611	Dibromochloromethane	2016/09/08	91	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
4650611	Dichlorodifluoromethane (FREON 12)	2016/09/08	60	60 - 140	59 (1)	60 - 140	<0.050	ug/g	NC	50		
4650611	Ethylbenzene	2016/09/08	99	60 - 140	97	60 - 130	<0.010	ug/g	NC	50		
4650611	Ethylene Dibromide	2016/09/08	92	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
4650611	F1 (C6-C10) - BTEX	2016/09/08					<10	ug/g	NC	30		
4650611	F1 (C6-C10)	2016/09/08	93	60 - 140	97	80 - 120	<10	ug/g	NC	30		
4650611	Gasoline	2016/09/08	93	N/A	97	N/A	<10	ug/g	NC	30		
4650611	Hexane	2016/09/08	88	60 - 140	86	60 - 130	<0.050	ug/g	NC	50		
4650611	Methyl Ethyl Ketone (2-Butanone)	2016/09/08	86	60 - 140	100	60 - 140	<0.50	ug/g	NC	50		
4650611	Methyl Isobutyl Ketone	2016/09/08	89	60 - 140	103	60 - 130	<0.50	ug/g	NC	50		
4650611	Methyl t-butyl ether (MTBE)	2016/09/08	90	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
4650611	Methylene Chloride(Dichloromethane)	2016/09/08	94	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
4650611	o-Xylene	2016/09/08	100	60 - 140	99	60 - 130	<0.020	ug/g	NC	50		
4650611	p+m-Xylene	2016/09/08	97	60 - 140	94	60 - 130	<0.020	ug/g	NC	50		
4650611	Styrene	2016/09/08	103	60 - 140	104	60 - 130	<0.050	ug/g	NC	50		
4650611	Tetrachloroethylene	2016/09/08	96	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
4650611	Toluene	2016/09/08	91	60 - 140	91	60 - 130	<0.020	ug/g	NC	50		
4650611	Total Xylenes	2016/09/08					<0.020	ug/g	1.5	50		
4650611	trans-1,2-Dichloroethylene	2016/09/08	88	60 - 140	87	60 - 130	<0.050	ug/g	NC	50		
4650611	trans-1,3-Dichloropropene	2016/09/08	93	60 - 140	93	60 - 130	<0.040	ug/g	NC	50		
4650611	Trichloroethylene	2016/09/08	93	60 - 140	93	60 - 130	<0.010	ug/g	NC	50		
4650611	Trichlorofluoromethane (FREON 11)	2016/09/08	81	60 - 140	79	60 - 130	<0.050	ug/g	NC	50		
4650611	Vinyl Chloride	2016/09/08	79	60 - 140	77	60 - 130	<0.020	ug/g	NC	50		
4651909	Moisture	2016/09/08							4.4	20		

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QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4652152	Available (CaCl2) pH	2016/09/08			99	97 - 103			0.51	N/A		
4653671	Available (CaCl2) pH	2016/09/09			99	97 - 103			1.4	N/A		
4653840	Moisture	2016/09/09							3.4	20		
4654027	Acid Extractable Antimony (Sb)	2016/09/12	91	75 - 125	102	80 - 120	<0.20	ug/g	NC	30		
4654027	Acid Extractable Arsenic (As)	2016/09/12	106	75 - 125	104	80 - 120	<1.0	ug/g	NC	30		
4654027	Acid Extractable Barium (Ba)	2016/09/12	NC	75 - 125	99	80 - 120	<0.50	ug/g	9.4	30		
4654027	Acid Extractable Beryllium (Be)	2016/09/12	98	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4654027	Acid Extractable Cadmium (Cd)	2016/09/12	101	75 - 125	99	80 - 120	<0.10	ug/g	NC	30		
4654027	Acid Extractable Chromium (Cr)	2016/09/12	NC	75 - 125	102	80 - 120	<1.0	ug/g	4.9	30		
4654027	Acid Extractable Cobalt (Co)	2016/09/12	101	75 - 125	101	80 - 120	<0.10	ug/g	10	30		
4654027	Acid Extractable Copper (Cu)	2016/09/12	98	75 - 125	102	80 - 120	<0.50	ug/g	5.0	30		
4654027	Acid Extractable Lead (Pb)	2016/09/12	101	75 - 125	99	80 - 120	<1.0	ug/g	NC	30		
4654027	Acid Extractable Molybdenum (Mo)	2016/09/12	101	75 - 125	100	80 - 120	<0.50	ug/g	NC	30		
4654027	Acid Extractable Nickel (Ni)	2016/09/12	104	75 - 125	106	80 - 120	<0.50	ug/g	2.2	30		
4654027	Acid Extractable Selenium (Se)	2016/09/12	106	75 - 125	105	80 - 120	<0.50	ug/g	NC	30		
4654027	Acid Extractable Silver (Ag)	2016/09/12	101	75 - 125	101	80 - 120	<0.20	ug/g	NC	30		
4654027	Acid Extractable Thallium (Tl)	2016/09/12	99	75 - 125	97	80 - 120	<0.050	ug/g	NC	30		
4654027	Acid Extractable Tin (Sn)	2016/09/12	102	75 - 125	98	80 - 120	<1.0	ug/g	NC	30		
4654027	Acid Extractable Uranium (U)	2016/09/12	99	75 - 125	98	80 - 120	<0.050	ug/g	0.45	30		
4654027	Acid Extractable Vanadium (V)	2016/09/12	NC	75 - 125	104	80 - 120	<5.0	ug/g	NC	30		
4654027	Acid Extractable Zinc (Zn)	2016/09/12	NC	75 - 125	102	80 - 120	<5.0	ug/g	NC	30		
4654236	Moisture	2016/09/09							4.5	20		
4654264	Available (CaCl2) pH	2016/09/12			99	97 - 103			1.3	N/A		
4654389	Acid Extractable Antimony (Sb)	2016/09/12	88	75 - 125	96	80 - 120	<0.20	ug/g	NC	30		
4654389	Acid Extractable Arsenic (As)	2016/09/12	88	75 - 125	100	80 - 120	<1.0	ug/g	NC	30		
4654389	Acid Extractable Barium (Ba)	2016/09/12	NC	75 - 125	97	80 - 120	<0.50	ug/g	0.50	30		
4654389	Acid Extractable Beryllium (Be)	2016/09/12	95	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4654389	Acid Extractable Cadmium (Cd)	2016/09/12	96	75 - 125	98	80 - 120	<0.10	ug/g	3.8	30		
4654389	Acid Extractable Chromium (Cr)	2016/09/12	NC	75 - 125	103	80 - 120	<1.0	ug/g	4.1	30		
4654389	Acid Extractable Cobalt (Co)	2016/09/12	97	75 - 125	103	80 - 120	<0.10	ug/g	0.043	30		
4654389	Acid Extractable Copper (Cu)	2016/09/12	NC	75 - 125	101	80 - 120	<0.50	ug/g	1.4	30		

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Report Date: 2016/10/07

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: MAIN SILT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4654389	Acid Extractable Lead (Pb)	2016/09/12	NC	75 - 125	100	80 - 120	<1.0	ug/g	2.6	30		
4654389	Acid Extractable Molybdenum (Mo)	2016/09/12	95	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
4654389	Acid Extractable Nickel (Ni)	2016/09/12	NC	75 - 125	101	80 - 120	<0.50	ug/g	2.1	30		
4654389	Acid Extractable Selenium (Se)	2016/09/12	97	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
4654389	Acid Extractable Silver (Ag)	2016/09/12	93	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		
4654389	Acid Extractable Thallium (Tl)	2016/09/12	94	75 - 125	97	80 - 120	<0.050	ug/g	NC	30		
4654389	Acid Extractable Tin (Sn)	2016/09/12	89	75 - 125	96	80 - 120	<1.0	ug/g	NC	30		
4654389	Acid Extractable Uranium (U)	2016/09/12	97	75 - 125	100	80 - 120	<0.050	ug/g	1.9	30		
4654389	Acid Extractable Vanadium (V)	2016/09/12	NC	75 - 125	99	80 - 120	<5.0	ug/g	0.59	30		
4654389	Acid Extractable Zinc (Zn)	2016/09/12	NC	75 - 125	107	80 - 120	<5.0	ug/g	5.5	30		
4654696	Aroclor 1242	2016/09/10					<0.010	ug/g	NC	50		
4654696	Aroclor 1248	2016/09/10					<0.010	ug/g	NC	50		
4654696	Aroclor 1254	2016/09/10					<0.010	ug/g	NC	50		
4654696	Aroclor 1260	2016/09/10	100	60 - 130	103	60 - 130	<0.010	ug/g	NC	50		
4654696	Total PCB	2016/09/10	100	60 - 130	103	60 - 130	<0.010	ug/g	NC	50		
4655381	F2 (C10-C16 Hydrocarbons)	2016/09/12	88	50 - 130	86	80 - 120	<10	ug/g	NC	30		
4655381	F3 (C16-C34 Hydrocarbons)	2016/09/12	91	50 - 130	91	80 - 120	<50	ug/g	NC	30		
4655381	F4 (C34-C50 Hydrocarbons)	2016/09/12	87	50 - 130	86	80 - 120	<50	ug/g	NC	30		
4656068	Acid Extractable Antimony (Sb)	2016/09/12	78	75 - 125	97	80 - 120	<0.20	ug/g	1.7	30		
4656068	Acid Extractable Arsenic (As)	2016/09/12	93	75 - 125	95	80 - 120	<1.0	ug/g	2.1	30		
4656068	Acid Extractable Barium (Ba)	2016/09/12	NC	75 - 125	94	80 - 120	<0.50	ug/g	4.4	30		
4656068	Acid Extractable Beryllium (Be)	2016/09/12	91	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4656068	Acid Extractable Cadmium (Cd)	2016/09/12	89	75 - 125	96	80 - 120	<0.10	ug/g	2.9	30		
4656068	Acid Extractable Chromium (Cr)	2016/09/12	NC	75 - 125	99	80 - 120	<1.0	ug/g	6.2	30		
4656068	Acid Extractable Cobalt (Co)	2016/09/12	NC	75 - 125	98	80 - 120	<0.10	ug/g	2.4	30		
4656068	Acid Extractable Copper (Cu)	2016/09/12	NC	75 - 125	98	80 - 120	<0.50	ug/g	1.8	30		
4656068	Acid Extractable Lead (Pb)	2016/09/12			101	80 - 120	<1.0	ug/g	4.2	30		
4656068	Acid Extractable Molybdenum (Mo)	2016/09/12	87	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4656068	Acid Extractable Nickel (Ni)	2016/09/12	NC	75 - 125	100	80 - 120	<0.50	ug/g	2.8	30		
4656068	Acid Extractable Selenium (Se)	2016/09/12	91	75 - 125	100	80 - 120	<0.50	ug/g	NC	30		
4656068	Acid Extractable Silver (Ag)	2016/09/12	90	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4656068	Acid Extractable Thallium (Tl)	2016/09/12	82	75 - 125	100	80 - 120	<0.050	ug/g	0.61	30		
4656068	Acid Extractable Tin (Sn)	2016/09/12	82	75 - 125	94	80 - 120	<1.0	ug/g	0.47	30		
4656068	Acid Extractable Uranium (U)	2016/09/12	90	75 - 125	99	80 - 120	<0.050	ug/g	2.5	30		
4656068	Acid Extractable Vanadium (V)	2016/09/12	NC	75 - 125	96	80 - 120	<5.0	ug/g	5.9	30		
4656068	Acid Extractable Zinc (Zn)	2016/09/12			100	80 - 120	<5.0	ug/g	4.0	30		
4658002	Leachable Arsenic (As)	2016/09/15	104	80 - 120	94	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4658002	Leachable Barium (Ba)	2016/09/15	103	80 - 120	97	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4658002	Leachable Boron (B)	2016/09/15	101	80 - 120	106	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4658002	Leachable Cadmium (Cd)	2016/09/15	98	80 - 120	96	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
4658002	Leachable Chromium (Cr)	2016/09/15	97	80 - 120	92	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4658002	Leachable Lead (Pb)	2016/09/15	95	80 - 120	94	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4658002	Leachable Selenium (Se)	2016/09/15	96	80 - 120	97	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4658002	Leachable Silver (Ag)	2016/09/15	95	80 - 120	95	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4658002	Leachable Uranium (U)	2016/09/15	96	80 - 120	94	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4658741	Leachable Benzo(a)pyrene	2016/09/14	110	50 - 130	105	50 - 130	<0.10	ug/L	NC	40		
4659161	1-Methylnaphthalene	2016/09/14	77	50 - 130	77	50 - 130	<0.05	ug/g	NC	50		
4659161	2-Methylnaphthalene	2016/09/14	76	50 - 130	75	50 - 130	<0.05	ug/g	NC	50		
4659161	Acenaphthene	2016/09/14	86	50 - 130	82	50 - 130	<0.05	ug/g	NC	50		
4659161	Acenaphthylene	2016/09/14	78	50 - 130	78	50 - 130	<0.05	ug/g	NC	50		
4659161	Anthracene	2016/09/14	88	50 - 130	76	50 - 130	<0.05	ug/g	NC	50		
4659161	Benzo(a)anthracene	2016/09/14	125	50 - 130	85	50 - 130	<0.05	ug/g	NC	50		
4659161	Benzo(a)pyrene	2016/09/14	114	50 - 130	84	50 - 130	<0.05	ug/g	NC	50		
4659161	Benzo(b/j)fluoranthene	2016/09/14	103	50 - 130	89	50 - 130	<0.05	ug/g	20	50		
4659161	Benzo(g,h,i)perylene	2016/09/14	99	50 - 130	77	50 - 130	<0.05	ug/g	NC	50		
4659161	Benzo(k)fluoranthene	2016/09/14	88	50 - 130	78	50 - 130	<0.05	ug/g	NC	50		
4659161	Chrysene	2016/09/14	115	50 - 130	85	50 - 130	<0.05	ug/g	NC	50		
4659161	Dibenz(a,h)anthracene	2016/09/14	89	50 - 130	69	50 - 130	<0.05	ug/g	NC	50		
4659161	Fluoranthene	2016/09/14	160 (2)	50 - 130	89	50 - 130	<0.05	ug/g	27	50		
4659161	Fluorene	2016/09/14	86	50 - 130	81	50 - 130	<0.05	ug/g	NC	50		
4659161	Indeno(1,2,3-cd)pyrene	2016/09/14	111	50 - 130	88	50 - 130	<0.05	ug/g	NC	50		
4659161	Naphthalene	2016/09/14	79	50 - 130	74	50 - 130	<0.05	ug/g	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4659161	Phenanthrene	2016/09/14	145 (3)	50 - 130	82	50 - 130	<0.05	ug/g	NC	50		
4659161	Pyrene	2016/09/14	148 (2)	50 - 130	89	50 - 130	<0.05	ug/g	26	50		
4659446	F4G-sg (Grav. Heavy Hydrocarbons)	2016/09/14	77	65 - 135	103	65 - 135	<100	ug/g	NC	50		
4661637	Leachable Benzene	2016/09/15	101	70 - 130	102	70 - 130	<0.020	mg/L	NC	30		
4687569	Leachable Mercury (Hg)	2016/10/05	105	75 - 125	106	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
4687842	Leachable Arsenic (As)	2016/10/05	103	80 - 120	98	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4687842	Leachable Barium (Ba)	2016/10/05	102	80 - 120	108	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4687842	Leachable Boron (B)	2016/10/05	101	80 - 120	105	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4687842	Leachable Cadmium (Cd)	2016/10/05	104	80 - 120	101	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
4687842	Leachable Chromium (Cr)	2016/10/05	101	80 - 120	103	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4687842	Leachable Lead (Pb)	2016/10/05	99	80 - 120	102	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4687842	Leachable Selenium (Se)	2016/10/05	100	80 - 120	99	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4687842	Leachable Silver (Ag)	2016/10/05	98	80 - 120	100	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4687842	Leachable Uranium (U)	2016/10/05	101	80 - 120	103	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(3) The recovery was above the upper control limit. This may represent a high bias in some results for flagged analytes. For results that were not detected (ND), this potential bias has no impact.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

IMMEDIATE TEST

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CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59245

Page 1 of 3

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: DST GeoffLake	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: 885 Regent St	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Address:	Project #: GV-TB-027105	Rush TAT (Surcharges will be applied)
		Site Location: [illegible]	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Phone: 7055610147 Fax:	Phone: Fax:	Site #: Main Site	
Email: glake@dstgroup.com	Email:	Sampled By: GL	Date Required:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Rush Confirmation #:

Regulation 153

- [X] Table 1
- [ ] Table 2
- [ ] Table 3
- [ ] Table ___
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/ Other
- [ ] Med/ Fine
- [ ] Coarse

FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations

- [X] CCME
- [ ] MISA
- [ ] PWQO
- [ ] Other (Specify)
- [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw

Region

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested (REFER TO BACK OF COC)

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAHs	TCLP (Benzene, BaP, METALS)		pH	PCB					HOLD- DO NOT ANALYZE	COMMENTS
1	CSI-1	Aug 31/16	8:00	Soil			X	X			X		X	X		X							
2	CSI-2	↓	8:15	↓			X	X			X		X	X		X							
3	CSI-3		9:00								X			X		X							
4	CSI-4		9:15				X	X			X		X	X		X	X						
5	CSI-5		920				X	X			X		X	X		X							
6	CSI-6		930				X	X			X		X	X		X							
7	CSI-7		10:00				X	X			X		X	X		X							
8	CSI-8		10:30				X	X			X		X			X							
9	CSI-9		10:35				X	X			X		X			X							
10	CSI-10		10:40				X	X			X		X	X		X							

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
N		5, 2, 2°C
N		5, 3, 5°C
N		6, 3, 3°C

COOLING MEDIA PRESENT: Y / N

02-Sep-16 16:20
Augustyna Dobosz
B6I9077
TSP ENV-1242

Received in Sudbury

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
[signature] G Lake	2016/09/02	16:15	[signature] / Bradley Frappier	2016/09/02	16:20	
			[signature]	2016/09/03	10:30	

COC-1004 (10/14) - ENV. ENG.

- Refer to ACTR

White: Maxxam ~ Yellow: Client

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CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59248

Page 2 of 3

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	DST	Company Name:		Quotation #:		[X] Regular TAT (5-7 days) Most analyses
Contact Name:	Geoff Lake	Contact Name:		P.O. #/ AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	935 Regent St	Address:		Project #:	GU-TB-027105	Rush TAT (Surcharges will be applied)
				Site Location:	Main Site	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Phone:	9705610147 Fax:	Phone:	Fax:	Site #:		
Email:	glake@dstgroup.com	Email:		Sampled By:	GL	Date Required:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Rush Confirmation #:

Regulation 153

[X] Table 1 [ ] Res/Park [ ] Med/ Fine
[ ] Table 2 [ ] Ind/Comm [ ] Coarse
[ ] Table 3 [ ] Agri/ Other
[ ] Table ____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations

[X] CCME [ ] Sanitary Sewer Bylaw
[ ] MISA [ ] Storm Sewer Bylaw
[ ] PWQO Region ____
[ ] Other (Specify) ____
[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY

CUSTODY SEAL Y / (N)		COOLER TEMPERATURES
Present	Intact	
N		5, 2, 2°C
N		5, 3, 5°C
N		6, 3, 3°C

COOLING MEDIA PRESENT: (Y) / N

Analysis Requested

#	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAHs	TCLP (Benzene, BaP	METALS)	pH					HOLD- DO NOT ANALYZE	COMMENTS
1	CS1-11	Aug 31/16	10:45	Soil			X	X			X		X			X						
2	CS1-12	↓	10:50	↓			X	X			X		X			X						
3	CS1-13		10:55								X			X		X						
4	CS1-14		11:00								X					X						
5	CS1-15		11:05								X			X		X						
6	CS1-16		11:10								X					X						
7	CS1-17		11:15								X					X						
8	CS1-18		11:20								X					X						
9	CS1-19		11:25								X			X		X						
10	CS1-20		11:45								X					X						

Received in Sudbury

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
G Lake / G Lake	2016/09/02	16:15	B. Frappier / Bradley Frappier	2016/09/02	16:20	
			MARK	2016/09/03	10:20	

Rec'd in ACTR

COC-1004 (10/14) - ENV. ENG.

White: Maxxam ~ Yellow: Client

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Bureau Veritas Group Company
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CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59250

Page 3 of 3

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)	
Company Name:	DST	Company Name:		Quotation #:	
Contact Name:	G Lake	Contact Name:		P.O. #/ AFE#:	
Address:	885 Regent St	Address:		Project #:	GV-TO-027105
				Site Location:	[illegible]
Phone:	705 5610147 Fax:	Phone:	Fax:	Site #:	Main Site
Email:	glake@dstgroup.com	Email:		Sampled By:	GL

Turnaround Time (TAT) Required

- [x] Regular TAT (5-7 days) Most analyses

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Rush TAT (Surcharges will be applied)

- [ ] 1 Day
- [ ] 2 Days
- [ ] 3-4 Days

Date Required:

Rush Confirmation #:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153

- [x] Table 1
- [ ] Res/Park
- [ ] Med/ Fine
- [ ] Table 2
- [ ] Ind/Comm
- [ ] Coarse
- [ ] Table 3
- [ ] Agri/ Other
- [ ] Table ____

FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations

- [x] CCME
- [ ] Sanitary Sewer Bylaw
- [ ] MISA
- [ ] Storm Sewer Bylaw
- [ ] PWQO Region
- [ ] Other (Specify)
- [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
N		5, 2, 2°C
N		5, 3, 5°C
N		6, 3, 3°C

COOLING MEDIA PRESENT: Y / N

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAHs	TCLP (Benzene, BaP Metal)	pH					HOLD- DO NOT ANALYZE	COMMENTS
1	CS1-21	Aug 31/16	1:50	Soil							X			X	X						
2	CS1-22		11:55				X	X			X		X		X						
3	CS1-23		2:00								X				X						
4	CS1-24		12:05								X				X						
5	CS1-25		12:07								X				X						
6	CS10-9		10:35				X	X			X		X		X						
7	CS10-5		9:20				X	X			X		X	X	X						
8	CS10-23		12:00								X				X						
9																					
10																					

Received in Sudbury

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
[signature] / G Lake	2016/09/02	16:15	[signature] Bradley Frazier	2016/09/02	16:20	
			[signature]	2016/09/03	10:30	

Refer to ACTR

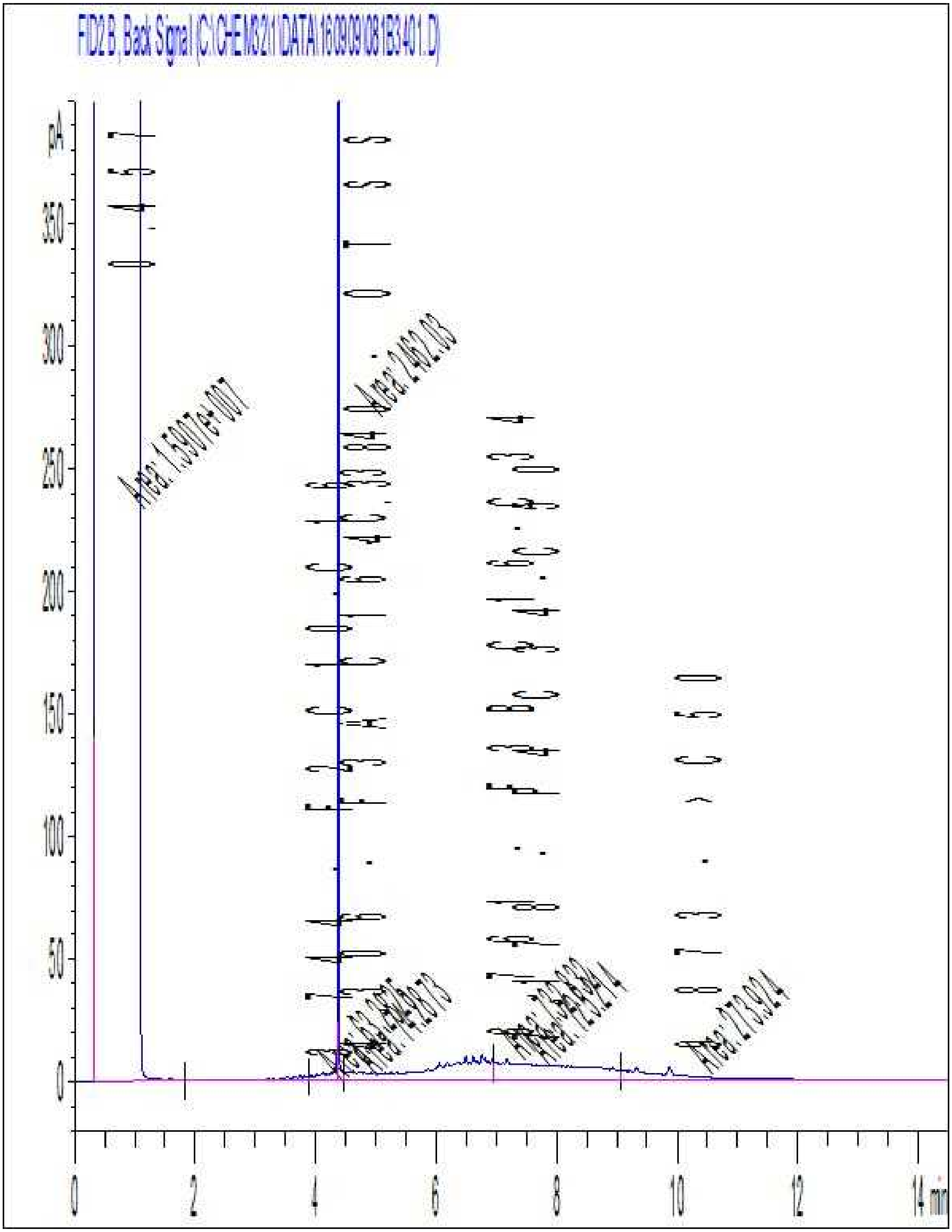
COC-1004 (10/14) - ENV. ENG.

White: Maxxam ~ Yellow: Client

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW622

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

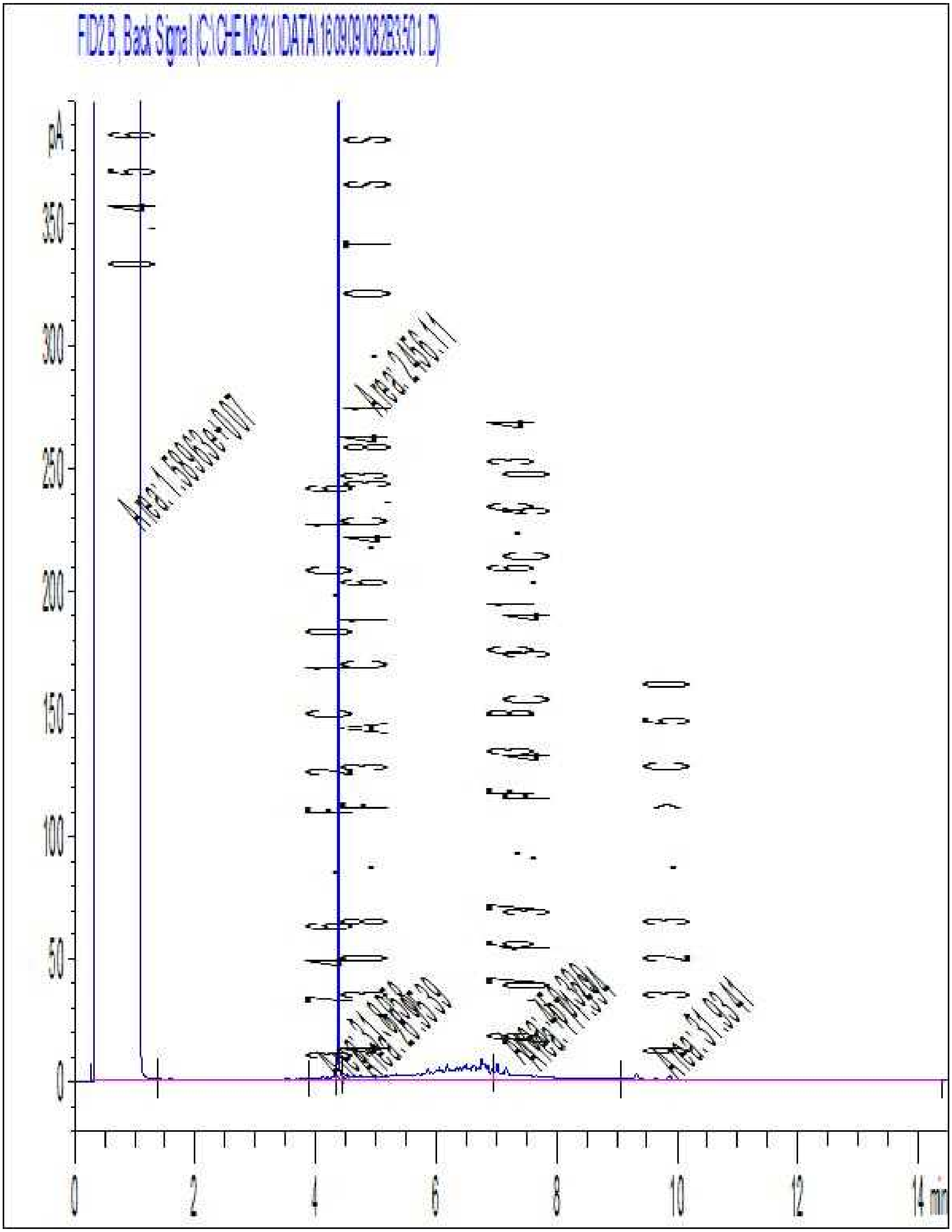


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW623

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

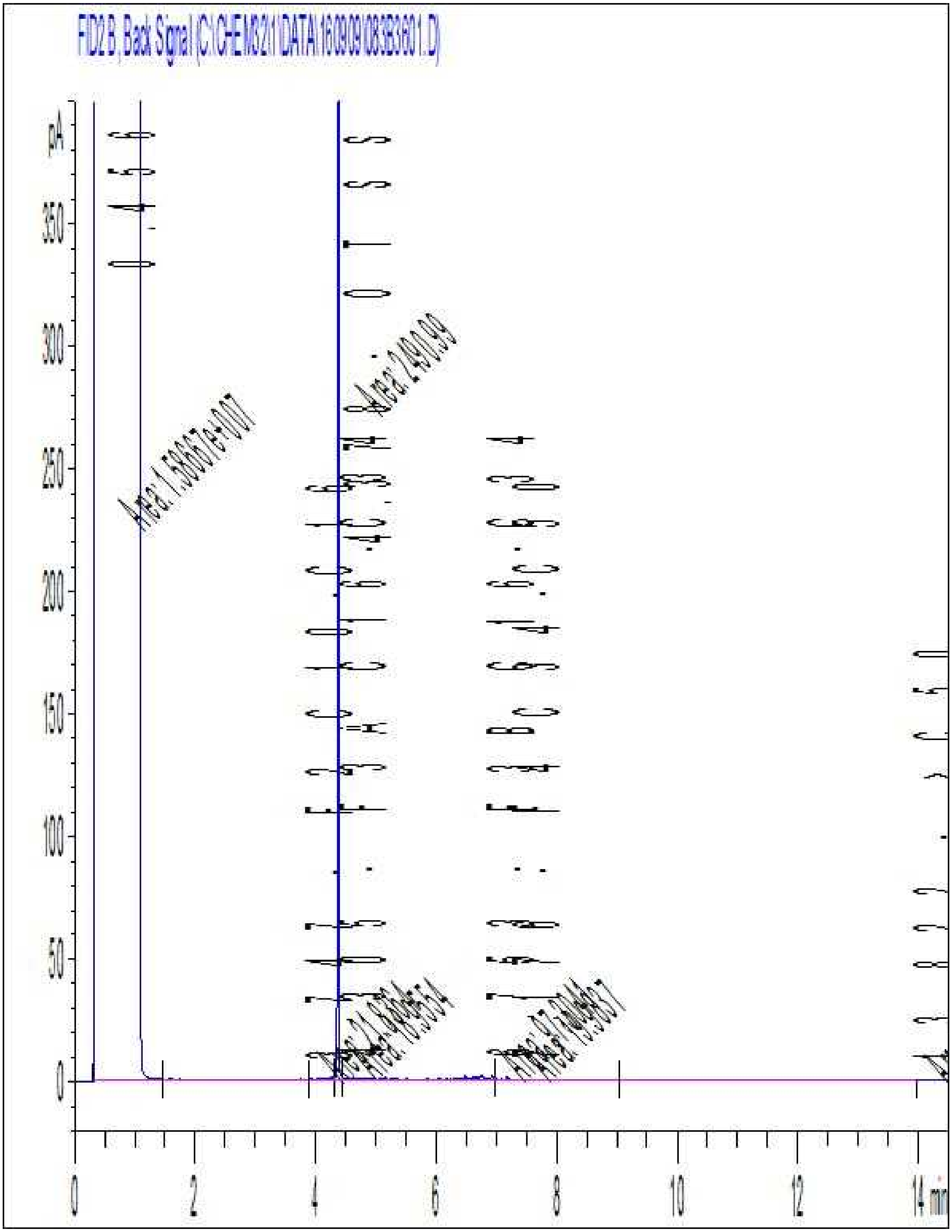


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW625

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-4

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

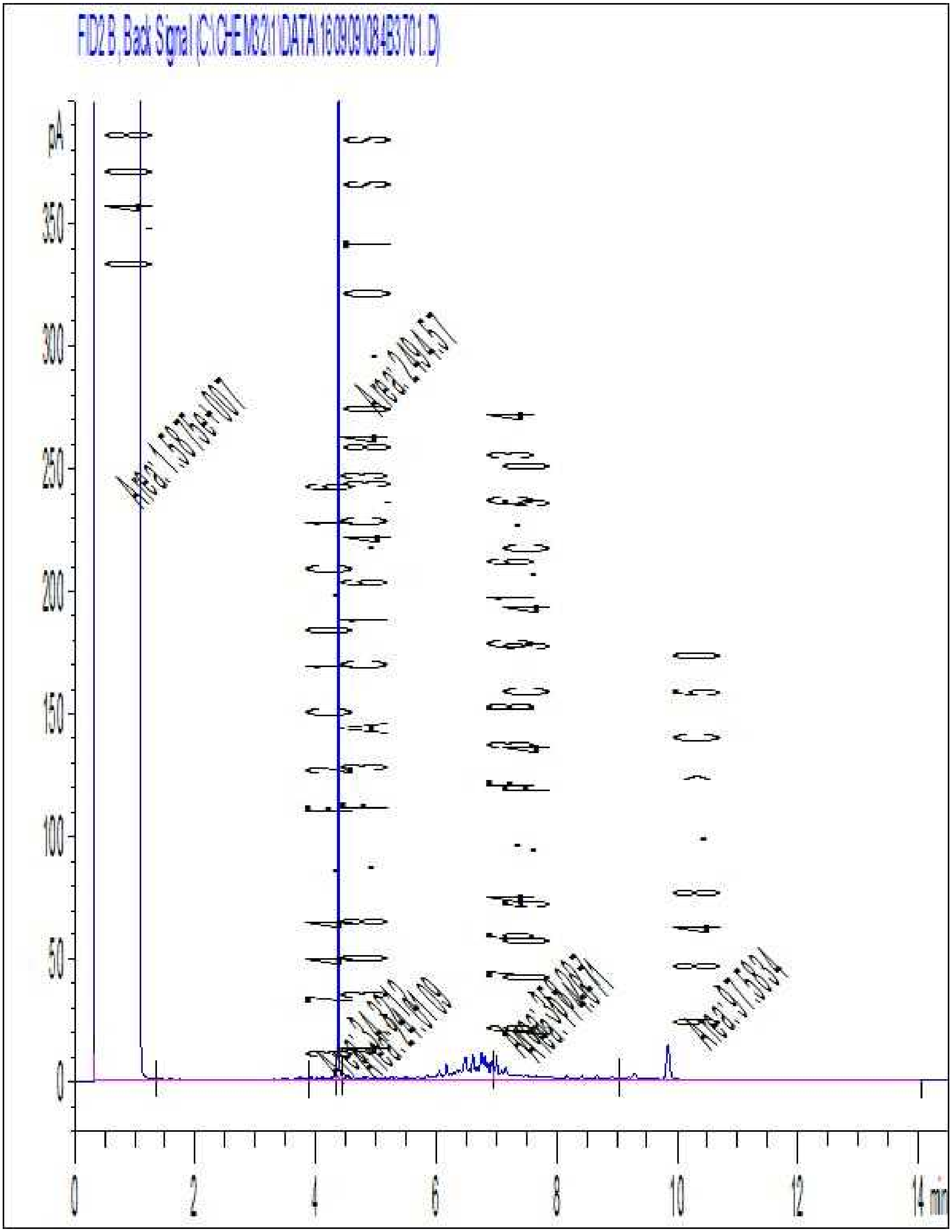


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW626

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

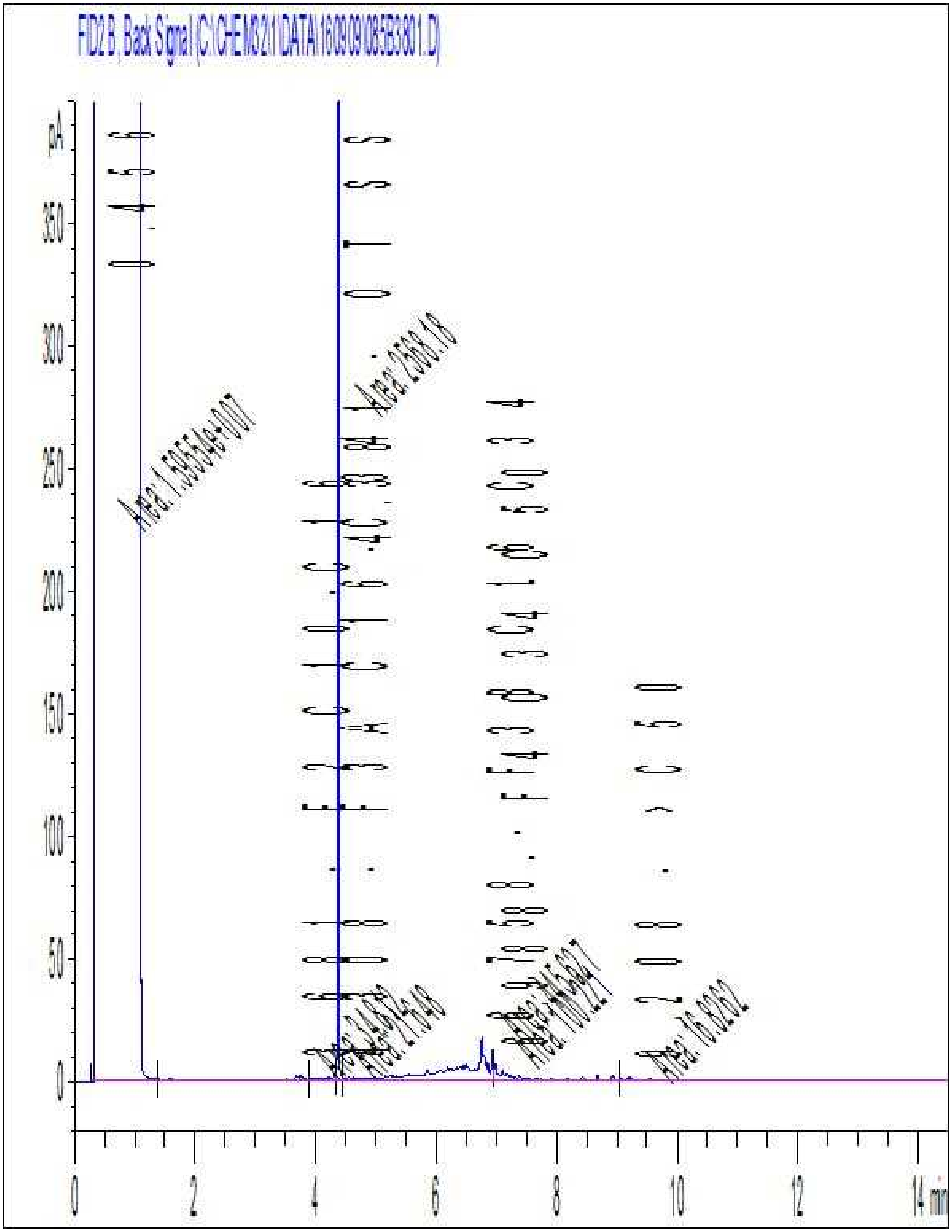


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW627

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

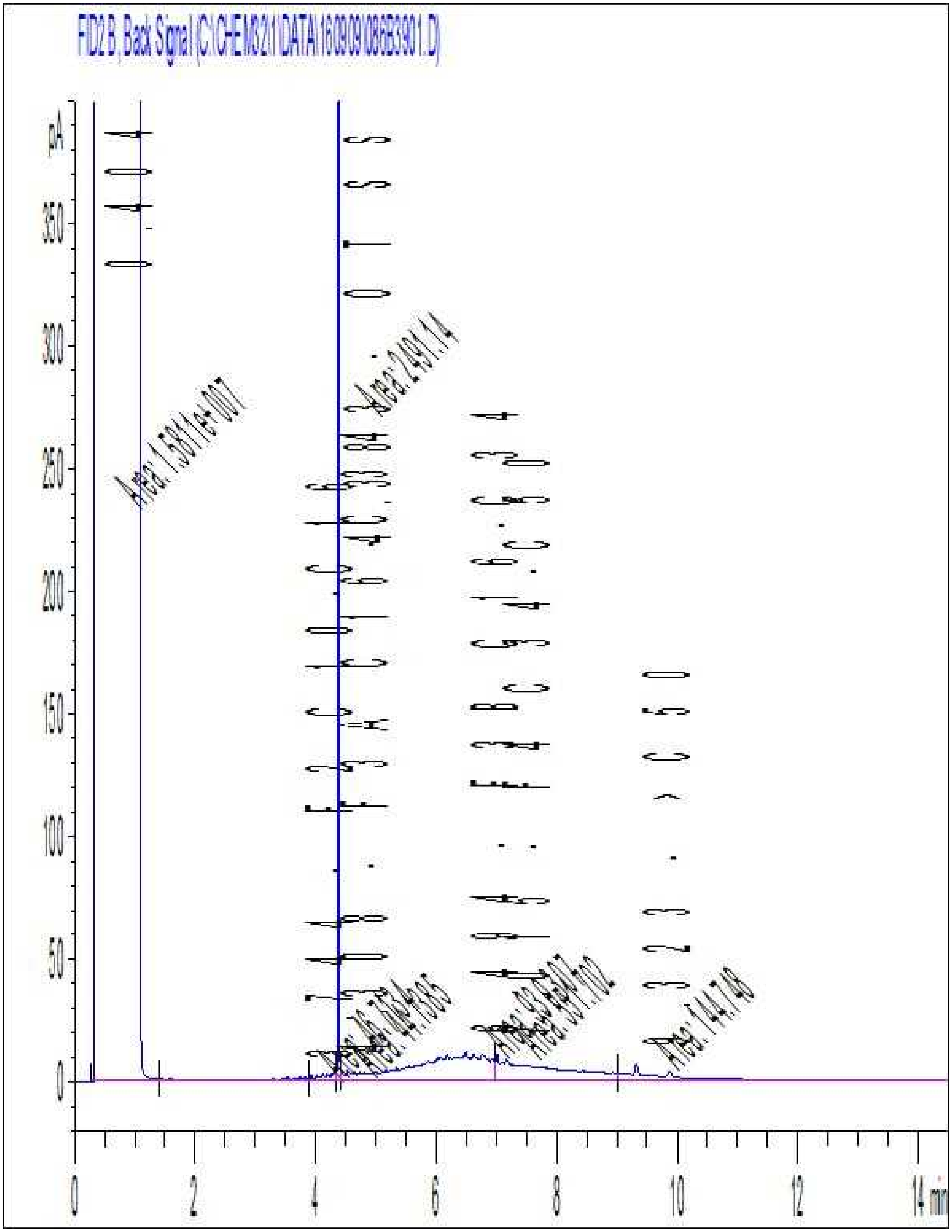


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW628

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-7

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

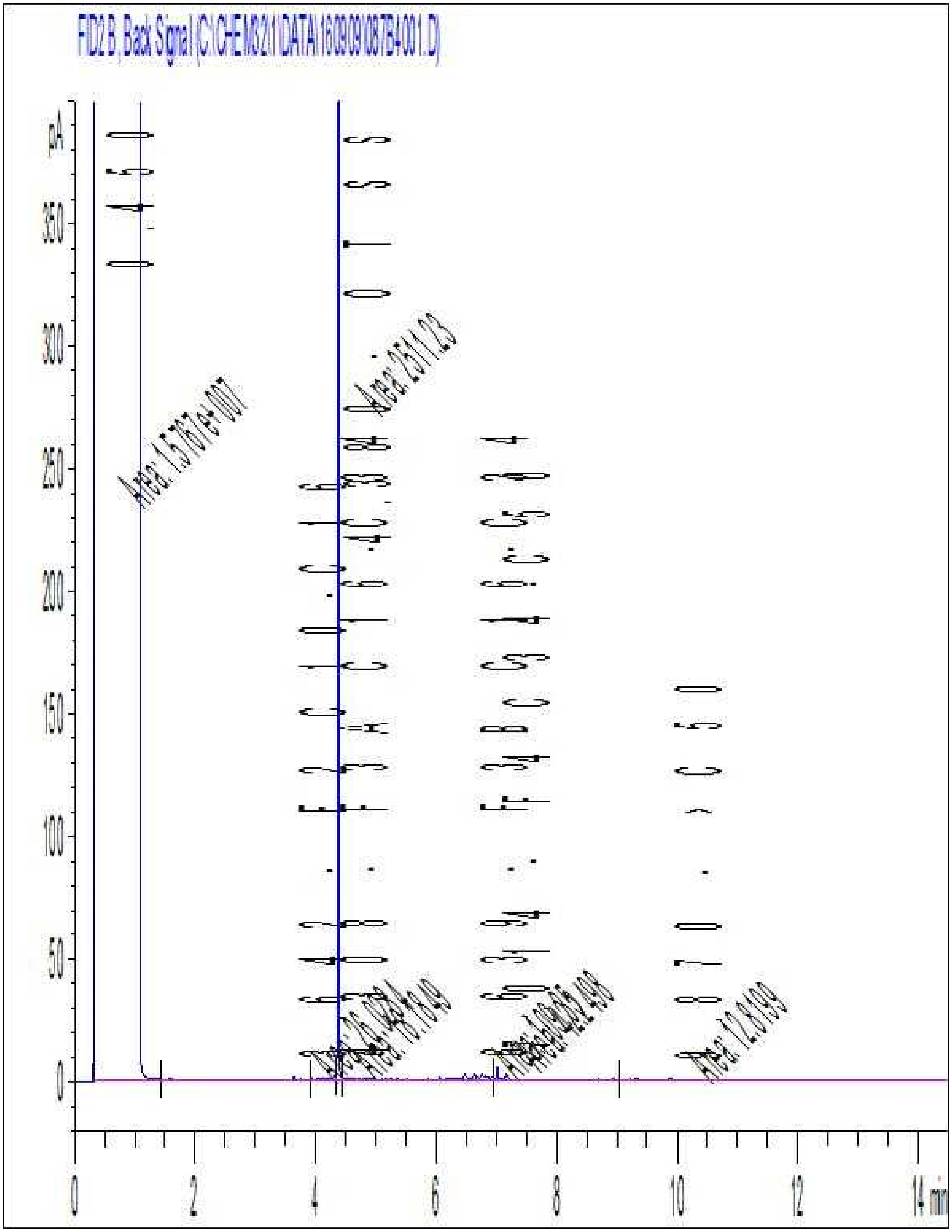


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW629

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-8

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

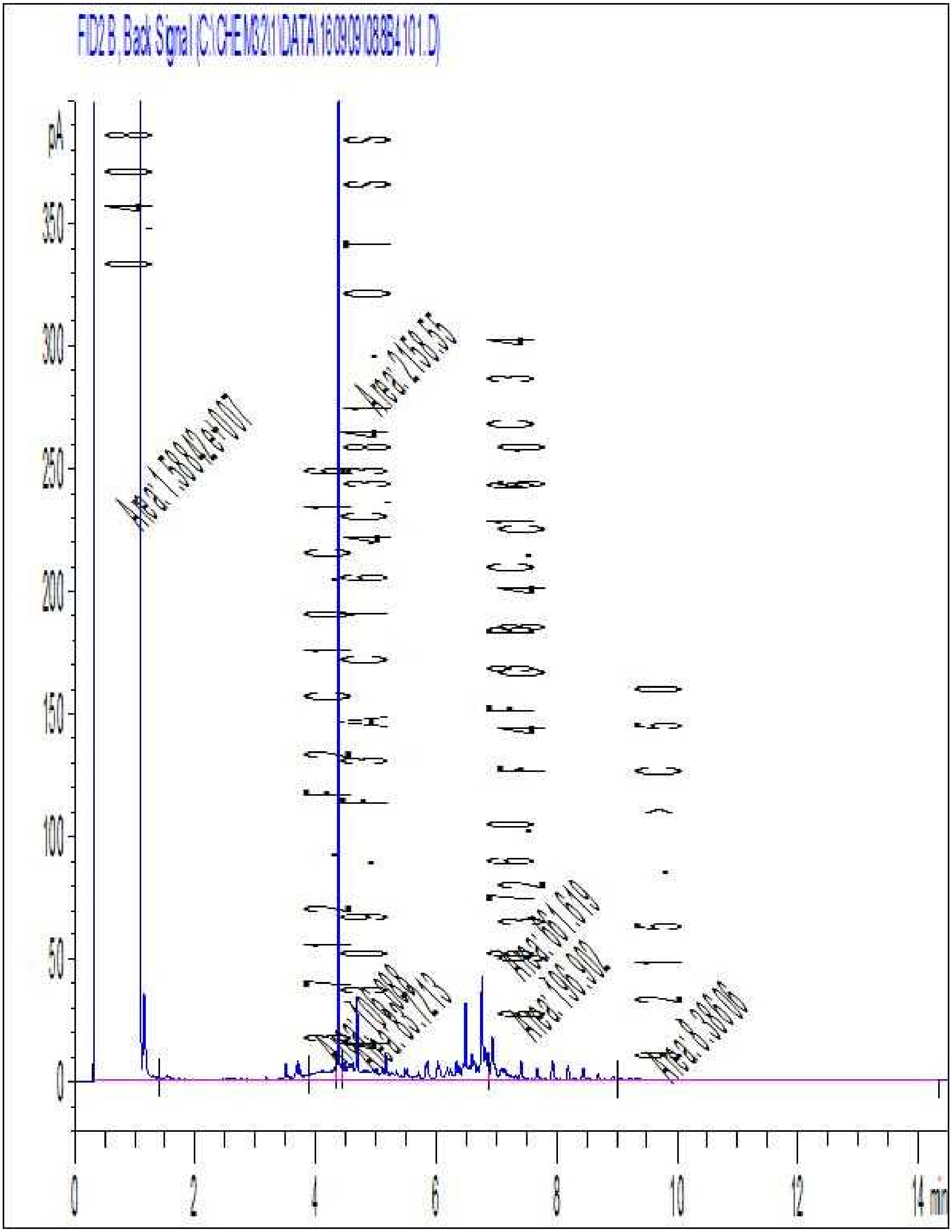


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW630

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-9

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

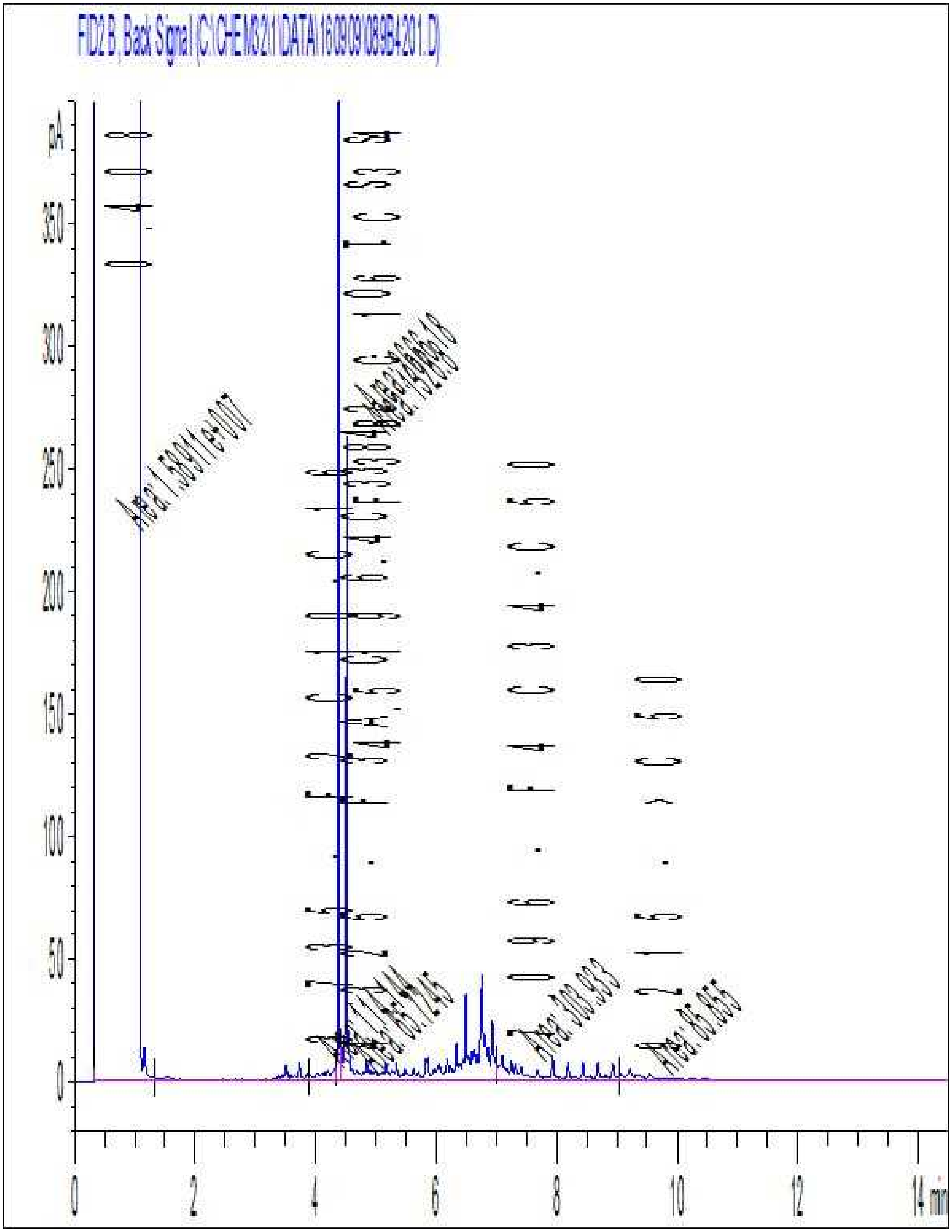


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW631

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-10

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

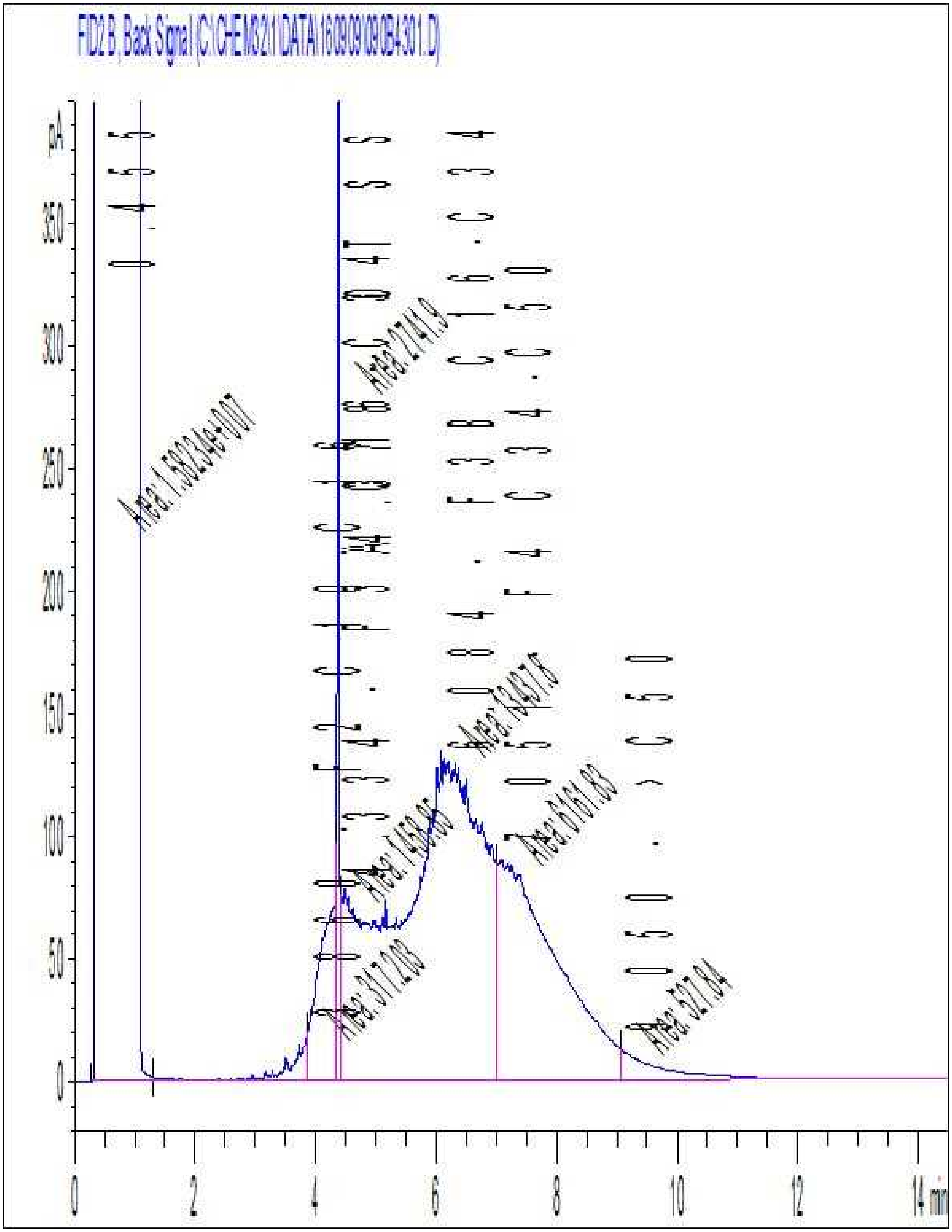


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW633

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-11

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

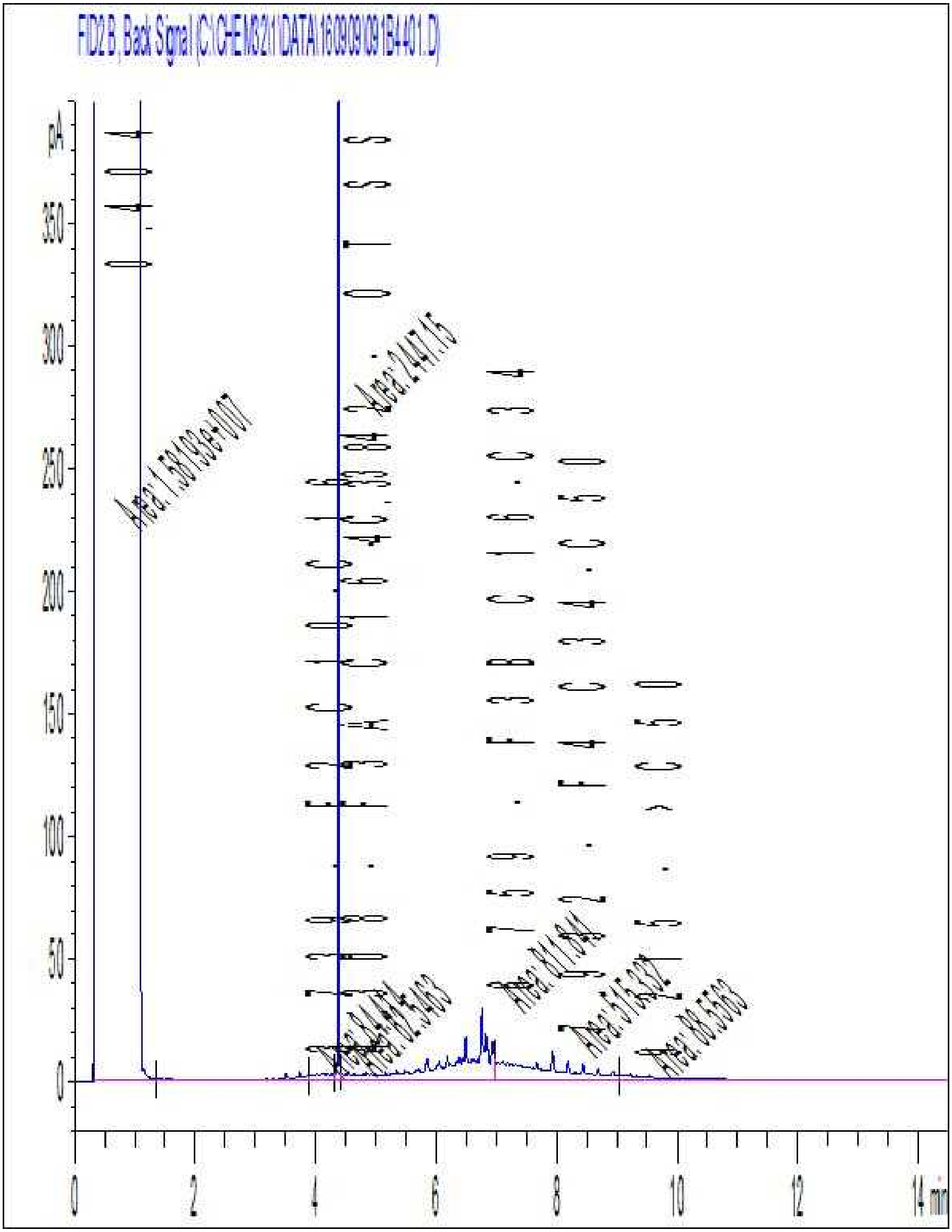


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW634

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-12

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

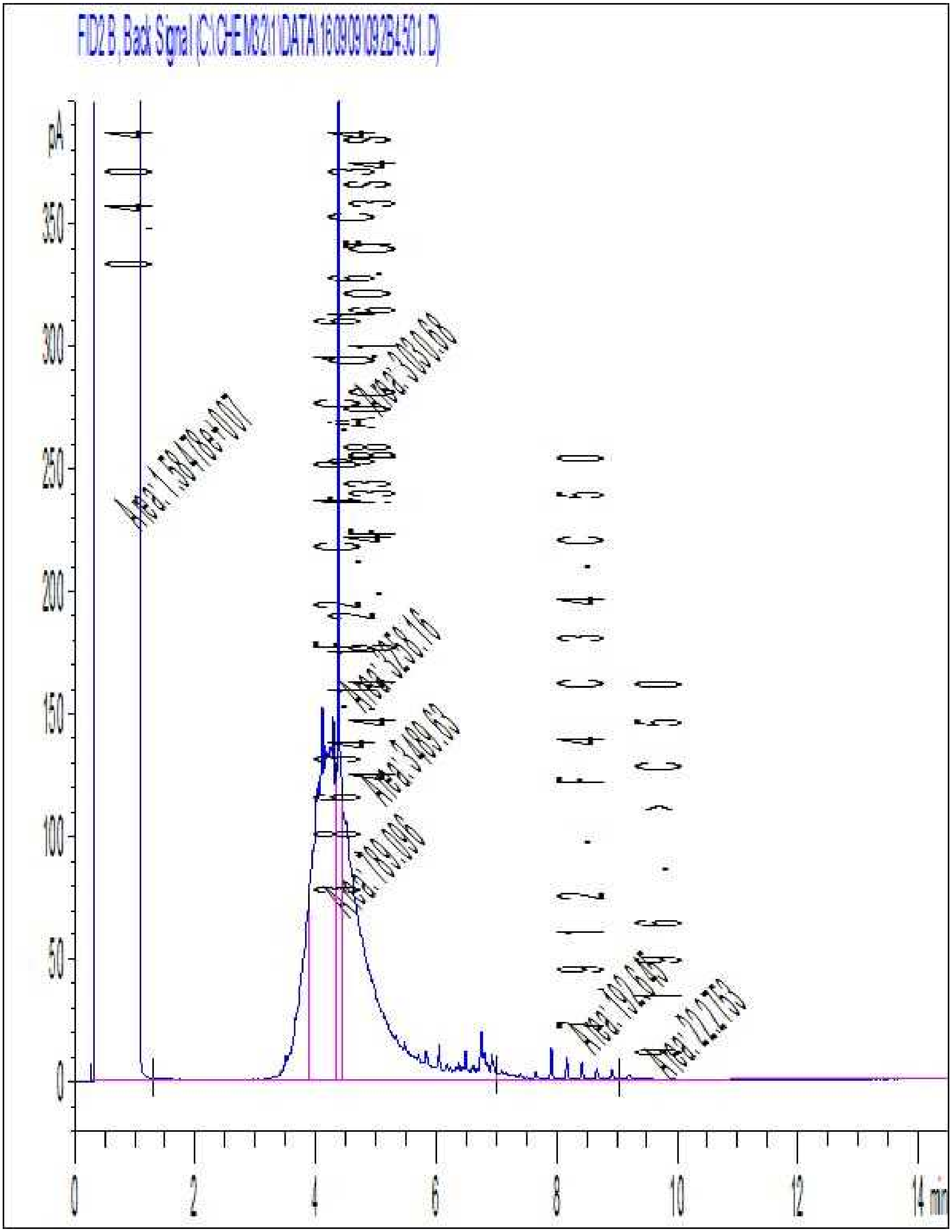


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW645

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS1-22

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

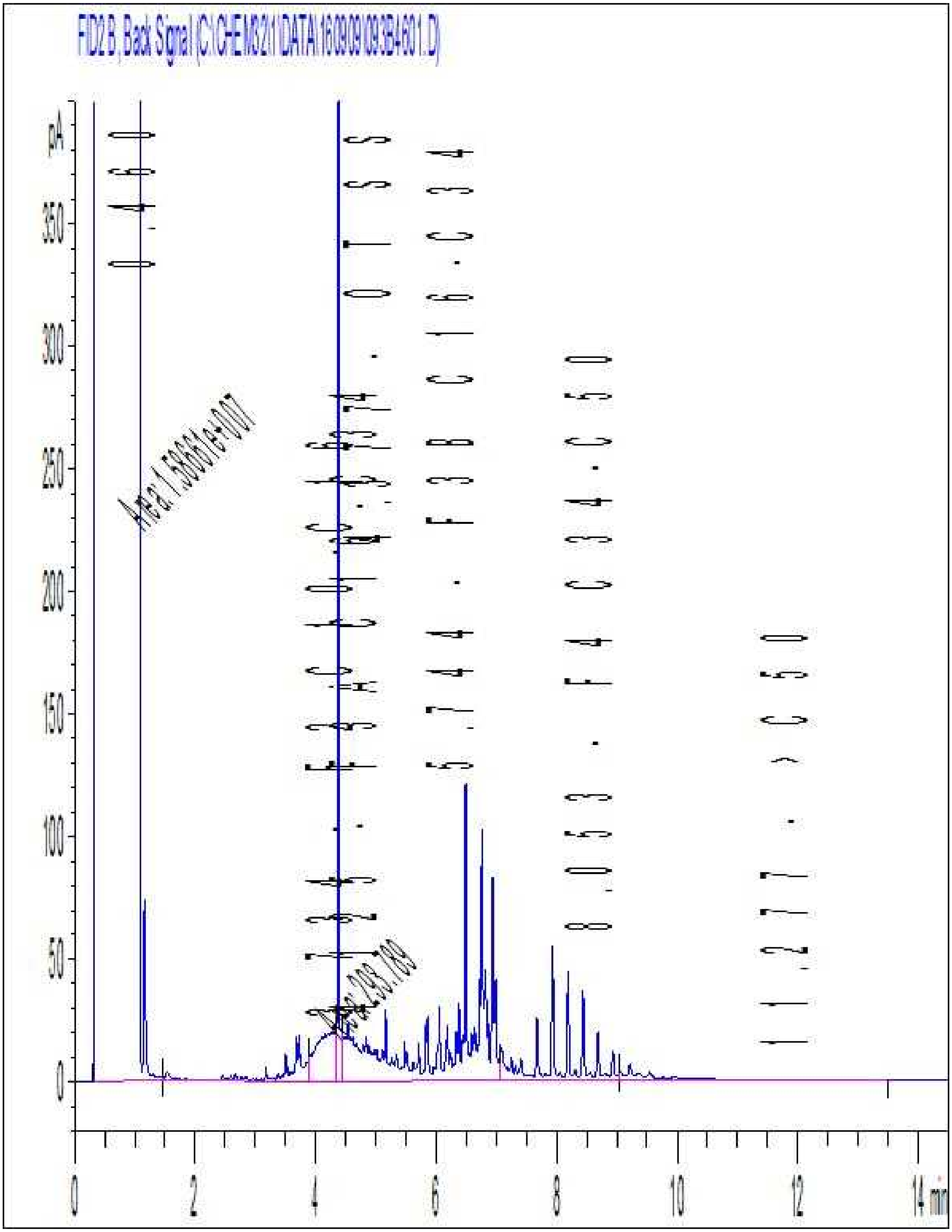


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW649

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS10-9

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

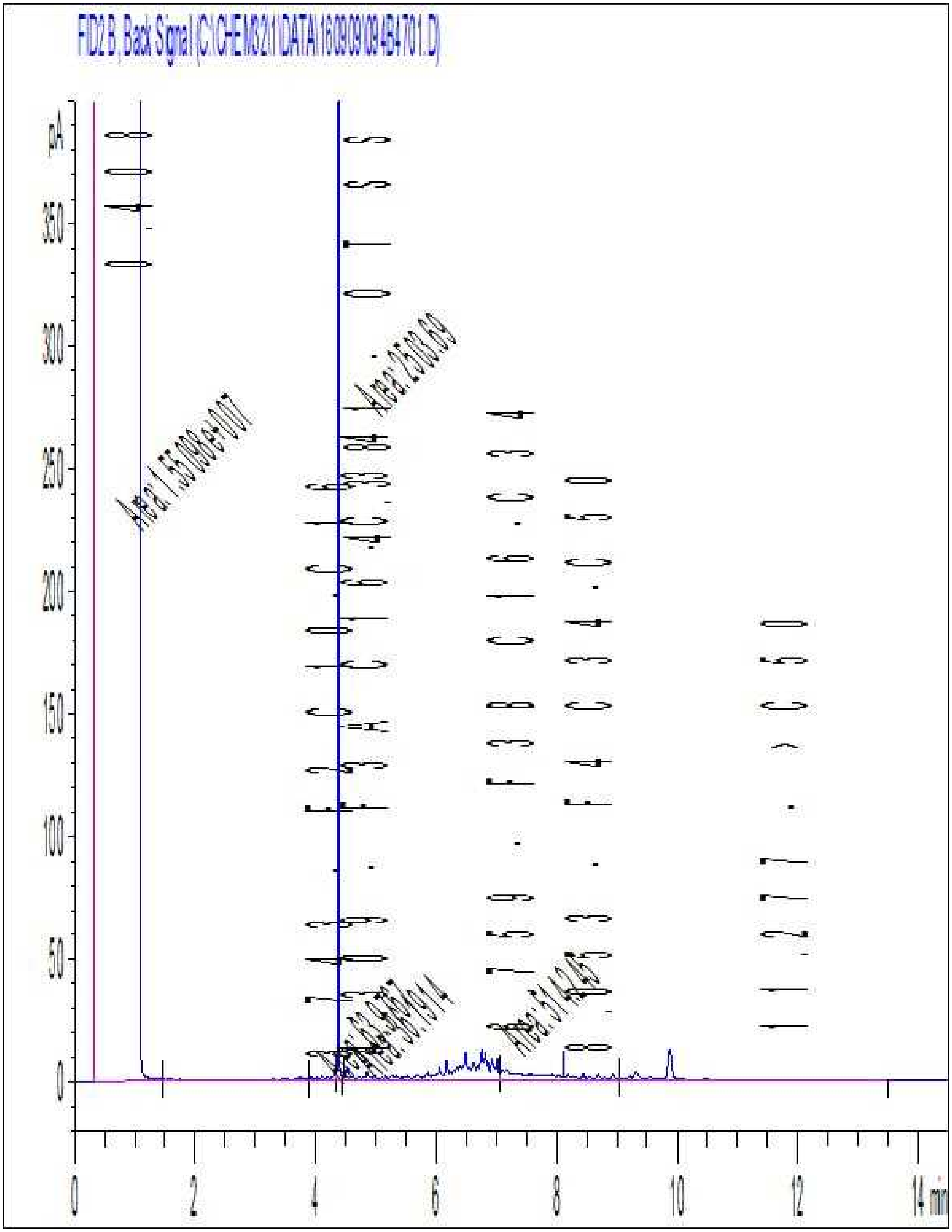


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9077
Report Date: 2016/10/07
Maxxam Sample: CZW650

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: MAIN SILT
Client ID: CS10-5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: GV-TB-027105
Your C.O.C. #: 59246, 59252

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/10/07
Report #: R4194488
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6I9078
Received: 2016/09/02, 16:20

Sample Matrix: Soil
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	1	N/A	2016/09/12	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	4	N/A	2016/09/13	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	3	2016/09/09	2016/09/09	CAM SOP-00408	R153 Ana. Prot. 2011
Hot Water Extractable Boron	7	2016/09/12	2016/09/12	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	9	2016/09/09	2016/09/12	CAM SOP-00457	OMOE E3015 m
Free (WAD) Cyanide	1	2016/09/09	2016/09/13	CAM SOP-00457	OMOE E3015 m
Conductivity	2	2016/09/09	2016/09/09	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	8	2016/09/12	2016/09/12	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	10	2016/09/10	2016/09/12	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	5	2016/09/08	2016/09/12	CAM SOP-00316	CCME CWS m
Mercury (TCLP Leachable) (mg/L)	1	N/A	2016/10/03	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	4	2016/09/09	2016/09/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	4	2016/09/12	2016/09/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	3	2016/09/12	2016/09/13	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	2	2016/09/14	2016/09/15	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	1	2016/10/03	2016/10/03	CAM SOP-00447	EPA 6020B m
Moisture	11	N/A	2016/09/09	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Leachate by GC/MS (SIM)	2	2016/09/15	2016/09/16	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	5	2016/09/08	2016/09/09	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	4	2016/09/09	2016/09/09	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	7	2016/09/12	2016/09/12	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	2	N/A	2016/09/12	CAM SOP-00102	EPA 6010C
Sodium Adsorption Ratio (SAR)	8	N/A	2016/09/13	CAM SOP-00102	EPA 6010C
TCLP - % Solids	2	2016/09/13	2016/09/14	CAM SOP-00401	EPA 1311 Update I m
TCLP - % Solids	1	2016/09/30	2016/10/01	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	2	N/A	2016/09/14	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2016/10/01	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	2	N/A	2016/09/14	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2016/10/01	CAM SOP-00401	EPA 1311 Update I m

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: GV-TB-027105
Your C.O.C. #: 59246, 59252

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/10/07
Report #: R4194488
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6I9078
Received: 2016/09/02, 16:20

Sample Matrix: Soil
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
TCLP Zero Headspace Extraction	1	2016/09/14	2016/09/15	CAM SOP-00430	EPA 1311 m
Volatile Organic Compounds and F1 PHCs	5	N/A	2016/09/08	CAM SOP-00230	EPA 8260 m
VOCs in ZHE Leachates	1	2016/09/15	2016/09/15	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Augustyna Dobosz, Project Manager
Email: ADobosz@maxxam.ca
Phone# (905)817-5700 Ext:5798

==

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW655	CZW656	CZW657	CZW658	CZW664		
Sampling Date		2016/08/31 15:15	2016/08/31 15:25	2016/08/31 15:35	2016/08/31 15:45	2016/08/31 15:40		
COC Number		59246	59246	59246	59246	59252		
	UNITS	**CS3-2**	**CS3-3**	**CS3-4**	**CS3-5**	**CS30-5**	**RDL**	**QC Batch**
Inorganics								
Moisture	%					9.0	1.0	4654156
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	4650611
Benzene	ug/g	<0.0060	<0.0060	0.0065	<0.0060	0.60	0.0060	4650611
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	4650611
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4650611
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	0.087	0.23	0.010	4650611
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	0.11	0.050	4650611
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	4650611
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	4650611
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Toluene	ug/g	<0.020	<0.020	0.021	0.16	1.7	0.020	4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW655	CZW656	CZW657	CZW658	CZW664		
Sampling Date		2016/08/31 15:15	2016/08/31 15:25	2016/08/31 15:35	2016/08/31 15:45	2016/08/31 15:40		
COC Number		59246	59246	59246	59246	59252		
	UNITS	**CS3-2**	**CS3-3**	**CS3-4**	**CS3-5**	**CS30-5**	**RDL**	**QC Batch**
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
Trichloroethylene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4650611
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4650611
p+m-Xylene	ug/g	<0.020	<0.020	0.036	0.23	0.67	0.020	4650611
o-Xylene	ug/g	<0.020	<0.020	0.027	0.21	0.46	0.020	4650611
Total Xylenes	ug/g	<0.020	<0.020	0.063	0.45	1.1	0.020	4650611
Chloroethane	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4650611
Chloromethane	ug/g	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	4650611
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	4650611
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	4650611
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	4650611
Gasoline	ug/g	<10	<10	<10	<10	<10	10	4650611
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	92	25	<10	<10	<10	10	4652643
F3 (C16-C34 Hydrocarbons)	ug/g	140	<50	<50	<50	<50	50	4652643
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4652643
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4652643
Surrogate Recovery (%)								
o-Terphenyl	%	97	98	97	98	97		4652643
4-Bromofluorobenzene	%	101	103	103	103	103		4650611
D10-o-Xylene	%	94	98	95	94	95		4650611
D4-1,2-Dichloroethane	%	83	82	81	82	81		4650611
D8-Toluene	%	94	95	93	93	94		4650611

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		CZW654		CZW655		CZW656		CZW657		
Sampling Date		2016/08/31 15:05		2016/08/31 15:15		2016/08/31 15:25		2016/08/31 15:35		
COC Number		59246		59246		59246		59246		
	UNITS	**CS3-1**	**RDL**	**CS3-2**	**QC Batch**	**CS3-3**	**QC Batch**	**CS3-4**	**RDL**	**QC Batch**
Calculated Parameters										
Sodium Adsorption Ratio	N/A	0.54		0.56	4648725	0.32	4648725	0.60		4648725
Inorganics										
Conductivity	mS/cm	0.029	0.002	0.026	4656429	0.090	4656429	0.020	0.002	4653945
Free Cyanide	ug/g	0.05	0.02	0.02	4654535	0.03	4653560	0.02	0.01	4653560
Moisture	%	4.5	1.0	3.0	4654155	6.8	4654156	5.4	1.0	4654156
Available (CaCl2) pH	pH	5.93		6.48	4654216	7.52	4653668	6.78		4653668
Chromium (VI)	ug/g	<0.2	0.2	<0.2	4655652	<0.2	4655651	<0.2	0.2	4655651
Metals										
Hot Water Ext. Boron (B)	ug/g	0.056	0.050	0.084	4655973	0.065	4653935	0.059	0.050	4653935
Acid Extractable Antimony (Sb)	ug/g	1.5	0.20	1.1	4656068	1.3	4654375	0.26	0.20	4654375
Acid Extractable Arsenic (As)	ug/g	4.8	1.0	5.6	4656068	8.1	4654375	5.9	1.0	4654375
Acid Extractable Barium (Ba)	ug/g	63	0.50	40	4656068	140	4654375	38	0.50	4654375
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.20	<0.20	4656068	0.39	4654375	<0.20	0.20	4654375
Acid Extractable Cadmium (Cd)	ug/g	0.99	0.10	0.52	4656068	1.1	4654375	0.30	0.10	4654375
Acid Extractable Chromium (Cr)	ug/g	25	1.0	21	4656068	28	4654375	23	1.0	4654375
Acid Extractable Cobalt (Co)	ug/g	13	0.10	12	4656068	18	4654375	11	0.10	4654375
Acid Extractable Copper (Cu)	ug/g	32	0.50	50	4656068	44	4654375	81	0.50	4654375
Acid Extractable Lead (Pb)	ug/g	770	1.0	280	4656068	540	4654375	260	1.0	4654375
Acid Extractable Molybdenum (Mo)	ug/g	0.52	0.50	0.57	4656068	0.76	4654375	0.52	0.50	4654375
Acid Extractable Nickel (Ni)	ug/g	22	0.50	19	4656068	26	4654375	22	0.50	4654375
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	<0.50	4656068	0.73	4654375	0.63	0.50	4654375
Acid Extractable Silver (Ag)	ug/g	0.28	0.20	<0.20	4656068	0.24	4654375	0.22	0.20	4654375
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.050	<0.050	4656068	0.072	4654375	<0.050	0.050	4654375
Acid Extractable Tin (Sn)	ug/g	6.1	1.0	3.6	4656068	4.6	4654375	6.3	1.0	4654375
Acid Extractable Uranium (U)	ug/g	0.17	0.050	0.20	4656068	0.40	4654375	0.36	0.050	4654375
Acid Extractable Vanadium (V)	ug/g	17	5.0	16	4656068	23	4654375	21	5.0	4654375
Acid Extractable Zinc (Zn)	ug/g	610	5.0	210	4656068	350	4654375	140	5.0	4654375
Acid Extractable Mercury (Hg)	ug/g	0.10	0.050	0.078	4656068	0.14	4654375	0.13	0.050	4654375

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		CZW658		CZW659		CZW660	CZW660		
Sampling Date		2016/08/31 15:45		2016/08/31 15:55		2016/08/31 16:05	2016/08/31 16:05		
COC Number		59246		59246		59246	59246		
	UNITS	**CS3-5**	**QC Batch**	**CS3-6**	**RDL**	**CS3-7**	**CS3-7 Lab-Dup**	**RDL**	**QC Batch**
Calculated Parameters									
Sodium Adsorption Ratio	N/A	0.71	4648725	0.69		0.85			4648725
Inorganics									
Conductivity	mS/cm	0.023	4653945	0.019	0.002	0.012		0.002	4656429
Free Cyanide	ug/g	0.02	4653560	0.02	0.01	0.06	0.05	0.04	4654535
Moisture	%	6.1	4654156	1.6	1.0	1.8		1.0	4654155
Available (CaCl2) pH	pH	6.85	4653668	5.52		4.81			4654216
Chromium (VI)	ug/g	<0.2	4655651	<0.2	0.2	<0.2	<0.2	0.2	4655652
Metals									
Hot Water Ext. Boron (B)	ug/g	0.091	4653935	0.066	0.050	<0.050		0.050	4655973
Acid Extractable Antimony (Sb)	ug/g	0.64	4654375	0.53	0.20	1.2		0.20	4656068
Acid Extractable Arsenic (As)	ug/g	6.8	4654375	10	1.0	9.5		1.0	4656068
Acid Extractable Barium (Ba)	ug/g	60	4654375	37	0.50	62		0.50	4656068
Acid Extractable Beryllium (Be)	ug/g	0.25	4654375	<0.20	0.20	0.22		0.20	4656068
Acid Extractable Cadmium (Cd)	ug/g	0.71	4654375	0.57	0.10	2.2		0.10	4656068
Acid Extractable Chromium (Cr)	ug/g	25	4654375	20	1.0	27		1.0	4656068
Acid Extractable Cobalt (Co)	ug/g	13	4654375	12	0.10	15		0.10	4656068
Acid Extractable Copper (Cu)	ug/g	46	4654375	69	0.50	72		0.50	4656068
Acid Extractable Lead (Pb)	ug/g	350	4654375	490	1.0	1200		1.0	4656068
Acid Extractable Molybdenum (Mo)	ug/g	0.62	4654375	0.66	0.50	1.4		0.50	4656068
Acid Extractable Nickel (Ni)	ug/g	23	4654375	20	0.50	19		0.50	4656068
Acid Extractable Selenium (Se)	ug/g	0.75	4654375	<0.50	0.50	0.96		0.50	4656068
Acid Extractable Silver (Ag)	ug/g	0.27	4654375	<0.20	0.20	0.23		0.20	4656068
Acid Extractable Thallium (Tl)	ug/g	0.061	4654375	<0.050	0.050	0.30		0.050	4656068
Acid Extractable Tin (Sn)	ug/g	4.8	4654375	2.9	1.0	7.7		1.0	4656068
Acid Extractable Uranium (U)	ug/g	0.39	4654375	0.19	0.050	0.39		0.050	4656068
Acid Extractable Vanadium (V)	ug/g	21	4654375	14	5.0	16		5.0	4656068
Acid Extractable Zinc (Zn)	ug/g	270	4654375	260	5.0	330		5.0	4656068
Acid Extractable Mercury (Hg)	ug/g	0.16	4654375	0.074	0.050	0.20		0.050	4656068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		CZW661		CZW662	CZW662	CZW663		
Sampling Date		2016/08/31 16:15		2016/08/31 16:25	2016/08/31 16:25	2016/08/31 16:35		
COC Number		59246		59246	59246	59246		
	UNITS	**CS3-8**	**QC Batch**	**CS3-9**	**CS3-9 Lab-Dup**	**CS3-10**	**RDL**	**QC Batch**
Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.61	4648725	0.69		0.36		4648725
Inorganics								
Conductivity	mS/cm	0.038	4656429	0.018		0.062	0.002	4656429
Free Cyanide	ug/g	0.09	4654535	0.09		0.05	0.02	4654535
Moisture	%	4.6	4654155	8.1		16	1.0	4654236
Available (CaCl2) pH	pH	4.13	4654216	5.01		6.67		4654216
Chromium (VI)	ug/g	<0.2	4655652	<0.2		<0.2	0.2	4655652
Metals								
Hot Water Ext. Boron (B)	ug/g	0.083	4655973	0.079	0.068	0.094	0.050	4655973
Acid Extractable Antimony (Sb)	ug/g	0.69	4656068	6.6		1.2	0.20	4656068
Acid Extractable Arsenic (As)	ug/g	11	4656068	6.1		5.4	1.0	4656068
Acid Extractable Barium (Ba)	ug/g	64	4656068	130		83	0.50	4656068
Acid Extractable Beryllium (Be)	ug/g	0.28	4656068	<0.20		<0.20	0.20	4656068
Acid Extractable Cadmium (Cd)	ug/g	0.89	4656068	1.5		1.5	0.10	4656068
Acid Extractable Chromium (Cr)	ug/g	26	4656068	30		25	1.0	4656068
Acid Extractable Cobalt (Co)	ug/g	16	4656068	9.5		12	0.10	4656068
Acid Extractable Copper (Cu)	ug/g	73	4656068	110		44	0.50	4656068
Acid Extractable Lead (Pb)	ug/g	680	4656068	1700		490	1.0	4656068
Acid Extractable Molybdenum (Mo)	ug/g	1.0	4656068	0.69		0.76	0.50	4656068
Acid Extractable Nickel (Ni)	ug/g	21	4656068	17		23	0.50	4656068
Acid Extractable Selenium (Se)	ug/g	0.65	4656068	0.71		0.57	0.50	4656068
Acid Extractable Silver (Ag)	ug/g	0.24	4656068	0.45		0.24	0.20	4656068
Acid Extractable Thallium (Tl)	ug/g	0.13	4656068	0.25		0.10	0.050	4656068
Acid Extractable Tin (Sn)	ug/g	10	4656068	39		3.8	1.0	4656068
Acid Extractable Uranium (U)	ug/g	0.31	4656068	0.21		0.14	0.050	4656068
Acid Extractable Vanadium (V)	ug/g	22	4656068	19		15	5.0	4656068
Acid Extractable Zinc (Zn)	ug/g	250	4656068	420		540	5.0	4656068
Acid Extractable Mercury (Hg)	ug/g	0.25	4656068	0.56		0.087	0.050	4656068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

O.REG 153 METALS PACKAGE (SOIL)

Maxxam ID		CZW664		
Sampling Date		2016/08/31 15:40		
COC Number		59252		
	UNITS	**CS30-5**	**RDL**	**QC Batch**
Metals				
Acid Extractable Antimony (Sb)	ug/g	0.71	0.20	4654375
Acid Extractable Arsenic (As)	ug/g	6.2	1.0	4654375
Acid Extractable Barium (Ba)	ug/g	57	0.50	4654375
Acid Extractable Beryllium (Be)	ug/g	0.27	0.20	4654375
Acid Extractable Cadmium (Cd)	ug/g	0.86	0.10	4654375
Acid Extractable Chromium (Cr)	ug/g	23	1.0	4654375
Acid Extractable Cobalt (Co)	ug/g	13	0.10	4654375
Acid Extractable Copper (Cu)	ug/g	51	0.50	4654375
Acid Extractable Lead (Pb)	ug/g	380	1.0	4654375
Acid Extractable Molybdenum (Mo)	ug/g	0.68	0.50	4654375
Acid Extractable Nickel (Ni)	ug/g	22	0.50	4654375
Acid Extractable Selenium (Se)	ug/g	0.89	0.50	4654375
Acid Extractable Silver (Ag)	ug/g	0.27	0.20	4654375
Acid Extractable Thallium (Tl)	ug/g	0.059	0.050	4654375
Acid Extractable Tin (Sn)	ug/g	3.3	1.0	4654375
Acid Extractable Uranium (U)	ug/g	0.42	0.050	4654375
Acid Extractable Vanadium (V)	ug/g	19	5.0	4654375
Acid Extractable Zinc (Zn)	ug/g	270	5.0	4654375

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

Maxxam ID		CZW655			CZW656	CZW657	CZW658	CZW664		
Sampling Date		2016/08/31 15:15			2016/08/31 15:25	2016/08/31 15:35	2016/08/31 15:45	2016/08/31 15:40		
COC Number		59246			59246	59246	59246	59252		
	UNITS	**CS3-2**	**RDL**	**QC Batch**	**CS3-3**	**CS3-4**	**CS3-5**	**CS30-5**	**RDL**	**QC Batch**
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	0.12	0.0071	4648303	0.0071	<0.0071	0.013	<0.0071	0.0071	4648303
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	<0.0050	0.0050	4653337	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4653284
Acenaphthylene	ug/g	<0.0050	0.0050	4653337	<0.0050	0.0064	<0.0050	<0.0050	0.0050	4653284
Anthracene	ug/g	<0.0050	0.0050	4653337	<0.0050	0.0051	<0.0050	<0.0050	0.0050	4653284
Benzo(a)anthracene	ug/g	<0.0050	0.0050	4653337	<0.0050	0.016	0.012	0.010	0.0050	4653284
Benzo(a)pyrene	ug/g	<0.0050	0.0050	4653337	0.0051	0.016	0.013	0.010	0.0050	4653284
Benzo(b/j)fluoranthene	ug/g	0.0069	0.0050	4653337	<0.0050	0.023	0.017	0.014	0.0050	4653284
Benzo(g,h,i)perylene	ug/g	0.0080	0.0050	4653337	<0.0050	0.010	0.0073	0.0061	0.0050	4653284
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	4653337	<0.0050	0.0082	0.0056	0.0050	0.0050	4653284
Chrysene	ug/g	0.0054	0.0050	4653337	<0.0050	0.015	0.011	0.0096	0.0050	4653284
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	4653337	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4653284
Fluoranthene	ug/g	0.0059	0.0050	4653337	<0.0050	0.031	0.025	0.018	0.0050	4653284
Fluorene	ug/g	<0.0050	0.0050	4653337	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4653284
Indeno(1,2,3-cd)pyrene	ug/g	0.0061	0.0050	4653337	<0.0050	0.012	0.0086	0.0073	0.0050	4653284
1-Methylnaphthalene	ug/g	0.052	0.0050	4653337	<0.0050	<0.0050	0.0057	<0.0050	0.0050	4653284
2-Methylnaphthalene	ug/g	0.067	0.0050	4653337	0.0071	<0.0050	0.0074	0.0057	0.0050	4653284
Naphthalene	ug/g	<0.050 (1)	0.050	4653337	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4653284
Phenanthrene	ug/g	0.020	0.0050	4653337	<0.0050	0.0083	0.011	0.0065	0.0050	4653284
Pyrene	ug/g	0.0064	0.0050	4653337	<0.0050	0.026	0.020	0.016	0.0050	4653284
Surrogate Recovery (%)										
D10-Anthracene	%	96		4653337	70	66	70	68		4653284
D14-Terphenyl (FS)	%	87		4653337	69	65	72	68		4653284
D8-Acenaphthylene	%	95		4653337	78	70	75	70		4653284

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

(1) DL was raised due to matrix interference.

Maxxam Job #: B6I9078
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DST Consulting Engineers Inc
Client Project #: GV-TB-027105

O.REG 558 TCLP VOLATILE ORGANICS (SOIL)

Maxxam ID		CZW654		
Sampling Date		2016/08/31 15:05		
COC Number		59246		
	UNITS	**CS3-1**	**RDL**	**QC Batch**
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	25	N/A	4659866
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	4661637
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	98		4661637
Leachable D4-1,2-Dichloroethane	%	102		4661637
Leachable D8-Toluene	%	98		4661637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

O.REG 558 TCLP BENZO(A)PYRENE

Maxxam ID		CZW654	CZW660	CZW660		
Sampling Date		2016/08/31 15:05	2016/08/31 16:05	2016/08/31 16:05		
COC Number		59246	59246	59246		
	UNITS	**CS3-1**	**CS3-7**	**CS3-7 Lab-Dup**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons						
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	<0.10	0.10	4662879
Surrogate Recovery (%)						
Leachable D10-Anthracene	%	111	105	107		4662879
Leachable D14-Terphenyl (FS)	%	99	96	98		4662879
Leachable D8-Acenaphthylene	%	88	85	87		4662879

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		CZW654	CZW660		CZW662		
Sampling Date		2016/08/31 15:05	2016/08/31 16:05		2016/08/31 16:25		
COC Number		59246	59246		59246		
	UNITS	**CS3-1**	**CS3-7**	**QC Batch**	**CS3-9**	**RDL**	**QC Batch**
Inorganics							
Final pH	pH	4.96	4.97	4659661	4.94		4684466
Initial pH	pH	6.33	5.76	4659661	5.12		4684466
TCLP - % Solids	%	100	100	4659655	100	0.2	4684452
TCLP Extraction Fluid	N/A	FLUID 1	FLUID 1	4659660	FLUID 1		4684465

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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DST Consulting Engineers Inc
Client Project #: GV-TB-027105

O.REG 558 TCLP METALS (SOIL)

Maxxam ID		CZW654	CZW660		CZW662		
Sampling Date		2016/08/31 15:05	2016/08/31 16:05		2016/08/31 16:25		
COC Number		59246	59246		59246		
	UNITS	**CS3-1**	**CS3-7**	**QC Batch**	**CS3-9**	**RDL**	**QC Batch**
Metals							
Leachable Mercury (Hg)	mg/L			4684972	<0.0010	0.0010	4684972
Leachable Arsenic (As)	mg/L	<0.2	<0.2	4659917	<0.2	0.2	4685887
Leachable Barium (Ba)	mg/L	<0.2	<0.2	4659917	0.2	0.2	4685887
Leachable Boron (B)	mg/L	0.2	0.2	4659917	0.3	0.1	4685887
Leachable Cadmium (Cd)	mg/L	<0.05	<0.05	4659917	<0.05	0.05	4685887
Leachable Chromium (Cr)	mg/L	<0.1	<0.1	4659917	<0.1	0.1	4685887
Leachable Lead (Pb)	mg/L	0.3	<0.1	4659917	0.3	0.1	4685887
Leachable Selenium (Se)	mg/L	<0.1	<0.1	4659917	<0.1	0.1	4685887
Leachable Silver (Ag)	mg/L	<0.01	<0.01	4659917	<0.01	0.01	4685887
Leachable Uranium (U)	mg/L	<0.01	<0.01	4659917	<0.01	0.01	4685887

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CZW664	
Sampling Date		2016/08/31 15:40	
COC Number		59252	
	UNITS	**CS30-5**	**QC Batch**
Inorganics			
Available (CaCl2) pH	pH	6.73	4653668
QC Batch = Quality Control Batch			

Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

TEST SUMMARY

Maxxam ID: CZW654
Sample ID: CS3-1
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/12	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/13	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4659917	2016/09/14	2016/09/15	Cristina Petran
Moisture	BAL	4654155	N/A	2016/09/09	Min Yang
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4662879	2016/09/15	2016/09/16	Lingyun Feng
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk
TCLP - % Solids	BAL	4659655	2016/09/13	2016/09/14	Jian (Ken) Wang
TCLP - Extraction Fluid		4659660	N/A	2016/09/14	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4659661	N/A	2016/09/14	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam ID: CZW655
Sample ID: CS3-2
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/12	Automated Statchk
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/12	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4652643	2016/09/08	2016/09/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/13	Viviana Canzonieri
Moisture	BAL	4654155	N/A	2016/09/09	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4653337	2016/09/08	2016/09/09	Jett Wu
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW656
Sample ID: CS3-3
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/13	Automated Statchk
Hot Water Extractable Boron	ICP	4653935	2016/09/09	2016/09/09	Jolly John
Free (WAD) Cyanide	TECH	4653560	2016/09/09	2016/09/12	Christine Pham
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655651	2016/09/10	2016/09/12	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4652643	2016/09/08	2016/09/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran

TEST SUMMARY

Maxxam ID: CZW656
Sample ID: CS3-3
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	4654156	N/A	2016/09/09	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4653284	2016/09/08	2016/09/09	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653668	2016/09/09	2016/09/09	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW657
Sample ID: CS3-4
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/13	Automated Statchk
Hot Water Extractable Boron	ICP	4653935	2016/09/09	2016/09/09	Jolly John
Free (WAD) Cyanide	TECH	4653560	2016/09/09	2016/09/12	Christine Pham
Conductivity	AT	4653945	2016/09/09	2016/09/09	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655651	2016/09/10	2016/09/12	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4652643	2016/09/08	2016/09/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Moisture	BAL	4654156	N/A	2016/09/09	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4653284	2016/09/08	2016/09/09	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653668	2016/09/09	2016/09/09	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/12	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

Maxxam ID: CZW658
Sample ID: CS3-5
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/13	Automated Statchk
Hot Water Extractable Boron	ICP	4653935	2016/09/09	2016/09/09	Jolly John
Free (WAD) Cyanide	TECH	4653560	2016/09/09	2016/09/12	Christine Pham
Conductivity	AT	4653945	2016/09/09	2016/09/09	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655651	2016/09/10	2016/09/12	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4652643	2016/09/08	2016/09/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Moisture	BAL	4654156	N/A	2016/09/09	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4653284	2016/09/08	2016/09/09	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653668	2016/09/09	2016/09/09	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/12	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

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TEST SUMMARY

Maxxam ID: CZW659
Sample ID: CS3-6
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/12	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/13	Viviana Canzonieri
Moisture	BAL	4654155	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk

Maxxam ID: CZW660
Sample ID: CS3-7
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/13	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4659917	2016/09/14	2016/09/15	Cristina Petran
Moisture	BAL	4654155	N/A	2016/09/09	Min Yang
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4662879	2016/09/15	2016/09/16	Lingyun Feng
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk
TCLP - % Solids	BAL	4659655	2016/09/13	2016/09/14	Jian (Ken) Wang
TCLP - Extraction Fluid		4659660	N/A	2016/09/14	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4659661	N/A	2016/09/14	Jian (Ken) Wang

Maxxam ID: CZW660 Dup
Sample ID: CS3-7
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/13	Xuanhong Qiu
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4662879	2016/09/15	2016/09/16	Lingyun Feng

Maxxam ID: CZW661
Sample ID: CS3-8
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/12	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

TEST SUMMARY

Maxxam ID: CZW661
Sample ID: CS3-8
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Moisture	BAL	4654155	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk

Maxxam ID: CZW662
Sample ID: CS3-9
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/12	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
Mercury (TCLP Leachable) (mg/L)	CV/AA	4684972	N/A	2016/10/03	Ron Morrison
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4685887	2016/10/03	2016/10/03	Cristina Petran
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk
TCLP - % Solids	BAL	4684452	2016/09/30	2016/10/01	Walt Wang
TCLP - Extraction Fluid		4684465	N/A	2016/10/01	Walt Wang
TCLP - Initial and final pH	PH	4684466	N/A	2016/10/01	Walt Wang

Maxxam ID: CZW662 Dup
Sample ID: CS3-9
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai

Maxxam ID: CZW663
Sample ID: CS3-10
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	4655973	2016/09/12	2016/09/12	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	4654535	2016/09/09	2016/09/12	Xuanhong Qiu
Conductivity	AT	4656429	2016/09/12	2016/09/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	4655652	2016/09/10	2016/09/12	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	4656068	2016/09/12	2016/09/12	Viviana Canzonieri
Moisture	BAL	4654236	N/A	2016/09/09	Min Yang
pH CaCl2 EXTRACT	AT	4654216	2016/09/12	2016/09/12	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	4648725	N/A	2016/09/13	Automated Statchk

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

TEST SUMMARY

Maxxam ID: CZW664
Sample ID: CS30-5
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4648303	N/A	2016/09/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4652643	2016/09/08	2016/09/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Moisture	BAL	4654156	N/A	2016/09/09	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4653284	2016/09/08	2016/09/09	Lingyun Feng
pH CaCl2 EXTRACT	AT	4653668	2016/09/09	2016/09/09	Surinder Rai
Volatile Organic Compounds and F1 PHCs	GC/MS	4650611	N/A	2016/09/08	Denis Reid

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
Package 2	4.3°C
Package 3	4.0°C

Additional analyses requested on CS3-1, per client.

Sample CZW654-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW655-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW656-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW657-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW658-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW659-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW660-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW661-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW662-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample CZW663-01 : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4650611	4-Bromofluorobenzene	2016/09/08	107	60 - 140	109	60 - 140	101	%				
4650611	D10-o-Xylene	2016/09/08	101	60 - 130	105	60 - 130	86	%				
4650611	D4-1,2-Dichloroethane	2016/09/08	84	60 - 140	90	60 - 140	94	%				
4650611	D8-Toluene	2016/09/08	101	60 - 140	99	60 - 140	90	%				
4652643	o-Terphenyl	2016/09/12	106	60 - 130	110	60 - 130	99	%				
4653284	D10-Anthracene	2016/09/09	108	50 - 130	86	50 - 130	77	%				
4653284	D14-Terphenyl (FS)	2016/09/09	96	50 - 130	86	50 - 130	80	%				
4653284	D8-Acenaphthylene	2016/09/09	94	50 - 130	91	50 - 130	80	%				
4653337	D10-Anthracene	2016/09/08	101	50 - 130	100	50 - 130	104	%				
4653337	D14-Terphenyl (FS)	2016/09/08	95	50 - 130	95	50 - 130	94	%				
4653337	D8-Acenaphthylene	2016/09/08	94	50 - 130	90	50 - 130	88	%				
4661637	Leachable 4-Bromofluorobenzene	2016/09/15	99	70 - 130	100	70 - 130	98	%				
4661637	Leachable D4-1,2-Dichloroethane	2016/09/15	95	70 - 130	101	70 - 130	102	%				
4661637	Leachable D8-Toluene	2016/09/15	103	70 - 130	100	70 - 130	99	%				
4662879	Leachable D10-Anthracene	2016/09/16	106	50 - 130	104	50 - 130	104	%				
4662879	Leachable D14-Terphenyl (FS)	2016/09/16	94	50 - 130	93	50 - 130	90	%				
4662879	Leachable D8-Acenaphthylene	2016/09/16	86	50 - 130	86	50 - 130	85	%				
4650611	1,1,1,2-Tetrachloroethane	2016/09/08	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1,1-Trichloroethane	2016/09/08	82	60 - 140	82	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1,2,2-Tetrachloroethane	2016/09/08	89	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1,2-Trichloroethane	2016/09/08	82	60 - 140	87	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1-Dichloroethane	2016/09/08	82	60 - 140	82	60 - 130	<0.050	ug/g	NC	50		
4650611	1,1-Dichloroethylene	2016/09/08	83	60 - 140	82	60 - 130	<0.050	ug/g	NC	50		
4650611	1,2-Dichlorobenzene	2016/09/08	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
4650611	1,2-Dichloroethane	2016/09/08	78	60 - 140	83	60 - 130	<0.050	ug/g	NC	50		
4650611	1,2-Dichloropropane	2016/09/08	88	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
4650611	1,3-Dichlorobenzene	2016/09/08	103	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
4650611	1,4-Dichlorobenzene	2016/09/08	104	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
4650611	Acetone (2-Propanone)	2016/09/08	81	60 - 140	92	60 - 140	<0.50	ug/g	NC	50		
4650611	Benzene	2016/09/08	89	60 - 140	91	60 - 130	<0.0060	ug/g	NC	50		
4650611	Bromodichloromethane	2016/09/08	86	60 - 140	89	60 - 130	<0.050	ug/g	NC	50		
4650611	Bromoform	2016/09/08	92	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4650611	Bromomethane	2016/09/08	72	60 - 140	71	60 - 140	<0.050	ug/g	NC	50		
4650611	Carbon Tetrachloride	2016/09/08	84	60 - 140	83	60 - 130	<0.050	ug/g	NC	50		
4650611	Chlorobenzene	2016/09/08	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
4650611	Chloroethane	2016/09/08	78	60 - 140	79	60 - 130	<0.20	ug/g	NC	50		
4650611	Chloroform	2016/09/08	85	60 - 140	86	60 - 130	<0.050	ug/g	NC	50		
4650611	Chloromethane	2016/09/08	62	60 - 140	62	60 - 140	<0.40	ug/g	NC	50		
4650611	cis-1,2-Dichloroethylene	2016/09/08	92	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
4650611	cis-1,3-Dichloropropene	2016/09/08	93	60 - 140	96	60 - 130	<0.030	ug/g	NC	50		
4650611	Dibromochloromethane	2016/09/08	91	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
4650611	Dichlorodifluoromethane (FREON 12)	2016/09/08	60	60 - 140	59 (1)	60 - 140	<0.050	ug/g	NC	50		
4650611	Ethylbenzene	2016/09/08	99	60 - 140	97	60 - 130	<0.010	ug/g	NC	50		
4650611	Ethylene Dibromide	2016/09/08	92	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
4650611	F1 (C6-C10) - BTEX	2016/09/08					<10	ug/g	NC	30		
4650611	F1 (C6-C10)	2016/09/08	93	60 - 140	97	80 - 120	<10	ug/g	NC	30		
4650611	Gasoline	2016/09/08	93	N/A	97	N/A	<10	ug/g	NC	30		
4650611	Hexane	2016/09/08	88	60 - 140	86	60 - 130	<0.050	ug/g	NC	50		
4650611	Methyl Ethyl Ketone (2-Butanone)	2016/09/08	86	60 - 140	100	60 - 140	<0.50	ug/g	NC	50		
4650611	Methyl Isobutyl Ketone	2016/09/08	89	60 - 140	103	60 - 130	<0.50	ug/g	NC	50		
4650611	Methyl t-butyl ether (MTBE)	2016/09/08	90	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
4650611	Methylene Chloride(Dichloromethane)	2016/09/08	94	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
4650611	o-Xylene	2016/09/08	100	60 - 140	99	60 - 130	<0.020	ug/g	NC	50		
4650611	p+m-Xylene	2016/09/08	97	60 - 140	94	60 - 130	<0.020	ug/g	NC	50		
4650611	Styrene	2016/09/08	103	60 - 140	104	60 - 130	<0.050	ug/g	NC	50		
4650611	Tetrachloroethylene	2016/09/08	96	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
4650611	Toluene	2016/09/08	91	60 - 140	91	60 - 130	<0.020	ug/g	NC	50		
4650611	Total Xylenes	2016/09/08					<0.020	ug/g	1.5	50		
4650611	trans-1,2-Dichloroethylene	2016/09/08	88	60 - 140	87	60 - 130	<0.050	ug/g	NC	50		
4650611	trans-1,3-Dichloropropene	2016/09/08	93	60 - 140	93	60 - 130	<0.040	ug/g	NC	50		
4650611	Trichloroethylene	2016/09/08	93	60 - 140	93	60 - 130	<0.010	ug/g	NC	50		
4650611	Trichlorofluoromethane (FREON 11)	2016/09/08	81	60 - 140	79	60 - 130	<0.050	ug/g	NC	50		
4650611	Vinyl Chloride	2016/09/08	79	60 - 140	77	60 - 130	<0.020	ug/g	NC	50		
4652643	F2 (C10-C16 Hydrocarbons)	2016/09/12	103	50 - 130	106	80 - 120	<10	ug/g	NC	30		

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Maxxam Job #: B6I9078
Report Date: 2016/10/07

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4652643	F3 (C16-C34 Hydrocarbons)	2016/09/12	102	50 - 130	106	80 - 120	<50	ug/g	NC	30		
4652643	F4 (C34-C50 Hydrocarbons)	2016/09/12	103	50 - 130	105	80 - 120	<50	ug/g	NC	30		
4653284	1-Methylnaphthalene	2016/09/09	94	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
4653284	2-Methylnaphthalene	2016/09/09	86	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
4653284	Acenaphthene	2016/09/09	109	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40		
4653284	Acenaphthylene	2016/09/09	100	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40		
4653284	Anthracene	2016/09/09	137 (2)	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40		
4653284	Benzo(a)anthracene	2016/09/09	144 (2)	50 - 130	101	50 - 130	<0.0050	ug/g	44 (3)	40		
4653284	Benzo(a)pyrene	2016/09/09	127	50 - 130	98	50 - 130	<0.0050	ug/g	35	40		
4653284	Benzo(b/j)fluoranthene	2016/09/09	120	50 - 130	106	50 - 130	<0.0050	ug/g	51 (3)	40		
4653284	Benzo(g,h,i)perylene	2016/09/09	84	50 - 130	86	50 - 130	<0.0050	ug/g	20	40		
4653284	Benzo(k)fluoranthene	2016/09/09	108	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
4653284	Chrysene	2016/09/09	136 (2)	50 - 130	99	50 - 130	<0.0050	ug/g	38	40		
4653284	Dibenz(a,h)anthracene	2016/09/09	85	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40		
4653284	Fluoranthene	2016/09/09	203 (2)	50 - 130	99	50 - 130	<0.0050	ug/g	40 (3)	40		
4653284	Fluorene	2016/09/09	118	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40		
4653284	Indeno(1,2,3-cd)pyrene	2016/09/09	100	50 - 130	94	50 - 130	<0.0050	ug/g	1.2	40		
4653284	Naphthalene	2016/09/09	86	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		
4653284	Phenanthrene	2016/09/09	198 (2)	50 - 130	97	50 - 130	<0.0050	ug/g	19	40		
4653284	Pyrene	2016/09/09	177 (2)	50 - 130	101	50 - 130	<0.0050	ug/g	40 (3)	40		
4653337	1-Methylnaphthalene	2016/09/09	93	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40		
4653337	2-Methylnaphthalene	2016/09/09	90	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
4653337	Acenaphthene	2016/09/09	101	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40		
4653337	Acenaphthylene	2016/09/09	96	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40		
4653337	Anthracene	2016/09/09	91	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40		
4653337	Benzo(a)anthracene	2016/09/09	105	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40		
4653337	Benzo(a)pyrene	2016/09/09	99	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40		
4653337	Benzo(b/j)fluoranthene	2016/09/09	97	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40		
4653337	Benzo(g,h,i)perylene	2016/09/09	100	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40		
4653337	Benzo(k)fluoranthene	2016/09/09	96	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
4653337	Chrysene	2016/09/09	102	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40		
4653337	Dibenz(a,h)anthracene	2016/09/09	99	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40		

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			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**% Recovery**	**QC Limits**	**Value**	**UNITS**	**Value (%)**	**QC Limits**	**Value**	**UNITS**
4653337	Fluoranthene	2016/09/09	105	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40		
4653337	Fluorene	2016/09/09	99	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40		
4653337	Indeno(1,2,3-cd)pyrene	2016/09/09	113	50 - 130	124	50 - 130	<0.0050	ug/g	NC	40		
4653337	Naphthalene	2016/09/09	89	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
4653337	Phenanthrene	2016/09/09	98	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40		
4653337	Pyrene	2016/09/09	105	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40		
4653560	Free Cyanide	2016/09/12	110	75 - 125	107	80 - 120	<0.01	ug/g	NC	35		
4653668	Available (CaCl2) pH	2016/09/09			99	97 - 103			1.8	N/A		
4653935	Hot Water Ext. Boron (B)	2016/09/09	108	75 - 125	105	75 - 125	<0.050	ug/g	NC	40		
4653945	Conductivity	2016/09/09			99	90 - 110	<0.002	mS/cm	0.21	10		
4654155	Moisture	2016/09/09							6.7	20		
4654156	Moisture	2016/09/09							NC	20		
4654216	Available (CaCl2) pH	2016/09/12			98	97 - 103			0.88	N/A		
4654236	Moisture	2016/09/09							4.5	20		
4654375	Acid Extractable Antimony (Sb)	2016/09/13	79	75 - 125	104	80 - 120	<0.20	ug/g	22	30		
4654375	Acid Extractable Arsenic (As)	2016/09/13	85	75 - 125	103	80 - 120	<1.0	ug/g	4.1	30		
4654375	Acid Extractable Barium (Ba)	2016/09/13	NC	75 - 125	106	80 - 120	<0.50	ug/g	0.43	30		
4654375	Acid Extractable Beryllium (Be)	2016/09/13	102	75 - 125	105	80 - 120	<0.20	ug/g	NC	30		
4654375	Acid Extractable Cadmium (Cd)	2016/09/13	95	75 - 125	99	80 - 120	<0.10	ug/g	13	30		
4654375	Acid Extractable Chromium (Cr)	2016/09/13	NC	75 - 125	105	80 - 120	<1.0	ug/g	7.0	30		
4654375	Acid Extractable Cobalt (Co)	2016/09/13	NC	75 - 125	104	80 - 120	<0.10	ug/g	2.2	30		
4654375	Acid Extractable Copper (Cu)	2016/09/13	NC	75 - 125	106	80 - 120	<0.50	ug/g	4.4	30		
4654375	Acid Extractable Lead (Pb)	2016/09/13	NC	75 - 125	98	80 - 120	<1.0	ug/g	1.2	30		
4654375	Acid Extractable Mercury (Hg)	2016/09/13	94	75 - 125	104	80 - 120	<0.050	ug/g				
4654375	Acid Extractable Molybdenum (Mo)	2016/09/13	92	75 - 125	104	80 - 120	<0.50	ug/g	7.8	30		
4654375	Acid Extractable Nickel (Ni)	2016/09/13	103	75 - 125	105	80 - 120	<0.50	ug/g	1.3	30		
4654375	Acid Extractable Selenium (Se)	2016/09/13	79	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
4654375	Acid Extractable Silver (Ag)	2016/09/13	97	75 - 125	104	80 - 120	<0.20	ug/g	NC	30		
4654375	Acid Extractable Thallium (Tl)	2016/09/13	89	75 - 125	95	80 - 120	<0.050	ug/g	NC	30		
4654375	Acid Extractable Tin (Sn)	2016/09/13	98	75 - 125	100	80 - 120	<1.0	ug/g	23	30		
4654375	Acid Extractable Uranium (U)	2016/09/13	95	75 - 125	99	80 - 120	<0.050	ug/g	1.5	30		
4654375	Acid Extractable Vanadium (V)	2016/09/13	NC	75 - 125	103	80 - 120	<5.0	ug/g	2.3	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4654375	Acid Extractable Zinc (Zn)	2016/09/13	NC	75 - 125	103	80 - 120	<5.0	ug/g	1.7	30		
4654535	Free Cyanide	2016/09/13	NC	75 - 125	99	80 - 120	<0.01	ug/g	NC	35		
4655651	Chromium (VI)	2016/09/12	56 (4)	75 - 125	84	80 - 120	<0.2	ug/g	NC	35		
4655652	Chromium (VI)	2016/09/12	23 (5)	75 - 125	84	80 - 120	<0.2	ug/g	NC	35		
4655973	Hot Water Ext. Boron (B)	2016/09/12	111	75 - 125	110	75 - 125	<0.050	ug/g	NC	40		
4656068	Acid Extractable Antimony (Sb)	2016/09/12	78	75 - 125	97	80 - 120	<0.20	ug/g	1.7	30		
4656068	Acid Extractable Arsenic (As)	2016/09/12	93	75 - 125	95	80 - 120	<1.0	ug/g	2.1	30		
4656068	Acid Extractable Barium (Ba)	2016/09/12	NC	75 - 125	94	80 - 120	<0.50	ug/g	4.4	30		
4656068	Acid Extractable Beryllium (Be)	2016/09/12	91	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4656068	Acid Extractable Cadmium (Cd)	2016/09/12	89	75 - 125	96	80 - 120	<0.10	ug/g	2.9	30		
4656068	Acid Extractable Chromium (Cr)	2016/09/12	NC	75 - 125	99	80 - 120	<1.0	ug/g	6.2	30		
4656068	Acid Extractable Cobalt (Co)	2016/09/12	NC	75 - 125	98	80 - 120	<0.10	ug/g	2.4	30		
4656068	Acid Extractable Copper (Cu)	2016/09/12	NC	75 - 125	98	80 - 120	<0.50	ug/g	1.8	30		
4656068	Acid Extractable Lead (Pb)	2016/09/12			101	80 - 120	<1.0	ug/g	4.2	30		
4656068	Acid Extractable Mercury (Hg)	2016/09/12	NC	75 - 125	107	80 - 120	<0.050	ug/g				
4656068	Acid Extractable Molybdenum (Mo)	2016/09/12	87	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4656068	Acid Extractable Nickel (Ni)	2016/09/12	NC	75 - 125	100	80 - 120	<0.50	ug/g	2.8	30		
4656068	Acid Extractable Selenium (Se)	2016/09/12	91	75 - 125	100	80 - 120	<0.50	ug/g	NC	30		
4656068	Acid Extractable Silver (Ag)	2016/09/12	90	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4656068	Acid Extractable Thallium (Tl)	2016/09/12	82	75 - 125	100	80 - 120	<0.050	ug/g	0.61	30		
4656068	Acid Extractable Tin (Sn)	2016/09/12	82	75 - 125	94	80 - 120	<1.0	ug/g	0.47	30		
4656068	Acid Extractable Uranium (U)	2016/09/12	90	75 - 125	99	80 - 120	<0.050	ug/g	2.5	30		
4656068	Acid Extractable Vanadium (V)	2016/09/12	NC	75 - 125	96	80 - 120	<5.0	ug/g	5.9	30		
4656068	Acid Extractable Zinc (Zn)	2016/09/12			100	80 - 120	<5.0	ug/g	4.0	30		
4656429	Conductivity	2016/09/12			100	90 - 110	<0.002	mS/cm	1.2	10		
4659917	Leachable Arsenic (As)	2016/09/15	95	80 - 120	98	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4659917	Leachable Barium (Ba)	2016/09/15	NC	80 - 120	100	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4659917	Leachable Boron (B)	2016/09/15	97	80 - 120	107	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4659917	Leachable Cadmium (Cd)	2016/09/15	96	80 - 120	97	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
4659917	Leachable Chromium (Cr)	2016/09/15	95	80 - 120	97	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4659917	Leachable Lead (Pb)	2016/09/15	92	80 - 120	95	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4659917	Leachable Selenium (Se)	2016/09/15	95	80 - 120	99	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4659917	Leachable Silver (Ag)	2016/09/15	93	80 - 120	95	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4659917	Leachable Uranium (U)	2016/09/15	93	80 - 120	94	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4661637	Leachable Benzene	2016/09/15	101	70 - 130	102	70 - 130	<0.020	mg/L	NC	30		
4662879	Leachable Benzo(a)pyrene	2016/09/16	105	50 - 130	103	50 - 130	<0.10	ug/L	NC	40		
4684972	Leachable Mercury (Hg)	2016/10/03	105	75 - 125	100	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
4685887	Leachable Arsenic (As)	2016/10/03	104	80 - 120	104	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4685887	Leachable Barium (Ba)	2016/10/03	107	80 - 120	103	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4685887	Leachable Boron (B)	2016/10/03	100	80 - 120	119	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Cadmium (Cd)	2016/10/03	107	80 - 120	103	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
4685887	Leachable Chromium (Cr)	2016/10/03	100	80 - 120	104	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Lead (Pb)	2016/10/03	98	80 - 120	101	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Selenium (Se)	2016/10/03	101	80 - 120	102	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Silver (Ag)	2016/10/03	96	80 - 120	108	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4685887	Leachable Uranium (U)	2016/10/03	100	80 - 120	102	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.

(3) Duplicate results exceeded RPD acceptance criteria due to the sample heterogeneity. The variability in the results for this analytes may be more pronounced.

(4) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The matrix spike was reanalyzed to confirm result.

(5) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam
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Maxxam Job #: B6I9078
Report Date: 2016/10/07

DST Consulting Engineers Inc
Client Project #: GV-TB-027105

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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A Bureau Veritas Group Company

IMMEDIATE TEST

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59246

Page 1 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)	
Company Name:	DST Consulting Eng	Company Name:		Quotation #:	
Contact Name:	Geoff Lake	Contact Name:		P.O. #/ AFE#:	
Address:	885 Regent St	Address:		Project #:	
				Site Location:	
Phone:	705 561 0147 Fax:	Phone:	Fax:	Site #:	
Email:	glake@dstgroup.com	Email:		Sampled By:	

Turnaround Time (TAT) Required

- [X] Regular TAT (5-7 days) Most analyses

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Rush TAT (Surcharges will be applied)

- [ ] 1 Day
- [ ] 2 Days
- [ ] 3-4 Days

Date Required:

Rush Confirmation #:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153

- [X] Table 1
- [ ] Res/Park
- [ ] Med/ Fine
- [1] Table 2
- [ ] Ind/Comm
- [ ] Coarse
- [ ] Table 3
- [ ] Agri/ Other
- [ ] Table ____

FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations

- [ ] CCME
- [ ] Sanitary Sewer Bylaw
- [ ] MISA
- [ ] Storm Sewer Bylaw
- [ ] PWQO Region ____
- [ ] Other (Specify) ____
- [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
N		5, 2, 2°C
N		5, 3, 5°C
N		6, 3, 3°C

COOLING MEDIA PRESENT: Y / N

Analysis Requested (REG 153 columns: REFER TO BACK OF COC)

#	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	TCLP (Benzene, BcaP Metal)	pH	PAHs	HOLD- DO NOT ANALYZE	COMMENTS
1	CS3-1	Aug 31/16	15:05	Soil						X			X	X			
2	CS3-2		15:15				X	X		X				X	X		
3	CS3-3		15:25				X	X		X			X	X	X		
4	CS3-4		15:35				X	X		X			X	X	X		
5	CS3-5		15:45				X	X		X			X	X	X		
6	CS3-6		15:55							X			X	X			
7	CS3-7		16:05							X				X			
8	CS3-8		16:15							X				X			
9	CS3-9		16:25							X				X			
10	CS3-10		16:35							X				X			

02-Sep-16 16:20
Augustyna Dobosz
B6I9078
TSP ENV-1243

Received in Sudbury

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
G Lake	2016/09/02	16:15	Bradley Frappier	2016/09/02	16:20	
				2016/09/03	10:30	

Refer to ACTR

COC-1004 (10/14) - ENV. ENG.

White: Maxxam ~ Yellow: Client

Maxxam
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6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59252

Page 2 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)	
Company Name:	DST Consulting Eng	Company Name:		Quotation #:	
Contact Name:	Geoff Lake	Contact Name:		P.O. #/ AFE#:	
Address:	885 Regent St	Address:		Project #:	GV-TB-027105
Phone:	705 561 0147 Fax:	Phone: Fax:		Site Location:	Old House
Email:	glake@dstgroup.com	Email:		Site #:	
				Sampled By:	

Turnaround Time (TAT) Required

- [x] Regular TAT (5-7 days) Most analyses

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Rush TAT (Surcharges will be applied)
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3-4 Days

Date Required:

Rush Confirmation #:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153
- [x] Table 1
- [ ] Table 2
- [ ] Table 3
- [ ] Table ____
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/ Other
- [ ] Med/ Fine
- [ ] Coarse

FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations
- [ ] CCME
- [ ] MISA
- [ ] PWQO
- [ ] Other (Specify)
- [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw

Region

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	TCLP (Benzene, BaP, Metals)		pH	PAHS			HOLD- DO NOT ANALYZE
1	CS30-5	Aug 31/16	15:40	Soil			X	X		X			X		X	X			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

REFER TO BACK OF COC

LABORATORY USE ONLY

CUSTODY SEAL Y / (N)		COOLER TEMPERATURES
Present	Intact	
N		5,2,2°C
N		5,3,5°C
N		6,3,3°C

COOLING MEDIA PRESENT: (Y) / N

COMMENTS

Received in Sudbury

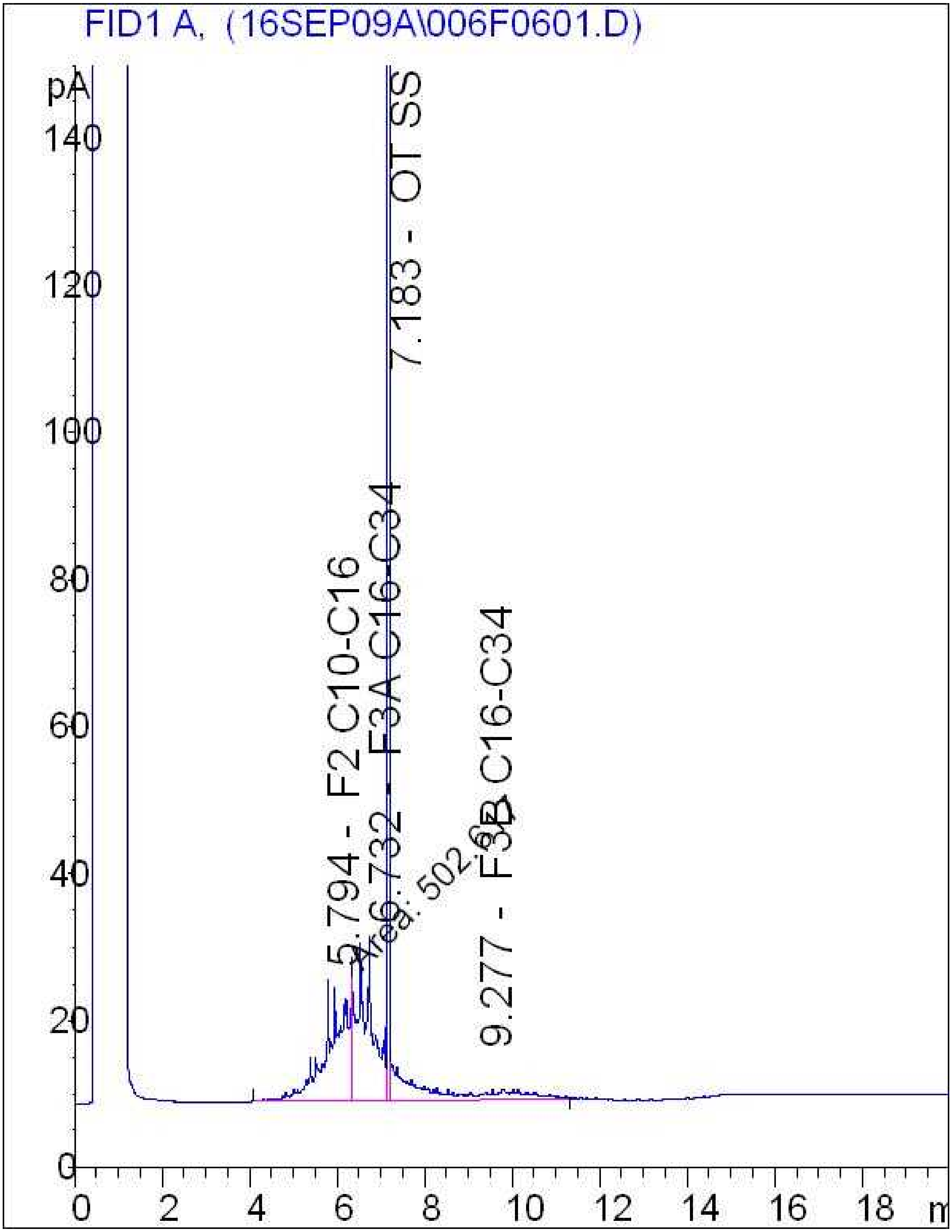
RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
G Lake	2016/09/02	16:15	B.F. / Bradley Frappier	~~2016/09/02~~ 2016/09/02 B.F.	16:20	
			Maria Haug	2016/09/02 2016/09/03	10:30	

COC-1004 (10/14) - ENV. ENG.

Maxxam Job #: B6I9078
Report Date: 2016/10/07
Maxxam Sample: CZW655

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Client ID: CS3-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

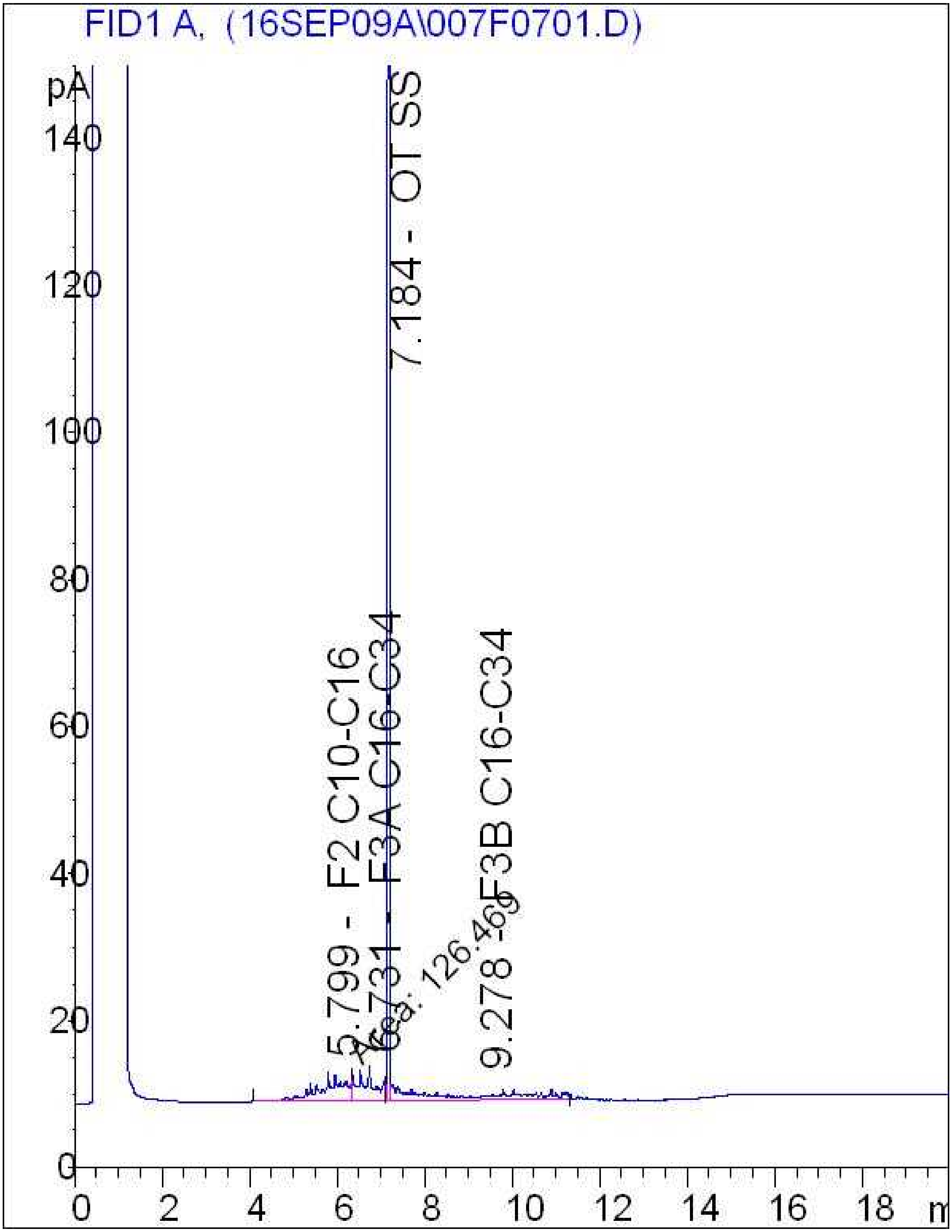


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9078
Report Date: 2016/10/07
Maxxam Sample: CZW656

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Client ID: CS3-3

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

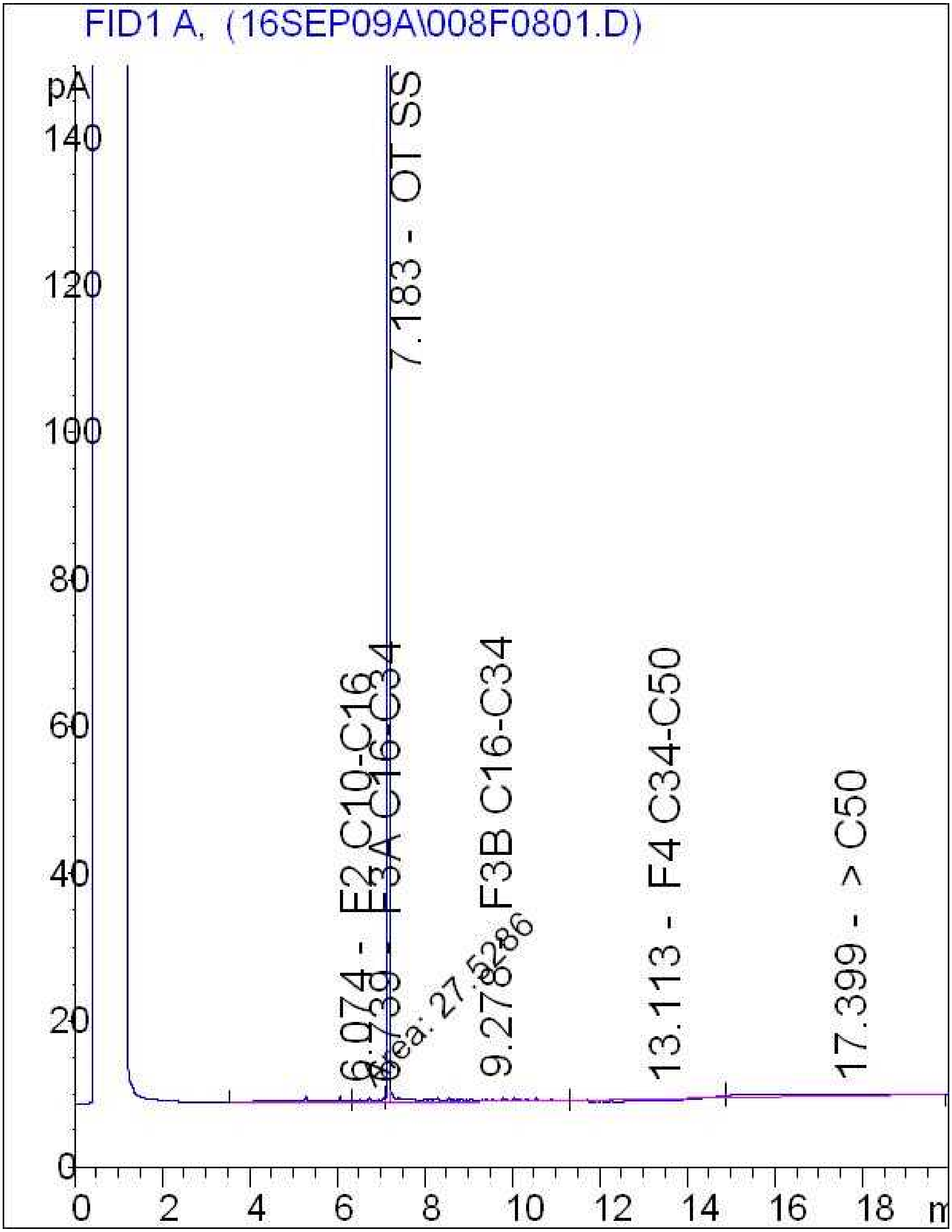


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9078
Report Date: 2016/10/07
Maxxam Sample: CZW657

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Client ID: CS3-4

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

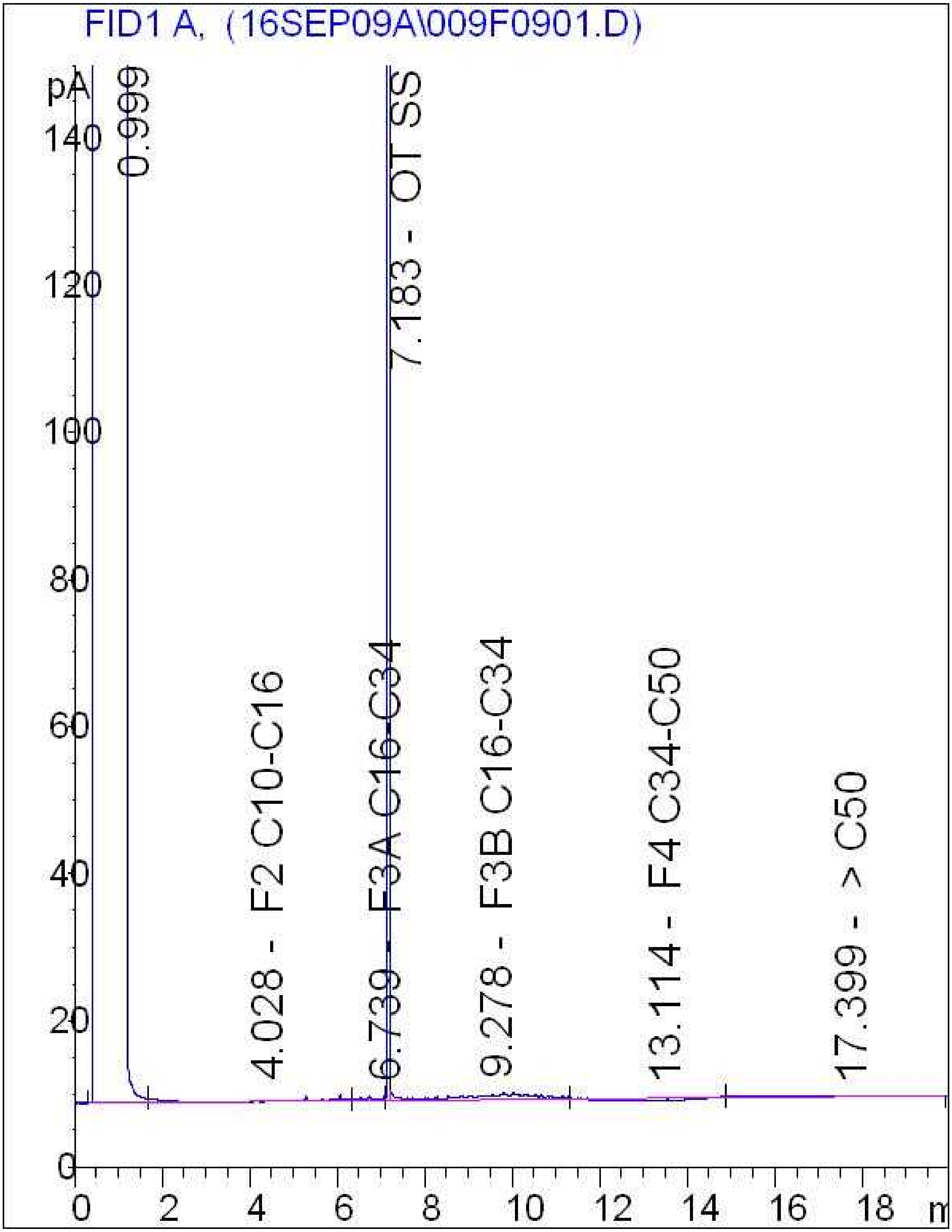


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9078
Report Date: 2016/10/07
Maxxam Sample: CZW658

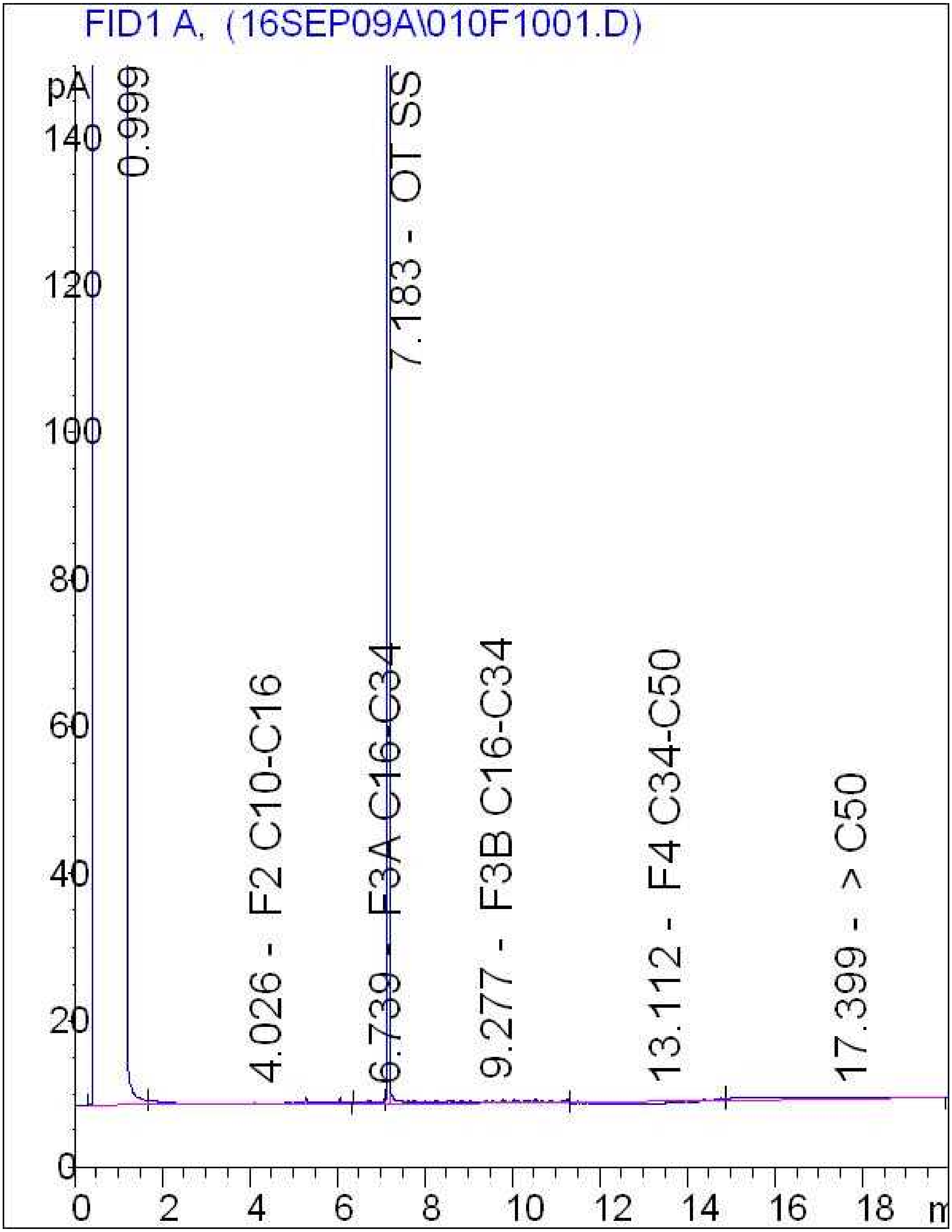
DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Client ID: CS3-5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam
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Your Project #: GV-TB-027105
Site Location: LIGHTHOUSE
Your C.O.C. #: 59249, 59251

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/10/06
Report #: R4192889
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6I9079
Received: 2016/09/02, 16:20

Sample Matrix: Soil
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Mercury (TCLP Leachable) (mg/L)	3	N/A	2016/09/12	CAM SOP-00453	EPA 7470A m
Mercury (TCLP Leachable) (mg/L)	1	N/A	2016/10/03	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	11	2016/09/09	2016/09/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2016/09/09	2016/09/13	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	3	2016/09/09	2016/09/12	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	1	2016/10/03	2016/10/03	CAM SOP-00447	EPA 6020B m
PAH Compounds in Leachate by GC/MS (SIM)	3	2016/09/09	2016/09/09	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	12	2016/09/08	2016/09/08	CAM SOP-00413	EPA 9045 D m
TCLP - % Solids	3	2016/09/08	2016/09/09	CAM SOP-00401	EPA 1311 Update I m
TCLP - % Solids	1	2016/09/30	2016/10/01	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	3	N/A	2016/09/09	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2016/10/01	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	3	N/A	2016/09/09	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2016/10/01	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	2	2016/09/14	2016/09/15	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	2	2016/09/15	2016/09/15	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: GV-TB-027105
Site Location: LIGHTHOUSE
Your C.O.C. #: 59249, 59251

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/10/06
Report #: R4192889
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6I9079
Received: 2016/09/02, 16:20

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Augustyna Dobosz, Project Manager
Email: ADobosz@maxxam.ca
Phone# (905)817-5700 Ext:5798
==
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam
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Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW665		CZW666	CZW666	CZW667		CZW668		
Sampling Date		2016/08/31 01:00		2016/08/31 01:10	2016/08/31 01:10	2016/08/31 01:15		2016/08/31 01:20		
COC Number		59249		59249	59249	59249		59249		
	UNITS	**CS2-1**	**RDL**	**CS2-2**	**CS2-2 Lab-Dup**	**CS2-3**	**RDL**	**CS2-4**	**RDL**	**QC Batch**
Metals										
Acid Extractable Antimony (Sb)	ug/g	0.23	0.20	1.4	1.7	2.3	0.20	0.32	0.20	4654375
Acid Extractable Arsenic (As)	ug/g	2.0	1.0	6.5	6.8	6.7	1.0	3.0	1.0	4654375
Acid Extractable Barium (Ba)	ug/g	51	0.50	480	480	410	0.50	75	0.50	4654375
Acid Extractable Beryllium (Be)	ug/g	0.30	0.20	0.46	0.47	0.35	0.20	<0.20	0.20	4654375
Acid Extractable Cadmium (Cd)	ug/g	0.19	0.10	3.0	3.4	0.42	0.10	0.65	0.10	4654375
Acid Extractable Chromium (Cr)	ug/g	8.9	1.0	23	24	26	1.0	6.8	1.0	4654375
Acid Extractable Cobalt (Co)	ug/g	5.8	0.10	17	17	8.8	0.10	3.9	0.10	4654375
Acid Extractable Copper (Cu)	ug/g	24	0.50	75	78	83	0.50	23	0.50	4654375
Acid Extractable Lead (Pb)	ug/g	14	1.0	8600	8500	12000	5.0	100	1.0	4654375
Acid Extractable Molybdenum (Mo)	ug/g	2.4	0.50	5.9	6.3	7.0	0.50	1.2	0.50	4654375
Acid Extractable Nickel (Ni)	ug/g	3.5	0.50	11	11	4.8	0.50	4.5	0.50	4654375
Acid Extractable Selenium (Se)	ug/g	0.98	0.50	1.2	1.2	1.9	0.50	<0.50	0.50	4654375
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	0.35	0.29	0.40	0.20	<0.20	0.20	4654375
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.050	0.12	0.11	0.12	0.050	0.11	0.050	4654375
Acid Extractable Tin (Sn)	ug/g	1.3	1.0	5.2	6.5	7.8	1.0	2.6	1.0	4654375
Acid Extractable Uranium (U)	ug/g	0.64	0.050	0.63	0.62	1.0	0.050	0.44	0.050	4654375
Acid Extractable Vanadium (V)	ug/g	120	5.0	140	140	130	5.0	57	5.0	4654375
Acid Extractable Zinc (Zn)	ug/g	53	5.0	1700	1800	930	5.0	71	5.0	4654375

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW669		CZW670	CZW671	CZW672	CZW673	CZW674		
Sampling Date		2016/08/31 01:30		2016/08/31 01:45	2016/08/31 02:06	2016/08/31 02:30	2016/08/31 02:40	2016/08/31 03:00		
COC Number		59249		59249	59249	59249	59249	59249		
	UNITS	**CS2-5**	**RDL**	**CS2-6**	**CS2-7**	**CS2-8**	**CS2-9**	**CS2-10**	**RDL**	**QC Batch**
Metals										
Acid Extractable Antimony (Sb)	ug/g	1.1	0.20	1.2	0.40	0.73	0.70	0.79	0.20	4654375
Acid Extractable Arsenic (As)	ug/g	5.5	1.0	6.3	4.3	9.0	4.4	9.8	1.0	4654375
Acid Extractable Barium (Ba)	ug/g	320	0.50	210	82	150	160	110	0.50	4654375
Acid Extractable Beryllium (Be)	ug/g	1.3	0.20	0.29	0.29	0.38	0.51	0.49	0.20	4654375
Acid Extractable Cadmium (Cd)	ug/g	1.2	0.10	8.7	0.73	0.86	0.92	0.75	0.10	4654375
Acid Extractable Chromium (Cr)	ug/g	22	1.0	21	7.7	11	21	13	1.0	4654375
Acid Extractable Cobalt (Co)	ug/g	10	0.10	11	7.2	13	19	12	0.10	4654375
Acid Extractable Copper (Cu)	ug/g	61	0.50	210	26	180	55	47	0.50	4654375
Acid Extractable Lead (Pb)	ug/g	4100	5.0	3100	53	1000	1900	1200	1.0	4654375
Acid Extractable Molybdenum (Mo)	ug/g	4.6	0.50	2.9	2.1	2.4	3.4	3.9	0.50	4654375
Acid Extractable Nickel (Ni)	ug/g	8.6	0.50	8.3	5.1	8.3	16	8.2	0.50	4654375
Acid Extractable Selenium (Se)	ug/g	4.8	0.50	0.83	1.2	1.0	1.4	1.6	0.50	4654375
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	0.53	<0.20	<0.20	<0.20	<0.20	0.20	4654375
Acid Extractable Thallium (Tl)	ug/g	0.050	0.050	0.16	0.083	0.16	0.079	0.088	0.050	4654375
Acid Extractable Tin (Sn)	ug/g	2.1	1.0	18	1.9	4.6	3.0	3.8	1.0	4654375
Acid Extractable Uranium (U)	ug/g	1.5	0.050	0.45	0.69	0.54	0.69	0.64	0.050	4654375
Acid Extractable Vanadium (V)	ug/g	140	5.0	85	100	96	150	160	5.0	4654375
Acid Extractable Zinc (Zn)	ug/g	1500	5.0	910	84	260	610	290	5.0	4654375

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW675	CZW676		
Sampling Date		2016/08/31 03:10	2016/08/31 03:10		
COC Number		59251	59251		
	UNITS	**CS2-11**	**CS20-11**	**RDL**	**QC Batch**
Metals					
Acid Extractable Antimony (Sb)	ug/g	0.49	0.31	0.20	4654375
Acid Extractable Arsenic (As)	ug/g	2.8	2.5	1.0	4654375
Acid Extractable Barium (Ba)	ug/g	100	81	0.50	4654375
Acid Extractable Beryllium (Be)	ug/g	0.24	0.23	0.20	4654375
Acid Extractable Cadmium (Cd)	ug/g	0.78	0.53	0.10	4654375
Acid Extractable Chromium (Cr)	ug/g	8.4	7.2	1.0	4654375
Acid Extractable Cobalt (Co)	ug/g	8.3	7.4	0.10	4654375
Acid Extractable Copper (Cu)	ug/g	44	35	0.50	4654375
Acid Extractable Lead (Pb)	ug/g	1200	720	1.0	4654375
Acid Extractable Molybdenum (Mo)	ug/g	2.0	2.2	0.50	4654375
Acid Extractable Nickel (Ni)	ug/g	5.5	4.6	0.50	4654375
Acid Extractable Selenium (Se)	ug/g	0.53	0.71	0.50	4654375
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	4654375
Acid Extractable Thallium (Tl)	ug/g	0.067	0.072	0.050	4654375
Acid Extractable Tin (Sn)	ug/g	5.4	3.4	1.0	4654375
Acid Extractable Uranium (U)	ug/g	0.46	0.50	0.050	4654375
Acid Extractable Vanadium (V)	ug/g	120	120	5.0	4654375
Acid Extractable Zinc (Zn)	ug/g	490	330	5.0	4654375

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

O.REG 558 TCLP VOLATILE ORGANICS (SOIL)

Maxxam ID		CZW666	CZW668		
Sampling Date		2016/08/31 01:10	2016/08/31 01:20		
COC Number		59249	59249		
	UNITS	**CS2-2**	**CS2-4**	**RDL**	**QC Batch**
Charge/Prep Analysis					
Amount Extracted (Wet Weight) (g)	N/A	25	25	N/A	4659866
Volatile Organics					
Leachable Benzene	mg/L	<0.020	<0.020	0.020	4661637
Leachable Carbon Tetrachloride	mg/L	<0.020	<0.020	0.020	4661637
Leachable Chlorobenzene	mg/L	<0.020	<0.020	0.020	4661637
Leachable Chloroform	mg/L	<0.020	<0.020	0.020	4661637
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	<0.050	0.050	4661637
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	<0.050	0.050	4661637
Leachable 1,2-Dichloroethane	mg/L	<0.050	<0.050	0.050	4661637
Leachable 1,1-Dichloroethylene	mg/L	<0.020	<0.020	0.020	4661637
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	<0.20	0.20	4661637
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	<1.0	1.0	4661637
Leachable Tetrachloroethylene	mg/L	<0.020	<0.020	0.020	4661637
Leachable Trichloroethylene	mg/L	<0.020	<0.020	0.020	4661637
Leachable Vinyl Chloride	mg/L	<0.020	<0.020	0.020	4661637
Surrogate Recovery (%)					
Leachable 4-Bromofluorobenzene	%	98	98		4661637
Leachable D4-1,2-Dichloroethane	%	102	103		4661637
Leachable D8-Toluene	%	99	99		4661637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

O.REG 558 TCLP BENZO(A)PYRENE

Maxxam ID		CZW666	CZW668	CZW674		
Sampling Date		2016/08/31 01:10	2016/08/31 01:20	2016/08/31 03:00		
COC Number		59249	59249	59249		
	UNITS	**CS2-2**	**CS2-4**	**CS2-10**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons						
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	<0.10	0.10	4654029
Surrogate Recovery (%)						
Leachable D10-Anthracene	%	103	100	104		4654029
Leachable D14-Terphenyl (FS)	%	98	92	91		4654029
Leachable D8-Acenaphthylene	%	107	103	108		4654029

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		CZW666	CZW668		CZW669		CZW674		
Sampling Date		2016/08/31 01:10	2016/08/31 01:20		2016/08/31 01:30		2016/08/31 03:00		
COC Number		59249	59249		59249		59249		
	UNITS	**CS2-2**	**CS2-4**	**QC Batch**	**CS2-5**	**QC Batch**	**CS2-10**	**RDL**	**QC Batch**
Inorganics									
Final pH	pH	4.91	4.83	4653725	4.92	4684466	4.84		4653725
Initial pH	pH	6.12	5.33	4653725	5.38	4684466	5.43		4653725
TCLP - % Solids	%	100	100	4653723	100	4684452	100	0.2	4653723
TCLP Extraction Fluid	N/A	FLUID 1	FLUID 1	4653724	FLUID 1	4684465	FLUID 1		4653724

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

O.REG 558 TCLP METALS (SOIL)

Maxxam ID		CZW666	CZW668		CZW669		CZW674		
Sampling Date		2016/08/31 01:10	2016/08/31 01:20		2016/08/31 01:30		2016/08/31 03:00		
COC Number		59249	59249		59249		59249		
	UNITS	**CS2-2**	**CS2-4**	**QC Batch**	**CS2-5**	**QC Batch**	**CS2-10**	**RDL**	**QC Batch**
Metals									
Leachable Mercury (Hg)	mg/L	<0.0010	<0.0010	4653964	<0.0010	4684972	<0.0010	0.0010	4653964
Leachable Arsenic (As)	mg/L	<0.2	<0.2	4654455	<0.2	4685887	<0.2	0.2	4654455
Leachable Barium (Ba)	mg/L	1.0	<0.2	4654455	0.5	4685887	<0.2	0.2	4654455
Leachable Boron (B)	mg/L	0.2	0.2	4654455	0.3	4685887	0.2	0.1	4654455
Leachable Cadmium (Cd)	mg/L	<0.05	<0.05	4654455	<0.05	4685887	<0.05	0.05	4654455
Leachable Chromium (Cr)	mg/L	<0.1	<0.1	4654455	<0.1	4685887	<0.1	0.1	4654455
Leachable Lead (Pb)	mg/L	14	<0.1	4654455	2.7	4685887	<0.1	0.1	4654455
Leachable Selenium (Se)	mg/L	<0.1	<0.1	4654455	<0.1	4685887	<0.1	0.1	4654455
Leachable Silver (Ag)	mg/L	<0.01	<0.01	4654455	<0.01	4685887	<0.01	0.01	4654455
Leachable Uranium (U)	mg/L	<0.01	<0.01	4654455	<0.01	4685887	<0.01	0.01	4654455

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CZW665	CZW666	CZW667	CZW668	CZW669	CZW670	CZW671	
Sampling Date		2016/08/31 01:00	2016/08/31 01:10	2016/08/31 01:15	2016/08/31 01:20	2016/08/31 01:30	2016/08/31 01:45	2016/08/31 02:06	
COC Number		59249	59249	59249	59249	59249	59249	59249	
	UNITS	**CS2-1**	**CS2-2**	**CS2-3**	**CS2-4**	**CS2-5**	**CS2-6**	**CS2-7**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.94	4.55	4.07	3.68	4.63	4.45	6.41	4652152

QC Batch = Quality Control Batch

Maxxam ID		CZW672	CZW673	CZW674	CZW675	CZW675	CZW676	
Sampling Date		2016/08/31 02:30	2016/08/31 02:40	2016/08/31 03:00	2016/08/31 03:10	2016/08/31 03:10	2016/08/31 03:10	
COC Number		59249	59249	59249	59251	59251	59251	
	UNITS	**CS2-8**	**CS2-9**	**CS2-10**	**CS2-11**	**CS2-11 Lab-Dup**	**CS20-11**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	3.98	4.24	4.20	3.88	3.86	3.90	4652152

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

TEST SUMMARY

Maxxam ID: CZW665 **Collected:** 2016/08/31
Sample ID: CS2-1 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW666 **Collected:** 2016/08/31
Sample ID: CS2-2 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4653964	N/A	2016/09/12	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/13	Cristina Petran
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4654455	2016/09/09	2016/09/12	John Bowman
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4654029	2016/09/09	2016/09/09	Mitesh Raj
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
TCLP - % Solids	BAL	4653723	2016/09/08	2016/09/09	Jian (Ken) Wang
TCLP - Extraction Fluid		4653724	N/A	2016/09/09	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4653725	N/A	2016/09/09	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam ID: CZW666 Dup **Collected:** 2016/08/31
Sample ID: CS2-2 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/13	Cristina Petran

Maxxam ID: CZW667 **Collected:** 2016/08/31
Sample ID: CS2-3 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW668 **Collected:** 2016/08/31
Sample ID: CS2-4 **Shipped:**
Matrix: Soil **Received:** 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4653964	N/A	2016/09/12	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4654455	2016/09/09	2016/09/12	John Bowman
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4654029	2016/09/09	2016/09/09	Mitesh Raj
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
TCLP - % Solids	BAL	4653723	2016/09/08	2016/09/09	Jian (Ken) Wang
TCLP - Extraction Fluid		4653724	N/A	2016/09/09	Jian (Ken) Wang

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

TEST SUMMARY

Maxxam ID: CZW668
Sample ID: CS2-4
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
TCLP - Initial and final pH	PH	4653725	N/A	2016/09/09	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4659866	2016/09/14	2016/09/15	Walt Wang
VOCs in ZHE Leachates	GC/MS	4661637	2016/09/15	2016/09/15	Adriana Zurita

Maxxam ID: CZW669
Sample ID: CS2-5
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4684972	N/A	2016/10/03	Ron Morrison
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4685887	2016/10/03	2016/10/03	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
TCLP - % Solids	BAL	4684452	2016/09/30	2016/10/01	Walt Wang
TCLP - Extraction Fluid		4684465	N/A	2016/10/01	Walt Wang
TCLP - Initial and final pH	PH	4684466	N/A	2016/10/01	Walt Wang

Maxxam ID: CZW670
Sample ID: CS2-6
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW671
Sample ID: CS2-7
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW672
Sample ID: CS2-8
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam Job #: B6I9079
Report Date: 2016/10/06

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

TEST SUMMARY

Maxxam ID: CZW673
Sample ID: CS2-9
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW674
Sample ID: CS2-10
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4653964	N/A	2016/09/12	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4654455	2016/09/09	2016/09/12	John Bowman
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4654029	2016/09/09	2016/09/09	Mitesh Raj
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake
TCLP - % Solids	BAL	4653723	2016/09/08	2016/09/09	Jian (Ken) Wang
TCLP - Extraction Fluid		4653724	N/A	2016/09/09	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4653725	N/A	2016/09/09	Jian (Ken) Wang

Maxxam ID: CZW675
Sample ID: CS2-11
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW675 Dup
Sample ID: CS2-11
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

Maxxam ID: CZW676
Sample ID: CS20-11
Matrix: Soil

Collected: 2016/08/31
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
pH CaCl2 EXTRACT	AT	4652152	2016/09/08	2016/09/08	Neil Dassanayake

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
Package 2	4.3°C
Package 3	4.0°C

TCLP benzo(a)pyrene and TCLP metals were analyzed for CS2-4, CS, 2-2, CS2-10, per client request

Results relate only to the items tested.

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4654029	Leachable D10-Anthracene	2016/09/09	102	50 - 130	99	50 - 130	101	%				
4654029	Leachable D14-Terphenyl (FS)	2016/09/09	94	50 - 130	97	50 - 130	97	%				
4654029	Leachable D8-Acenaphthylene	2016/09/09	107	50 - 130	102	50 - 130	101	%				
4661637	Leachable 4-Bromofluorobenzene	2016/09/15	99	70 - 130	100	70 - 130	98	%				
4661637	Leachable D4-1,2-Dichloroethane	2016/09/15	95	70 - 130	101	70 - 130	102	%				
4661637	Leachable D8-Toluene	2016/09/15	103	70 - 130	100	70 - 130	99	%				
4652152	Available (CaCl2) pH	2016/09/08			99	97 - 103			0.51	N/A		
4653964	Leachable Mercury (Hg)	2016/09/12	104	75 - 125	102	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
4654029	Leachable Benzo(a)pyrene	2016/09/09	96	50 - 130	99	50 - 130	<0.10	ug/L	NC	40		
4654375	Acid Extractable Antimony (Sb)	2016/09/13	79	75 - 125	104	80 - 120	<0.20	ug/g	22	30		
4654375	Acid Extractable Arsenic (As)	2016/09/13	85	75 - 125	103	80 - 120	<1.0	ug/g	4.1	30		
4654375	Acid Extractable Barium (Ba)	2016/09/13	NC	75 - 125	106	80 - 120	<0.50	ug/g	0.43	30		
4654375	Acid Extractable Beryllium (Be)	2016/09/13	102	75 - 125	105	80 - 120	<0.20	ug/g	NC	30		
4654375	Acid Extractable Cadmium (Cd)	2016/09/13	95	75 - 125	99	80 - 120	<0.10	ug/g	13	30		
4654375	Acid Extractable Chromium (Cr)	2016/09/13	NC	75 - 125	105	80 - 120	<1.0	ug/g	7.0	30		
4654375	Acid Extractable Cobalt (Co)	2016/09/13	NC	75 - 125	104	80 - 120	<0.10	ug/g	2.2	30		
4654375	Acid Extractable Copper (Cu)	2016/09/13	NC	75 - 125	106	80 - 120	<0.50	ug/g	4.4	30		
4654375	Acid Extractable Lead (Pb)	2016/09/13	NC	75 - 125	98	80 - 120	<1.0	ug/g	1.2	30		
4654375	Acid Extractable Molybdenum (Mo)	2016/09/13	92	75 - 125	104	80 - 120	<0.50	ug/g	7.8	30		
4654375	Acid Extractable Nickel (Ni)	2016/09/13	103	75 - 125	105	80 - 120	<0.50	ug/g	1.3	30		
4654375	Acid Extractable Selenium (Se)	2016/09/13	79	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
4654375	Acid Extractable Silver (Ag)	2016/09/13	97	75 - 125	104	80 - 120	<0.20	ug/g	NC	30		
4654375	Acid Extractable Thallium (Tl)	2016/09/13	89	75 - 125	95	80 - 120	<0.050	ug/g	NC	30		
4654375	Acid Extractable Tin (Sn)	2016/09/13	98	75 - 125	100	80 - 120	<1.0	ug/g	23	30		
4654375	Acid Extractable Uranium (U)	2016/09/13	95	75 - 125	99	80 - 120	<0.050	ug/g	1.5	30		
4654375	Acid Extractable Vanadium (V)	2016/09/13	NC	75 - 125	103	80 - 120	<5.0	ug/g	2.3	30		
4654375	Acid Extractable Zinc (Zn)	2016/09/13	NC	75 - 125	103	80 - 120	<5.0	ug/g	1.7	30		
4654455	Leachable Arsenic (As)	2016/09/12	101	80 - 120	98	80 - 120			NC	35	<0.2	mg/L
4654455	Leachable Barium (Ba)	2016/09/12	NC	80 - 120	98	80 - 120			NC	35	<0.2	mg/L
4654455	Leachable Boron (B)	2016/09/12	100	80 - 120	114	80 - 120			NC	35	<0.1	mg/L
4654455	Leachable Cadmium (Cd)	2016/09/12	102	80 - 120	102	80 - 120			NC	35	<0.05	mg/L

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4654455	Leachable Chromium (Cr)	2016/09/12	101	80 - 120	98	80 - 120			NC	35	<0.1	mg/L
4654455	Leachable Lead (Pb)	2016/09/12	95	80 - 120	97	80 - 120			NC	35	<0.1	mg/L
4654455	Leachable Selenium (Se)	2016/09/12	105	80 - 120	102	80 - 120			NC	35	<0.1	mg/L
4654455	Leachable Silver (Ag)	2016/09/12	98	80 - 120	99	80 - 120			NC	35	<0.01	mg/L
4654455	Leachable Uranium (U)	2016/09/12	100	80 - 120	99	80 - 120			NC	35	<0.01	mg/L
4661637	Leachable 1,1-Dichloroethylene	2016/09/15	99	70 - 130	95	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable 1,2-Dichlorobenzene	2016/09/15	102	70 - 130	102	70 - 130	<0.050	mg/L	NC	30		
4661637	Leachable 1,2-Dichloroethane	2016/09/15	95	70 - 130	101	70 - 130	<0.050	mg/L	NC	30		
4661637	Leachable 1,4-Dichlorobenzene	2016/09/15	103	70 - 130	103	70 - 130	<0.050	mg/L	NC	30		
4661637	Leachable Benzene	2016/09/15	101	70 - 130	102	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable Carbon Tetrachloride	2016/09/15	109	70 - 130	108	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable Chlorobenzene	2016/09/15	103	70 - 130	103	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable Chloroform	2016/09/15	98	70 - 130	101	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable Methyl Ethyl Ketone (2-Butanone)	2016/09/15	93	60 - 140	106	60 - 140	<1.0	mg/L	NC	30		
4661637	Leachable Methylene Chloride(Dichloromethane)	2016/09/15	92	70 - 130	92	70 - 130	<0.20	mg/L	NC	30		
4661637	Leachable Tetrachloroethylene	2016/09/15	102	70 - 130	99	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable Trichloroethylene	2016/09/15	100	70 - 130	99	70 - 130	<0.020	mg/L	NC	30		
4661637	Leachable Vinyl Chloride	2016/09/15	96	70 - 130	88	70 - 130	<0.020	mg/L	NC	30		
4684972	Leachable Mercury (Hg)	2016/10/03	105	75 - 125	100	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
4685887	Leachable Arsenic (As)	2016/10/03	104	80 - 120	104	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4685887	Leachable Barium (Ba)	2016/10/03	107	80 - 120	103	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4685887	Leachable Boron (B)	2016/10/03	100	80 - 120	119	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Cadmium (Cd)	2016/10/03	107	80 - 120	103	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
4685887	Leachable Chromium (Cr)	2016/10/03	100	80 - 120	104	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Lead (Pb)	2016/10/03	98	80 - 120	101	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Selenium (Se)	2016/10/03	101	80 - 120	102	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4685887	Leachable Silver (Ag)	2016/10/03	96	80 - 120	108	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L

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Maxxam Job #: B6I9079
Report Date: 2016/10/06

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: LIGHTHOUSE

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4685887	Leachable Uranium (U)	2016/10/03	100	80 - 120	102	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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IMMEDIATE TEST

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CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59249

Page 1 of 2

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: DST Consulting Eng	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Geoff Lake	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Regent St.	Address:	Project #: GV-TB-027105	Rush TAT (Surcharges will be applied)
		Site Location: Lighthouse	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Phone: 705 561 0147 Fax:	Phone: Fax:	Site #:	Date Required:
Email: glake@dstgroup.com	Email:	Sampled By: GL	Rush Confirmation #:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153: [X] Table 1 [ ] Res/Park [ ] Med/ Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/ Other [ ] Table ____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations: [X] CCME [ ] Sanitary Sewer Bylaw [ ] MISA [ ] Storm Sewer Bylaw [ ] PWQO Region ____ [ ] Other (Specify) [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY

CUSTODY SEAL Y / N Present	Intact	COOLER TEMPERATURES
N		5, 1, 2°C
N		5, 3, 5°C
N		6, 3, 3°C

COOLING MEDIA PRESENT: Y / N

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAHs	TCLP (Benzene, B(a)P, Metals)	pH				HOLD- DO NOT ANALYZE	COMMENTS
1	CS2-1	Aug 31/16	1:00	Soil							X			X	X					
2	CS2-2		1:10								X			X	X					
3	CS2-3		1:15								X			X	X					
4	CS2-4		1:20								X			X	X					
5	CS2-5		1:30								X			X	X					
6	CS2-6		1:45								X				X					
7	CS2-7		2:00								X				X					
8	CS2-8		2:30								X				X					
9	CS2-9		2:40								X			X	X					
10	CS2-10		3:00								X				X					

REFER TO BACK OF COC

02-Sep-16 16:20
Augustyna Dobosz
B6I9079
TSP ENV-1243

Received in Sudbury

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
G Lake	2016/09/02	16:15	Bradley Frappier	2016/09/02	16:20	
			Marc [illegible]	2016/09/03	10:30	

Refer to ACTR

COC-1004 (10/14) - ENV. ENG.

White: Maxxam ~ Yellow: Client

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CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59251

Page 2 of 2

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: DST Consulting Eng	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Geoff Lake	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Regent	Address:	Project #: GV-TB-027105	Rush TAT (Surcharges will be applied)
		Site Location: Light house	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Phone: 705 561 0147 Fax:	Phone: Fax:	Site #:	Date Required:
Email: glake@dstgroup.com	Email:	Sampled By: GL	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Rush Confirmation #:

Regulation 153: [ ] Table 1 [ ] Res/Park [ ] Med/ Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/ Other [ ] Table ___
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations: [X] CCME [ ] Sanitary Sewer Bylaw [ ] MISA [ ] Storm Sewer Bylaw [ ] PWQO Region [ ] Other (Specify) [ ] REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
N		5,2,2°C
N		5,3,5°C
N		6,3,3°C

COOLING MEDIA PRESENT: Y / N

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	TCLP (Benzene, B(a)P)	pH					HOLD- DO NOT ANALYZE	COMMENTS
1	CS2-11	Aug 31/16	3:10	Soil							X		X	X						
2	CS20-11	Aug 31/16	3:10	Soil							X		X	X						
3																				
4																				
5																				
6																				
7																				Received in Sudbury
8																				
9																				
10																				

REFER TO BACK OF COC

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
G Lake / GLake	2016/09/02	16:15	B F / Bradley Frazier	2016/09/02	16:20	
			[illegible]	2016/09/03	10:30	

Refer to ACTR

COC-1004 (10/14) - ENV. ENG.

White: Maxxam ~ Yellow: Client

Maxxam
A Bureau Veritas Group Company

Your Project #: GV-TB-027105
Site Location: DUMPS
Your C.O.C. #: 59253

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Report Date: 2016/09/13
Report #: R4166029
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6I9080
Received: 2016/09/02, 16:20

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydrocarbons F2-F4 in Soil (1)	2	2016/09/10	2016/09/10	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	2	2016/09/09	2016/09/12	CAM SOP-00447	EPA 6020A m
Acid Extractable Metals Analysis by ICP	2	2016/09/09	2016/09/12	CAM SOP-00408	EPA 6010C m
Moisture	2	N/A	2016/09/09	CAM SOP-00445	Carter 2nd ed 51.2 m
Volatile Organic Compounds and F1 PHCs	2	N/A	2016/09/10	CAM SOP-00230	EPA 8260 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Augustyna Dobosz, Project Manager
Email: ADobosz@maxxam.ca
Phone# (905)817-5700 Ext:5798
==
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B6I9080
Report Date: 2016/09/13

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: DUMPS

CCME PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		CZW677		CZW678		
Sampling Date		2016/09/01 10:30		2016/09/01 02:30		
COC Number		59253		59253		
	UNITS	**EAST DUMP**	**RDL**	**WEST DUMP**	**RDL**	**QC Batch**
Inorganics						
Moisture	%	33	1.0	54	1.0	4653933
Volatile Organics						
Benzene	ug/g	<0.036	0.036	<0.048	0.048	4652068
Ethylbenzene	ug/g	<0.060	0.060	<0.080	0.080	4652068
Toluene	ug/g	<0.12	0.12	<0.16	0.16	4652068
p+m-Xylene	ug/g	<0.12	0.12	<0.16	0.16	4652068
o-Xylene	ug/g	<0.12	0.12	<0.16	0.16	4652068
Total Xylenes	ug/g	<0.12	0.12	<0.16	0.16	4652068
F1 (C6-C10)	ug/g	<60	60	<80	80	4652068
F1 (C6-C10) - BTEX	ug/g	<60	60	<80	80	4652068
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	<20	20	4655454
F3 (C16-C34 Hydrocarbons)	ug/g	300	50	190	100	4655454
F4 (C34-C50 Hydrocarbons)	ug/g	330	50	<100	100	4655454
Reached Baseline at C50	ug/g	Yes		Yes		4655454
Surrogate Recovery (%)						
o-Terphenyl	%	102		104		4655454
4-Bromofluorobenzene	%	98		94		4652068
D10-o-Xylene	%	95		94		4652068
D4-1,2-Dichloroethane	%	99		100		4652068
D8-Toluene	%	99		98		4652068
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

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CCME ICPMS & ICP METALS (SOIL)

Maxxam ID		CZW677	CZW678		
Sampling Date		2016/09/01 10:30	2016/09/01 02:30		
COC Number		59253	59253		
	UNITS	**EAST DUMP**	**WEST DUMP**	**RDL**	**QC Batch**
Metals					
Acid Extractable Antimony (Sb)	ug/g	0.77	0.89	0.20	4654375
Acid Extractable Arsenic (As)	ug/g	11	3.2	1.0	4654375
Acid Extractable Barium (Ba)	ug/g	190	110	0.50	4654375
Acid Extractable Beryllium (Be)	ug/g	0.28	<0.20	0.20	4654375
Acid Extractable Cadmium (Cd)	ug/g	1.8	1.7	0.10	4654375
Acid Extractable Chromium (Cr)	ug/g	30	7.0	1.0	4654375
Acid Extractable Cobalt (Co)	ug/g	5.8	1.8	0.10	4654375
Acid Extractable Copper (Cu)	ug/g	42	46	0.50	4654375
Acid Extractable Lead (Pb)	ug/g	190	240	1.0	4654375
Acid Extractable Sulphur (S)	ug/g	970	1800	50	4654379
Acid Extractable Molybdenum (Mo)	ug/g	1.5	2.7	0.50	4654375
Acid Extractable Nickel (Ni)	ug/g	20	6.8	0.50	4654375
Acid Extractable Selenium (Se)	ug/g	1.0	1.1	0.50	4654375
Acid Extractable Silver (Ag)	ug/g	<0.20	0.37	0.20	4654375
Acid Extractable Thallium (Tl)	ug/g	0.13	<0.050	0.050	4654375
Acid Extractable Tin (Sn)	ug/g	6.6	57	1.0	4654375
Acid Extractable Uranium (U)	ug/g	0.56	0.28	0.050	4654375
Acid Extractable Vanadium (V)	ug/g	42	<5.0	5.0	4654375
Acid Extractable Zinc (Zn)	ug/g	120	130	5.0	4654375

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6I9080
Report Date: 2016/09/13

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: DUMPS

TEST SUMMARY

Maxxam ID: CZW677
Sample ID: EAST DUMP
Matrix: Soil

Collected: 2016/09/01
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655454	2016/09/10	2016/09/10	Barbara Wowk
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Acid Extractable Metals Analysis by ICP	ICP	4654379	2016/09/09	2016/09/12	Azita Fazaeli
Moisture	BAL	4653933	N/A	2016/09/09	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MS	4652068	N/A	2016/09/10	John Wu

Maxxam ID: CZW678
Sample ID: WEST DUMP
Matrix: Soil

Collected: 2016/09/01
Shipped:
Received: 2016/09/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4655454	2016/09/10	2016/09/10	Barbara Wowk
Strong Acid Leachable Metals by ICPMS	ICP/MS	4654375	2016/09/09	2016/09/12	Cristina Petran
Acid Extractable Metals Analysis by ICP	ICP	4654379	2016/09/09	2016/09/12	Azita Fazaeli
Moisture	BAL	4653933	N/A	2016/09/09	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MS	4652068	N/A	2016/09/10	John Wu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
Package 2	4.3°C
Package 3	4.0°C

Sample CZW677-01 : VOCF1 Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.

Sample CZW678-01 : F24 Analysis : Detection limits were adjusted for high moisture content .

VOCF1 Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.

Results relate only to the items tested.

Maxxam Job #: B6I9080
Report Date: 2016/09/13

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: DUMPS

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**% Recovery**	**QC Limits**	**Value**	**UNITS**	**Value (%)**	**QC Limits**
4652068	4-Bromofluorobenzene	2016/09/09	100	60 - 140	100	60 - 140	96	%		
4652068	D10-o-Xylene	2016/09/09	99	60 - 130	96	60 - 130	99	%		
4652068	D4-1,2-Dichloroethane	2016/09/09	99	60 - 140	99	60 - 140	97	%		
4652068	D8-Toluene	2016/09/09	101	60 - 140	102	60 - 140	98	%		
4655454	o-Terphenyl	2016/09/10	109	60 - 130	109	60 - 130	106	%		
4652068	Benzene	2016/09/09	88	60 - 140	93	60 - 130	<0.0060	ug/g	NC	50
4652068	Ethylbenzene	2016/09/09	92	60 - 140	98	60 - 130	<0.010	ug/g	NC	50
4652068	F1 (C6-C10) - BTEX	2016/09/09					<10	ug/g	NC	30
4652068	F1 (C6-C10)	2016/09/09	87	60 - 140	94	80 - 120	<10	ug/g	NC	30
4652068	o-Xylene	2016/09/09	92	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
4652068	p+m-Xylene	2016/09/09	88	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
4652068	Toluene	2016/09/09	89	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
4652068	Total Xylenes	2016/09/09					<0.020	ug/g	NC	50
4653933	Moisture	2016/09/09							2.5	20
4654375	Acid Extractable Antimony (Sb)	2016/09/13	79	75 - 125	104	80 - 120	<0.20	ug/g	22	30
4654375	Acid Extractable Arsenic (As)	2016/09/13	85	75 - 125	103	80 - 120	<1.0	ug/g	4.1	30
4654375	Acid Extractable Barium (Ba)	2016/09/13	NC	75 - 125	106	80 - 120	<0.50	ug/g	0.43	30
4654375	Acid Extractable Beryllium (Be)	2016/09/13	102	75 - 125	105	80 - 120	<0.20	ug/g	NC	30
4654375	Acid Extractable Cadmium (Cd)	2016/09/13	95	75 - 125	99	80 - 120	<0.10	ug/g	13	30
4654375	Acid Extractable Chromium (Cr)	2016/09/13	NC	75 - 125	105	80 - 120	<1.0	ug/g	7.0	30
4654375	Acid Extractable Cobalt (Co)	2016/09/13	NC	75 - 125	104	80 - 120	<0.10	ug/g	2.2	30
4654375	Acid Extractable Copper (Cu)	2016/09/13	NC	75 - 125	106	80 - 120	<0.50	ug/g	4.4	30
4654375	Acid Extractable Lead (Pb)	2016/09/13	NC	75 - 125	98	80 - 120	<1.0	ug/g	1.2	30
4654375	Acid Extractable Molybdenum (Mo)	2016/09/13	92	75 - 125	104	80 - 120	<0.50	ug/g	7.8	30
4654375	Acid Extractable Nickel (Ni)	2016/09/13	103	75 - 125	105	80 - 120	<0.50	ug/g	1.3	30
4654375	Acid Extractable Selenium (Se)	2016/09/13	79	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
4654375	Acid Extractable Silver (Ag)	2016/09/13	97	75 - 125	104	80 - 120	<0.20	ug/g	NC	30
4654375	Acid Extractable Thallium (Tl)	2016/09/13	89	75 - 125	95	80 - 120	<0.050	ug/g	NC	30
4654375	Acid Extractable Tin (Sn)	2016/09/13	98	75 - 125	100	80 - 120	<1.0	ug/g	23	30
4654375	Acid Extractable Uranium (U)	2016/09/13	95	75 - 125	99	80 - 120	<0.050	ug/g	1.5	30
4654375	Acid Extractable Vanadium (V)	2016/09/13	NC	75 - 125	103	80 - 120	<5.0	ug/g	2.3	30

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Maxxam Job #: B6I9080
Report Date: 2016/09/13

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: DUMPS

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4654375	Acid Extractable Zinc (Zn)	2016/09/13	NC	75 - 125	103	80 - 120	<5.0	ug/g	1.7	30
4654379	Acid Extractable Sulphur (S)	2016/09/12	NC	75 - 125	101	80 - 120	<50	ug/g	0.065	30
4655454	F2 (C10-C16 Hydrocarbons)	2016/09/10	109	50 - 130	105	80 - 120	<10	ug/g	NC	30
4655454	F3 (C16-C34 Hydrocarbons)	2016/09/10	108	50 - 130	106	80 - 120	<50	ug/g	NC	30
4655454	F4 (C34-C50 Hydrocarbons)	2016/09/10	109	50 - 130	107	80 - 120	<50	ug/g	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Maxxam Job #: B6I9080
Report Date: 2016/09/13

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Site Location: DUMPS

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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IMMEDIATE TEST

Maxxam
A Bureau Veritas Group Company

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/2

CHAIN OF CUSTODY RECORD 59253

Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: PST	Company Name:	Quotation #:	☒ Regular TAT (5-7 days) Most analyses
Contact Name: G Lake	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Regent St Sudbury	Address:	Project #: GV-TB-027105	Rush TAT (Surcharges will be applied) ☐ 1 Day ☐ 2 Days ☐ 3-4 Days
		Site Location: Dumps	
Phone: 7055610147 Fax:	Phone: Fax:	Site #:	
Email: glake@dstgroup.com	Email:	Sampled By: GL	Date Required:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Rush Confirmation #:

Regulation 153: ☒ Table 1 ☐ Res/Park ☐ Med/ Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/ Other ☐ Table ___ FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations: ☒ CCME ☐ Sanitary Sewer Bylaw ☐ MISA ☐ Storm Sewer Bylaw ☐ PWQO Region ___ ☐ Other (Specify) ☐ REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
N		5,2,2°C
N		5,3,5°C
N		6,3,3°C

COOLING MEDIA PRESENT: Y / N

Analysis Requested (REFER TO BACK OF COC)

#	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAH	TCLP (B(a)P, Benzene, metals)					HOLD- DO NOT ANALYZE	COMMENTS
1	East Dump	Sept 1/16	10:30	Soil			X	X			X			X						Wait for Confirmation on TCLP
2	West Dump	Sept 1/16	2:30	Soil			X	X			X			X						
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

02-Sep-16 16:20
Augustyna Dobosz
B6I9080
TSP ENV-1243

Received in Sudbury

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
G Lake	2016/09/02	16:15	Brady Frappier	2016/09/02	16:20	
				2016/09/03	10:30	

Refer to ACTR

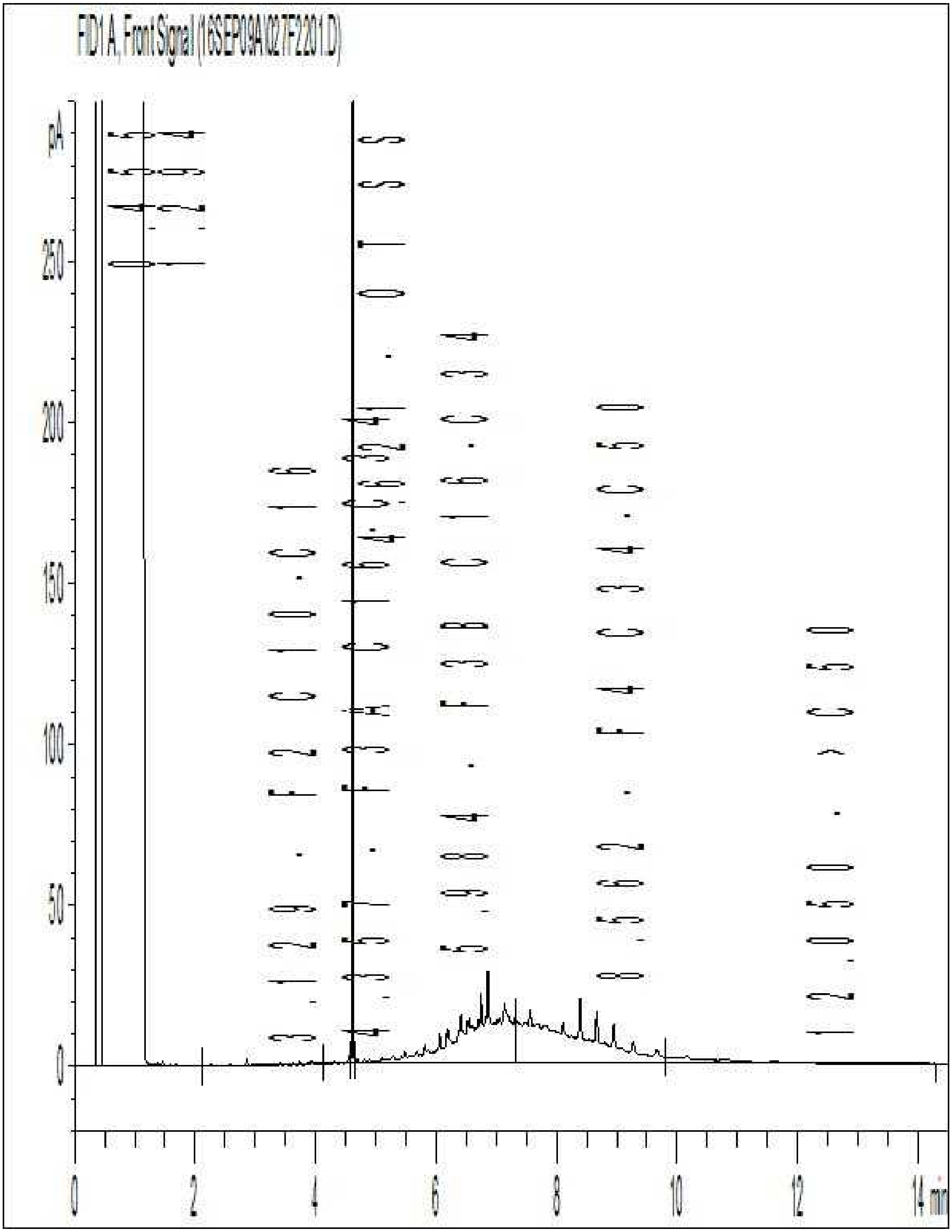
COC-1004 (10/14) - ENV. ENG.

White: Maxxam ~ Yellow: Client

Maxxam Job #: B6I9080
Report Date: 2016/09/13
Maxxam Sample: CZW677

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: DUMPS
Client ID: EAST DUMP

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

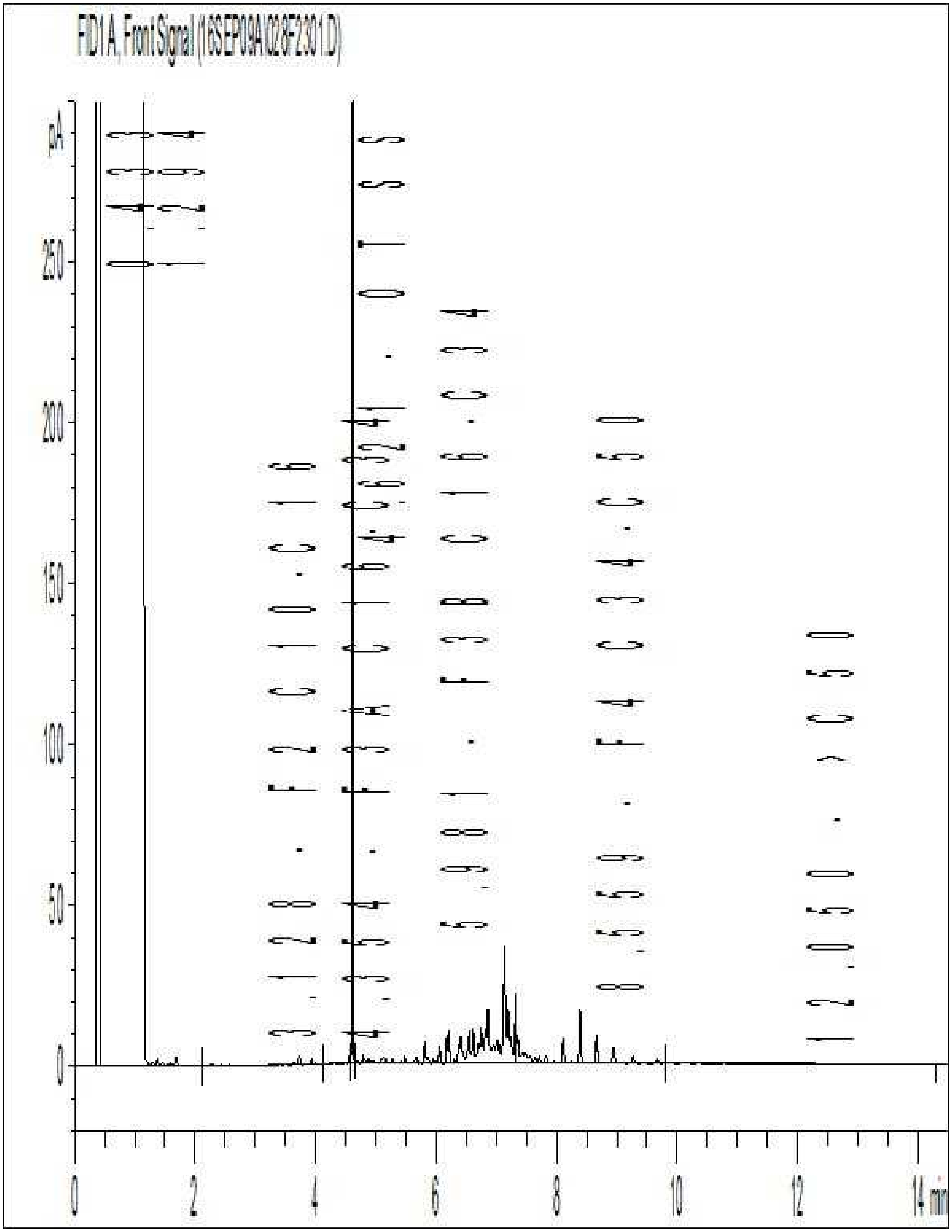


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6I9080
Report Date: 2016/09/13
Maxxam Sample: CZW678

DST Consulting Engineers Inc
Client Project #: GV-TB-027105
Project name: DUMPS
Client ID: WEST DUMP

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam
A Bureau Veritas Group Company

Your Project #: GV-TB-027107

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Your C.O.C. #: 581859-01-01, 581859-02-01, 581859-03-01, 581859-04-01, 581859-05-01, 581859-06-01

Report Date: 2016/10/28
Report #: R4227179
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6M4185
Received: 2016/10/17, 11:14

Sample Matrix: Soil
Samples Received: 48

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	4	N/A	2016/10/26	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	4	N/A	2016/10/25	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	4	2016/10/24	2016/10/25	CAM SOP-00316	CCME CWS m
Mercury (TCLP Leachable) (mg/L)	7	N/A	2016/10/27	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	34	2016/10/25	2016/10/25	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	13	2016/10/25	2016/10/26	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2016/10/26	2016/10/26	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	7	2016/10/26	2016/10/27	CAM SOP-00447	EPA 6020B m
Moisture	4	N/A	2016/10/24	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Leachate by GC/MS (SIM)	1	2016/10/27	2016/10/27	CAM SOP-00318	EPA 8270D m
PAH Compounds in Leachate by GC/MS (SIM)	6	2016/10/27	2016/10/28	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	4	2016/10/25	2016/10/26	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	47	2016/10/25	2016/10/25	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	1	2016/10/26	2016/10/26	CAM SOP-00413	EPA 9045 D m
TCLP - % Solids	7	2016/10/25	2016/10/26	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	7	N/A	2016/10/26	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	7	N/A	2016/10/26	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	7	2016/10/25	2016/10/26	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	7	2016/10/26	2016/10/26	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported:

Your Project #: GV-TB-027107

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Your C.O.C. #: 581859-01-01, 581859-02-01, 581859-03-01, 581859-04-01, 581859-05-01, 581859-06-01

Report Date: 2016/10/28
Report #: R4227179
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6M4185
Received: 2016/10/17, 11:14
unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Augustyna Dobosz, Project Manager
Email: ADobosz@maxxam.ca
Phone# (905)817-5700 Ext:5798
==
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP151	DGP151		DGP152	DGP153	DGP153		
Sampling Date		2016/10/13 09:00	2016/10/13 09:00		2016/10/12 16:00	2016/10/13 09:10	2016/10/13 09:10		
COC Number		581859-01-01	581859-01-01		581859-01-01	581859-01-01	581859-01-01		
	UNITS	**CS1-26**	**CS1-26 Lab-Dup**	**QC Batch**	**CS1-27**	**CS1-28**	**CS1-28 Lab-Dup**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.41	0.47	4716498	2.5	2.9	2.6	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	7.3	7.2	4716498	4.3	13	12	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	240	230	4716498	140	170	170	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	0.57	0.56	4716498	0.59	1.0	1.0	0.20	4716460
Acid Extractable Boron (B)	ug/g	6.8	6.9	4716498	5.1	<5.0	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	1.1	1.2	4716498	0.56	1.3	1.4	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	42	40	4716498	110	18	19	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	14	14	4716498	31	11	11	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	88	89	4716498	70	68	74	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	130	130	4716498	680	950	930	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.4	1.6	4716498	0.89	2.7	2.8	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	29	29	4716498	91	25	24	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	1.3	1.4	4716498	0.56	4.7	4.6	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	0.27	0.30	4716498	<0.20	0.27	0.29	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.094	0.084	4716498	0.11	0.35	0.33	0.050	4716460
Acid Extractable Uranium (U)	ug/g	1.9	1.9	4716498	0.41	0.84	0.86	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	55	53	4716498	79	31	30	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	230	230	4716498	290	540	530	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP154		DGP155		DGP156		
Sampling Date		2016/10/13 09:15		2016/10/13 09:20		2016/10/13 09:30		
COC Number		581859-01-01		581859-01-01		581859-01-01		
	UNITS	**CS1-29**	**QC Batch**	**CS1-30**	**QC Batch**	**CS1-31**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.57	4716460	3.7	4716498	0.45	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	2.9	4716460	4.8	4716498	4.9	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	22	4716460	140	4716498	140	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716460	<0.20	4716498	<0.20	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	4716460	5.7	4716498	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.35	4716460	0.78	4716498	1.6	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	2.7	4716460	27	4716498	24	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	0.68	4716460	17	4716498	5.4	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	6.8	4716460	30	4716498	49	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	59	4716460	570	4716498	160	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	0.65	4716460	0.74	4716498	1.2	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	2.8	4716460	36	4716498	19	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	0.68	4716460	0.76	4716498	1.0	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	4716460	<0.20	4716498	0.32	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	4716460	0.22	4716498	0.078	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.10	4716460	0.20	4716498	0.39	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	<5.0	4716460	59	4716498	41	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	12	4716460	150	4716498	120	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP157		DGP158		DGP159		
Sampling Date		2016/10/13 09:40		2016/10/13 09:50		2016/10/13 10:00		
COC Number		581859-01-01		581859-01-01		581859-01-01		
	UNITS	**CS1-32**	**QC Batch**	**CS1-33**	**QC Batch**	**CS1-34**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.47	4716498	0.39	4716460	0.56	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	7.4	4716498	5.3	4716460	9.2	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	270	4716498	57	4716460	170	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716498	<0.20	4716460	0.32	0.20	4716588
Acid Extractable Boron (B)	ug/g	5.6	4716498	<5.0	4716460	7.2	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	1.2	4716498	0.74	4716460	1.8	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	12	4716498	7.2	4716460	12	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	6.1	4716498	2.1	4716460	3.3	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	85	4716498	22	4716460	150	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	130	4716498	56	4716460	47	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	1.3	4716498	1.1	4716460	1.2	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	14	4716498	7.7	4716460	28	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	0.73	4716498	1.4	4716460	1.8	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	0.21	4716498	<0.20	4716460	0.35	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	0.090	4716498	0.060	4716460	0.088	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.24	4716498	0.80	4716460	1.1	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	15	4716498	6.2	4716460	8.5	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	280	4716498	31	4716460	94	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP160	DGP199	DGP200		DGP201	DGP201		
Sampling Date		2016/10/13 10:10	2016/10/13 10:20	2016/10/13 10:25		2016/10/13 10:30	2016/10/13 10:30		
COC Number		581859-01-01	581859-02-01	581859-02-01		581859-02-01	581859-02-01		
	UNITS	**CS1-35**	**CS1-36**	**CS1-37**	**QC Batch**	**CS1-38**	**CS1-38 Lab-Dup**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.51	0.54	4716498	<0.20	<0.20	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	2.2	4.6	4.7	4716498	2.4	2.5	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	81	190	120	4716498	48	45	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	0.33	<0.20	<0.20	4716498	0.28	0.26	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	4716498	<5.0	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.20	0.53	0.52	4716498	0.19	0.18	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	92	4.9	3.6	4716498	62	60	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	46	1.1	0.85	4716498	41	41	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	54	12	8.1	4716498	41	39	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	14	44	56	4716498	14	14	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	1.3	1.0	4716498	0.51	0.54	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	130	4.1	3.0	4716498	100	100	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	<0.50	1.4	0.97	4716498	<0.50	<0.50	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	4716498	<0.20	<0.20	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.055	0.075	4716498	<0.050	<0.050	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.11	0.36	0.19	4716498	0.17	0.16	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	160	5.8	5.1	4716498	160	150	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	100	34	20	4716498	67	65	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP202	DGP203	DGP204		DGP205		
Sampling Date		2016/10/13 10:40	2016/10/13 10:50	2016/10/13 11:00		2016/10/13 11:10		
COC Number		581859-02-01	581859-02-01	581859-02-01		581859-02-01		
	UNITS	**CS1-39**	**CS1-40**	**CS1-41**	**QC Batch**	**CS1-42**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.50	0.44	<0.20	4716498	0.62	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	8.1	7.5	1.5	4716498	2.7	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	130	180	40	4716498	120	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	0.46	0.31	<0.20	4716498	<0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	<5.0	7.8	<5.0	4716498	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	1.0	1.5	0.22	4716498	0.74	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	51	31	18	4716498	13	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	7.8	12	3.5	4716498	2.5	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	51	150	13	4716498	24	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	83	83	14	4716498	110	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.9	1.3	<0.50	4716498	1.0	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	24	47	9.3	4716498	10	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	1.1	1.4	<0.50	4716498	0.99	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	0.22	0.27	<0.20	4716498	<0.20	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.068	0.086	0.051	4716498	0.12	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.49	2.4	0.50	4716498	0.31	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	39	38	18	4716498	14	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	96	190	35	4716498	270	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP206		DGP207	DGP208		DGP245		
Sampling Date		2016/10/13 11:20		2016/10/13 11:30	2016/10/12 16:10		2016/10/13 16:20		
COC Number		581859-02-01		581859-02-01	581859-02-01		581859-03-01		
	UNITS	**CS1-43**	**QC Batch**	**CS1-44**	**CS1-45**	**QC Batch**	**CS1-46**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	1.1	4716588	0.96	0.43	4716498	0.46	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	3.1	4716588	5.6	2.0	4716498	4.2	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	97	4716588	230	110	4716498	170	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716588	0.24	<0.20	4716498	0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	6.6	4716588	5.1	<5.0	4716498	13	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	0.59	4716588	9.4	0.24	4716498	1.5	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	7.4	4716588	18	5.6	4716498	32	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	1.2	4716588	3.8	1.3	4716498	12	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	18	4716588	41	17	4716498	62	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	100	4716588	140	29	4716498	170	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.0	4716588	1.1	0.63	4716498	1.3	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	5.0	4716588	15	9.0	4716498	30	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	1.0	4716588	1.0	0.89	4716498	0.97	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	<0.20	4716588	<0.20	<0.20	4716498	0.33	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.054	4716588	0.10	<0.050	4716498	0.084	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.19	4716588	0.43	0.28	4716498	0.62	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	6.7	4716588	20	<5.0	4716498	39	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	120	4716588	190	13	4716498	210	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP246		DGP247		DGP248	DGP249		
Sampling Date		2016/10/13 08:50		2016/10/12 13:00		2016/10/12 13:10	2016/10/12 13:20		
COC Number		581859-03-01		581859-03-01		581859-03-01	581859-03-01		
	UNITS	**CS2-12**	**QC Batch**	**CS2-13**	**QC Batch**	**CS2-14**	**CS2-15**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.60	4716588	0.24	4716498	0.53	0.46	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	8.3	4716588	1.7	4716498	5.7	17	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	100	4716588	27	4716498	70	68	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	0.31	4716588	<0.20	4716498	<0.20	<0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	<5.0	4716588	6.0	4716498	<5.0	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	0.83	4716588	0.60	4716498	0.67	0.38	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	31	4716588	2.7	4716498	7.3	43	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	12	4716588	4.0	4716498	3.3	8.7	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	53	4716588	24	4716498	21	13	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	120	4716588	61	4716498	60	34	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.0	4716588	0.55	4716498	0.79	3.7	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	23	4716588	3.3	4716498	10	20	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	0.86	4716588	0.69	4716498	1.1	0.82	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	0.30	4716588	<0.20	4716498	1.3	0.23	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.082	4716588	<0.050	4716498	0.067	0.10	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.31	4716588	0.18	4716498	0.25	0.36	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	44	4716588	9.7	4716498	16	160	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	180	4716588	170	4716498	87	110	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP250	DGP278		DGP279		DGP280		
Sampling Date		2016/10/12 13:30	2016/10/12 13:50		2016/10/12 14:00		2016/10/12 14:20		
COC Number		581859-03-01	581859-04-01		581859-04-01		581859-04-01		
	UNITS	**CS2-16**	**CS2-17**	**QC Batch**	**CS2-18**	**QC Batch**	**CS2-19**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.31	0.31	4716498	0.30	4716588	0.21	0.20	4716498
Acid Extractable Arsenic (As)	ug/g	9.2	4.1	4716498	4.9	4716588	1.8	1.0	4716498
Acid Extractable Barium (Ba)	ug/g	87	51	4716498	73	4716588	32	0.50	4716498
Acid Extractable Beryllium (Be)	ug/g	0.51	0.34	4716498	<0.20	4716588	<0.20	0.20	4716498
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	4716498	<5.0	4716588	5.2	5.0	4716498
Acid Extractable Cadmium (Cd)	ug/g	0.69	0.28	4716498	1.1	4716588	0.81	0.10	4716498
Acid Extractable Chromium (Cr)	ug/g	61	58	4716498	8.4	4716588	11	1.0	4716498
Acid Extractable Cobalt (Co)	ug/g	17	19	4716498	6.3	4716588	1.8	0.10	4716498
Acid Extractable Copper (Cu)	ug/g	27	48	4716498	55	4716588	22	0.50	4716498
Acid Extractable Lead (Pb)	ug/g	19	170	4716498	61	4716588	17	1.0	4716498
Acid Extractable Molybdenum (Mo)	ug/g	4.8	1.3	4716498	1.0	4716588	1.9	0.50	4716498
Acid Extractable Nickel (Ni)	ug/g	24	62	4716498	9.4	4716588	8.5	0.50	4716498
Acid Extractable Selenium (Se)	ug/g	1.6	0.72	4716498	0.90	4716588	1.2	0.50	4716498
Acid Extractable Silver (Ag)	ug/g	1.1	<0.20	4716498	<0.20	4716588	<0.20	0.20	4716498
Acid Extractable Thallium (Tl)	ug/g	0.081	0.081	4716498	<0.050	4716588	<0.050	0.050	4716498
Acid Extractable Uranium (U)	ug/g	0.76	0.38	4716498	0.50	4716588	0.11	0.050	4716498
Acid Extractable Vanadium (V)	ug/g	130	210	4716498	51	4716588	6.2	5.0	4716498
Acid Extractable Zinc (Zn)	ug/g	140	170	4716498	98	4716588	160	5.0	4716498

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP281		DGP282		DGP283		
Sampling Date		2016/10/13 13:10		2016/10/12 10:00		2016/10/12 10:10		
COC Number		581859-04-01		581859-04-01		581859-04-01		
	UNITS	**CS2-20**	**QC Batch**	**CS3-11**	**QC Batch**	**CS3-12**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.44	4716498	0.69	4716460	<0.20	0.20	4716498
Acid Extractable Arsenic (As)	ug/g	2.6	4716498	4.3	4716460	4.6	1.0	4716498
Acid Extractable Barium (Ba)	ug/g	110	4716498	51	4716460	27	0.50	4716498
Acid Extractable Beryllium (Be)	ug/g	0.22	4716498	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Boron (B)	ug/g	<5.0	4716498	<5.0	4716460	<5.0	5.0	4716498
Acid Extractable Cadmium (Cd)	ug/g	0.76	4716498	0.24	4716460	0.23	0.10	4716498
Acid Extractable Chromium (Cr)	ug/g	7.7	4716498	15	4716460	17	1.0	4716498
Acid Extractable Cobalt (Co)	ug/g	8.7	4716498	6.2	4716460	10	0.10	4716498
Acid Extractable Copper (Cu)	ug/g	47	4716498	15	4716460	12	0.50	4716498
Acid Extractable Lead (Pb)	ug/g	1000	4716498	130	4716460	25	1.0	4716498
Acid Extractable Molybdenum (Mo)	ug/g	1.9	4716498	<0.50	4716460	<0.50	0.50	4716498
Acid Extractable Nickel (Ni)	ug/g	5.1	4716498	16	4716460	15	0.50	4716498
Acid Extractable Selenium (Se)	ug/g	0.57	4716498	<0.50	4716460	<0.50	0.50	4716498
Acid Extractable Silver (Ag)	ug/g	<0.20	4716498	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Thallium (Tl)	ug/g	0.17	4716498	<0.050	4716460	<0.050	0.050	4716498
Acid Extractable Uranium (U)	ug/g	0.51	4716498	0.12	4716460	0.13	0.050	4716498
Acid Extractable Vanadium (V)	ug/g	110	4716498	13	4716460	13	5.0	4716498
Acid Extractable Zinc (Zn)	ug/g	300	4716498	100	4716460	61	5.0	4716498

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP284	DGP285		DGP286		DGP287		
Sampling Date		2016/10/12 10:20	2016/10/12 10:30		2016/10/12 10:40		2016/10/12 10:50		
COC Number		581859-04-01	581859-04-01		581859-04-01		581859-04-01		
	UNITS	**CS3-13**	**CS3-14**	**QC Batch**	**CS3-15**	**QC Batch**	**CS3-16**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.54	0.58	4716588	1.7	4718485	2.6	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	12	3.7	4716588	9.1	4718485	36	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	220	51	4716588	95	4718485	520	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	0.37	0.28	4716588	0.44	4718485	2.1	0.20	4716588
Acid Extractable Boron (B)	ug/g	6.5	13	4716588	<5.0	4718485	9.5	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	1.7	0.89	4716588	1.9	4718485	1.8	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	32	16	4716588	32	4718485	29	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	16	7.0	4716588	20	4718485	18	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	130	140	4716588	88	4718485	200	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	110	200	4716588	240	4718485	1800	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	2.3	0.60	4716588	0.90	4718485	3.3	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	22	20	4716588	31	4718485	31	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	1.9	1.7	4716588	1.6	4718485	1.5	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	0.24	0.48	4716588	0.67	4718485	0.76	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	0.099	0.085	4716588	0.094	4718485	0.52	0.050	4716588
Acid Extractable Uranium (U)	ug/g	4.4	1.5	4716588	0.98	4718485	0.89	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	25	9.7	4716588	24	4718485	30	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	260	150	4716588	230	4718485	970	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP288	DGP289		DGP290	DGP291	DGP292		
Sampling Date		2016/10/12 11:10	2016/10/12 11:20		2016/10/12 11:30	2016/10/12 11:40	2016/10/12 11:50		
COC Number		581859-05-01	581859-05-01		581859-05-01	581859-05-01	581859-05-01		
	UNITS	**CS3-17**	**CS3-18**	**QC Batch**	**CS3-19**	**CS3-20**	**CS3-21**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.26	0.24	4716498	<0.20	0.64	0.48	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	4.2	28	4716498	5.4	3.1	20	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	85	53	4716498	20	36	76	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.42	4716498	<0.20	<0.20	0.25	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	4716498	<5.0	<5.0	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.55	0.71	4716498	0.27	0.36	1.4	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	19	350	4716498	18	18	16	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	3.1	17	4716498	9.7	9.0	9.9	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	24	26	4716498	25	27	47	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	25	160	4716498	18	150	45	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	0.87	<0.50	4716498	<0.50	0.59	1.9	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	9.6	170	4716498	22	19	29	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	0.79	1.0	4716498	<0.50	<0.50	0.85	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	0.25	4716498	<0.20	<0.20	0.67	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.075	4716498	<0.050	<0.050	0.12	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.36	0.36	4716498	0.093	0.23	0.43	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	12	38	4716498	13	11	23	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	56	52	4716498	77	99	130	5.0	4716588

RDL = Reportable Detection Limit
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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP293		DGP302		DGP303		
Sampling Date		2016/10/12 12:00		2016/10/12 14:30		2016/10/13 13:40		
COC Number		581859-05-01		581859-06-01		581859-06-01		
	UNITS	**CS3-22**	**QC Batch**	**CS2-21**	**QC Batch**	**CS2-22**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.60	4716588	0.23	4716460	0.26	0.20	4716498
Acid Extractable Arsenic (As)	ug/g	6.5	4716588	2.9	4716460	4.5	1.0	4716498
Acid Extractable Barium (Ba)	ug/g	37	4716588	84	4716460	46	0.50	4716498
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716588	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Boron (B)	ug/g	<5.0	4716588	<5.0	4716460	<5.0	5.0	4716498
Acid Extractable Cadmium (Cd)	ug/g	0.90	4716588	0.62	4716460	0.14	0.10	4716498
Acid Extractable Chromium (Cr)	ug/g	19	4716588	9.9	4716460	23	1.0	4716498
Acid Extractable Cobalt (Co)	ug/g	16	4716588	5.4	4716460	8.5	0.10	4716498
Acid Extractable Copper (Cu)	ug/g	78	4716588	23	4716460	31	0.50	4716498
Acid Extractable Lead (Pb)	ug/g	31	4716588	320	4716460	180	1.0	4716498
Acid Extractable Molybdenum (Mo)	ug/g	0.52	4716588	1.7	4716460	2.3	0.50	4716498
Acid Extractable Nickel (Ni)	ug/g	14	4716588	6.4	4716460	19	0.50	4716498
Acid Extractable Selenium (Se)	ug/g	<0.50	4716588	0.84	4716460	<0.50	0.50	4716498
Acid Extractable Silver (Ag)	ug/g	<0.20	4716588	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Thallium (Tl)	ug/g	<0.050	4716588	0.12	4716460	0.077	0.050	4716498
Acid Extractable Uranium (U)	ug/g	0.19	4716588	0.72	4716460	0.35	0.050	4716498
Acid Extractable Vanadium (V)	ug/g	16	4716588	64	4716460	170	5.0	4716498
Acid Extractable Zinc (Zn)	ug/g	340	4716588	120	4716460	82	5.0	4716498

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP304		DGP305		DGP306		
Sampling Date		2016/10/12 10:00		2016/10/13 13:10		2016/10/12 11:40		
COC Number		581859-06-01		581859-06-01		581859-06-01		
	UNITS	**CS3-110**	**QC Batch**	**CS2-200**	**QC Batch**	**CS3-200**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	1.2	4716588	0.38	4716460	0.41	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	2.9	4716588	2.5	4716460	3.2	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	53	4716588	86	4716460	31	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716588	0.24	4716460	<0.20	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	4716588	<5.0	4716460	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.19	4716588	0.76	4716460	0.30	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	14	4716588	6.8	4716460	18	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	5.3	4716588	10	4716460	9.2	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	13	4716588	45	4716460	35	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	150	4716588	560	4716460	150	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	4716588	1.8	4716460	<0.50	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	13	4716588	5.5	4716460	19	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	<0.50	4716588	0.69	4716460	<0.50	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	4716588	<0.20	4716460	<0.20	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	4716588	0.16	4716460	<0.050	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.13	4716588	0.57	4716460	0.13	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	11	4716588	110	4716460	12	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	100	4716588	280	4716460	100	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP307		
Sampling Date		2016/10/13 11:00		
COC Number		581859-06-01		
	UNITS	**CS1-410**	**RDL**	**QC Batch**
Metals				
Acid Extractable Antimony (Sb)	ug/g	0.22	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	1.7	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	40	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	0.14	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	18	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	3.6	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	12	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	13	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	10	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.73	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	20	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	36	5.0	4716460
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

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Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 PAHS (SOIL)

Maxxam ID		DGP160		DGP199			DGP200		DGP201		
Sampling Date		2016/10/13 10:10		2016/10/13 10:20			2016/10/13 10:25		2016/10/13 10:30		
COC Number		581859-01-01		581859-02-01			581859-02-01		581859-02-01		
	UNITS	**CS1-35**	**RDL**	**CS1-36**	**RDL**	**QC Batch**	**CS1-37**	**RDL**	**CS1-38**	**RDL**	**QC Batch**
Inorganics											
Moisture	%	17	1.0	59	1.0	4715914	70	1.0	23	1.0	4715297
Calculated Parameters											
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	<0.014	0.014	4714848	<0.021	0.021	<0.0071	0.0071	4714848
Polyaromatic Hydrocarbons											
Acenaphthene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Acenaphthylene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Anthracene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(a)anthracene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(a)pyrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	0.040	0.015	<0.0050	0.0050	4717063
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Chrysene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	0.021	0.015	<0.0050	0.0050	4717063
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Fluoranthene	ug/g	<0.0050	0.0050	0.012	0.010	4717063	0.027	0.015	<0.0050	0.0050	4717063
Fluorene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
1-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
2-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Naphthalene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Phenanthrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Pyrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	0.021	0.015	0.0065	0.0050	4717063
Surrogate Recovery (%)											
D10-Anthracene	%	85		78		4717063	75		88		4717063
D14-Terphenyl (FS)	%	82		83		4717063	81		87		4717063
D8-Acenaphthylene	%	79		78		4717063	76		82		4717063

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		DGP160		DGP199		DGP200		DGP201		
Sampling Date		2016/10/13 10:10		2016/10/13 10:20		2016/10/13 10:25		2016/10/13 10:30		
COC Number		581859-01-01		581859-02-01		581859-02-01		581859-02-01		
	UNITS	**CS1-35**	**RDL**	**CS1-36**	**RDL**	**CS1-37**	**RDL**	**CS1-38**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
Toluene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
Ethylbenzene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
o-Xylene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
p+m-Xylene	ug/g	<0.080	0.080	<0.20	0.20	<0.40	0.40	<0.040	0.040	4715933
Total Xylenes	ug/g	<0.080	0.080	<0.20	0.20	<0.40	0.40	<0.040	0.040	4715933
F1 (C6-C10)	ug/g	44	20	<50	50	<100	100	<10	10	4715933
F1 (C6-C10) - BTEX	ug/g	44	20	<50	50	<100	100	<10	10	4715933
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	<20	20	<30	30	<10	10	4716027
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	150	100	160	150	<50	50	4716027
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	<100	100	<150	150	<50	50	4716027
Reached Baseline at C50	ug/g	Yes		Yes		Yes		Yes		4716027
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	112		111		112		113		4715933
4-Bromofluorobenzene	%	96		93		93		97		4715933
D10-Ethylbenzene	%	94		92		98		103		4715933
D4-1,2-Dichloroethane	%	95		94		95		96		4715933
o-Terphenyl	%	98		96		96		93		4716027

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 558 TCLP BENZO(A)PYRENE

Maxxam ID		DGP152	DGP152	DGP157	DGP205	DGP245	DGP281		
Sampling Date		2016/10/12 16:00	2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10		
COC Number		581859-01-01	581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01		
	UNITS	**CS1-27**	**CS1-27 Lab-Dup**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons									
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4720772
Surrogate Recovery (%)									
Leachable D10-Anthracene	%	104	105	94	103	95	107		4720772
Leachable D14-Terphenyl (FS)	%	101	98	69	81	79	96		4720772
Leachable D8-Acenaphthylene	%	86	89	88	89	87	89		4720772

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		DGP302	DGP305		
Sampling Date		2016/10/12 14:30	2016/10/13 13:10		
COC Number		581859-06-01	581859-06-01		
	UNITS	**CS2-21**	**CS2-200**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons					
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	0.10	4720772
Surrogate Recovery (%)					
Leachable D10-Anthracene	%	102	108		4720772
Leachable D14-Terphenyl (FS)	%	94	95		4720772
Leachable D8-Acenaphthylene	%	89	90		4720772

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 558 TCLP BENZENE (SOIL)

Maxxam ID		DGP152	DGP157	DGP205	DGP245	DGP281		
Sampling Date		2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10		
COC Number		581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01		
	UNITS	**CS1-27**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**RDL**	**QC Batch**
Charge/Prep Analysis								
Amount Extracted (Wet Weight) (g)	N/A	25	25	25	25	25	N/A	4716626
Volatile Organics								
Leachable Benzene	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4715261
Surrogate Recovery (%)								
Leachable 4-Bromofluorobenzene	%	97	97	96	99	98		4715261
Leachable D4-1,2-Dichloroethane	%	101	100	103	104	102		4715261
Leachable D8-Toluene	%	99	99	100	98	97		4715261

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		DGP302	DGP305		
Sampling Date		2016/10/12 14:30	2016/10/13 13:10		
COC Number		581859-06-01	581859-06-01		
	UNITS	**CS2-21**	**CS2-200**	**RDL**	**QC Batch**
Charge/Prep Analysis					
Amount Extracted (Wet Weight) (g)	N/A	25	25	N/A	4716626
Volatile Organics					
Leachable Benzene	mg/L	<0.020	<0.020	0.020	4715261
Surrogate Recovery (%)					
Leachable 4-Bromofluorobenzene	%	98	100		4715261
Leachable D4-1,2-Dichloroethane	%	107	103		4715261
Leachable D8-Toluene	%	97	99		4715261

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		DGP152	DGP157	DGP205	DGP245	DGP281	DGP302		
Sampling Date		2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10	2016/10/12 14:30		
COC Number		581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01	581859-06-01		
	UNITS	**CS1-27**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**CS2-21**	**RDL**	**QC Batch**
Inorganics									
Final pH	pH	5.21	4.98	4.93	4.96	4.91	4.89		4717866
Initial pH	pH	8.27	5.47	5.16	6.08	5.48	5.09		4717866
TCLP - % Solids	%	100	100	100	100	100	100	0.2	4717858
TCLP Extraction Fluid	N/A	FLUID 1	FLUID 1	FLUID 1	FLUID 1	FLUID 1	FLUID 1		4717865

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DGP305		
Sampling Date		2016/10/13 13:10		
COC Number		581859-06-01		
	UNITS	**CS2-200**	**RDL**	**QC Batch**
Inorganics				
Final pH	pH	4.90		4717866
Initial pH	pH	5.63		4717866
TCLP - % Solids	%	100	0.2	4717858
TCLP Extraction Fluid	N/A	FLUID 1		4717865

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 558 TCLP METALS (SOIL)

Maxxam ID		DGP152	DGP157	DGP205	DGP245	DGP281	DGP302		
Sampling Date		2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10	2016/10/12 14:30		
COC Number		581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01	581859-06-01		
	UNITS	**CS1-27**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**CS2-21**	**RDL**	**QC Batch**
Metals									
Leachable Mercury (Hg)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	4720302
Leachable Arsenic (As)	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	4718914
Leachable Barium (Ba)	mg/L	0.6	0.5	0.3	0.3	0.2	0.3	0.2	4718914
Leachable Boron (B)	mg/L	0.2	0.2	0.2	0.3	0.2	<0.1	0.1	4718914
Leachable Cadmium (Cd)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4718914
Leachable Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4718914
Leachable Lead (Pb)	mg/L	0.3	<0.1	<0.1	<0.1	0.3	0.1	0.1	4718914
Leachable Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4718914
Leachable Silver (Ag)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	4718914
Leachable Uranium (U)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	4718914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DGP305		
Sampling Date		2016/10/13 13:10		
COC Number		581859-06-01		
	UNITS	**CS2-200**	**RDL**	**QC Batch**
Metals				
Leachable Mercury (Hg)	mg/L	<0.0010	0.0010	4720302
Leachable Arsenic (As)	mg/L	<0.2	0.2	4718914
Leachable Barium (Ba)	mg/L	<0.2	0.2	4718914
Leachable Boron (B)	mg/L	<0.1	0.1	4718914
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	4718914
Leachable Chromium (Cr)	mg/L	<0.1	0.1	4718914
Leachable Lead (Pb)	mg/L	0.1	0.1	4718914
Leachable Selenium (Se)	mg/L	<0.1	0.1	4718914
Leachable Silver (Ag)	mg/L	<0.01	0.01	4718914
Leachable Uranium (U)	mg/L	<0.01	0.01	4718914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP151	DGP152	DGP152	DGP153		DGP154	DGP155	
Sampling Date		2016/10/13 09:00	2016/10/12 16:00	2016/10/12 16:00	2016/10/13 09:10		2016/10/13 09:15	2016/10/13 09:20	
COC Number		581859-01-01	581859-01-01	581859-01-01	581859-01-01		581859-01-01	581859-01-01	
	UNITS	**CS1-26**	**CS1-27**	**CS1-27 Lab-Dup**	**CS1-28**	**QC Batch**	**CS1-29**	**CS1-30**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	5.99	7.14	7.18	5.63	4715433	3.39	4.90	4715437

QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		DGP156	DGP157		DGP158	DGP159	DGP160	
Sampling Date		2016/10/13 09:30	2016/10/13 09:40		2016/10/13 09:50	2016/10/13 10:00	2016/10/13 10:10	
COC Number		581859-01-01	581859-01-01		581859-01-01	581859-01-01	581859-01-01	
	UNITS	**CS1-31**	**CS1-32**	**QC Batch**	**CS1-33**	**CS1-34**	**CS1-35**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	3.40	4.44	4715437	3.26	5.39	4.93	4715433

QC Batch = Quality Control Batch

Maxxam ID		DGP199	DGP200	DGP201	DGP202		DGP203	DGP204	
Sampling Date		2016/10/13 10:20	2016/10/13 10:25	2016/10/13 10:30	2016/10/13 10:40		2016/10/13 10:50	2016/10/13 11:00	
COC Number		581859-02-01	581859-02-01	581859-02-01	581859-02-01		581859-02-01	581859-02-01	
	UNITS	**CS1-36**	**CS1-37**	**CS1-38**	**CS1-39**	**QC Batch**	**CS1-40**	**CS1-41**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.26	3.31	5.35	4.08	4715437	6.30	6.91	4715433

QC Batch = Quality Control Batch

Maxxam ID		DGP205		DGP206		DGP207	DGP207	DGP208	
Sampling Date		2016/10/13 11:10		2016/10/13 11:20		2016/10/13 11:30	2016/10/13 11:30	2016/10/12 16:10	
COC Number		581859-02-01		581859-02-01		581859-02-01	581859-02-01	581859-02-01	
	UNITS	**CS1-42**	**QC Batch**	**CS1-43**	**QC Batch**	**CS1-44**	**CS1-44 Lab-Dup**	**CS1-45**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.81	4718486	3.85	4716478	3.93	3.93	4.79	4715437

QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP245		DGP246		DGP247		DGP248	
Sampling Date		2016/10/13 16:20		2016/10/13 08:50		2016/10/12 13:00		2016/10/12 13:10	
COC Number		581859-03-01		581859-03-01		581859-03-01		581859-03-01	
	UNITS	**CS1-46**	**QC Batch**	**CS2-12**	**QC Batch**	**CS2-13**	**QC Batch**	**CS2-14**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	5.49	4716478	4.75	4715437	4.55	4715433	3.30	4716478
QC Batch = Quality Control Batch									

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP249		DGP250		DGP278	DGP279	
Sampling Date		2016/10/12 13:20		2016/10/12 13:30		2016/10/12 13:50	2016/10/12 14:00	
COC Number		581859-03-01		581859-03-01		581859-04-01	581859-04-01	
	UNITS	**CS2-15**	**QC Batch**	**CS2-16**	**QC Batch**	**CS2-17**	**CS2-18**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	3.82	4715433	4.58	4715437	4.65	2.99	4715433
QC Batch = Quality Control Batch								

Maxxam ID		DGP280		DGP281		DGP282	DGP283	
Sampling Date		2016/10/12 14:20		2016/10/13 13:10		2016/10/12 10:00	2016/10/12 10:10	
COC Number		581859-04-01		581859-04-01		581859-04-01	581859-04-01	
	UNITS	**CS2-19**	**QC Batch**	**CS2-20**	**QC Batch**	**CS3-11**	**CS3-12**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	5.40	4715437	4.07	4716478	5.86	4.70	4715437
QC Batch = Quality Control Batch								

Maxxam ID		DGP284		DGP285		DGP286		DGP287	
Sampling Date		2016/10/12 10:20		2016/10/12 10:30		2016/10/12 10:40		2016/10/12 10:50	
COC Number		581859-04-01		581859-04-01		581859-04-01		581859-04-01	
	UNITS	**CS3-13**	**QC Batch**	**CS3-14**	**QC Batch**	**CS3-15**	**QC Batch**	**CS3-16**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	4.83	4715433	6.64	4715437	4.83	4716478	4.71	4715437
QC Batch = Quality Control Batch									

Maxxam ID		DGP288	DGP289		DGP290	DGP291	DGP292	DGP293	
Sampling Date		2016/10/12 11:10	2016/10/12 11:20		2016/10/12 11:30	2016/10/12 11:40	2016/10/12 11:50	2016/10/12 12:00	
COC Number		581859-05-01	581859-05-01		581859-05-01	581859-05-01	581859-05-01	581859-05-01	
	UNITS	**CS3-17**	**CS3-18**	**QC Batch**	**CS3-19**	**CS3-20**	**CS3-21**	**CS3-22**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.64	5.00	4715437	6.15	6.33	3.34	4.66	4715433
QC Batch = Quality Control Batch									

Maxxam ID		DGP302		DGP303		DGP304		DGP305	
Sampling Date		2016/10/12 14:30		2016/10/13 13:40		2016/10/12 10:00		2016/10/13 13:10	
COC Number		581859-06-01		581859-06-01		581859-06-01		581859-06-01	
	UNITS	**CS2-21**	**QC Batch**	**CS2-22**	**QC Batch**	**CS3-110**	**QC Batch**	**CS2-200**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.83	4716478	4.17	4715437	5.73	4715433	3.90	4716478
QC Batch = Quality Control Batch									

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RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP306	DGP307	
Sampling Date		2016/10/12 11:40	2016/10/13 11:00	
COC Number		581859-06-01	581859-06-01	
	UNITS	**CS3-200**	**CS1-410**	**QC Batch**
Inorganics				
Available (CaCl2) pH	pH	6.30	6.93	4715433
QC Batch = Quality Control Batch				

TEST SUMMARY

Maxxam ID: DGP151
Sample ID: CS1-26
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP151 Dup
Sample ID: CS1-26
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu

Maxxam ID: DGP152
Sample ID: CS1-27
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/27	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP152 Dup
Sample ID: CS1-27
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP153
Sample ID: CS1-28
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

TEST SUMMARY

Maxxam ID: DGP153 Dup **Collected:** 2016/10/13
Sample ID: CS1-28 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri

Maxxam ID: DGP154 **Collected:** 2016/10/13
Sample ID: CS1-29 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP155 **Collected:** 2016/10/13
Sample ID: CS1-30 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP156 **Collected:** 2016/10/13
Sample ID: CS1-31 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP157 **Collected:** 2016/10/13
Sample ID: CS1-32 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
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TEST SUMMARY

Maxxam ID: DGP158
Sample ID: CS1-33
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP159
Sample ID: CS1-34
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/26	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP160
Sample ID: CS1-35
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715914	N/A	2016/10/24	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP199
Sample ID: CS1-36
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715914	N/A	2016/10/24	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP200
Sample ID: CS1-37
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715297	N/A	2016/10/24	Min Yang

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
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TEST SUMMARY

Maxxam ID: DGP200
Sample ID: CS1-37
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP201
Sample ID: CS1-38
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715297	N/A	2016/10/24	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP201 Dup
Sample ID: CS1-38
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu

Maxxam ID: DGP202
Sample ID: CS1-39
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP203
Sample ID: CS1-40
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP204
Sample ID: CS1-41
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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TEST SUMMARY

Maxxam ID: DGP205
Sample ID: CS1-42
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4718486	2016/10/26	2016/10/26	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP206
Sample ID: CS1-43
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP207
Sample ID: CS1-44
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP207 Dup
Sample ID: CS1-44
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP208
Sample ID: CS1-45
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

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TEST SUMMARY

Maxxam ID: DGP245
Sample ID: CS1-46
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP246
Sample ID: CS2-12
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP247
Sample ID: CS2-13
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP248
Sample ID: CS2-14
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP249
Sample ID: CS2-15
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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Maxxam Job #: B6M4185
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TEST SUMMARY

Maxxam ID: DGP250
Sample ID: CS2-16
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP278
Sample ID: CS2-17
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP279
Sample ID: CS2-18
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP280
Sample ID: CS2-19
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP281
Sample ID: CS2-20
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP282
Sample ID: CS3-11
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP283
Sample ID: CS3-12
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP284
Sample ID: CS3-13
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP285
Sample ID: CS3-14
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP286
Sample ID: CS3-15
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4718485	2016/10/26	2016/10/26	Daniel Teclu
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP287
Sample ID: CS3-16
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

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TEST SUMMARY

Maxxam ID: DGP288
Sample ID: CS3-17
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP289
Sample ID: CS3-18
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP290
Sample ID: CS3-19
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP291
Sample ID: CS3-20
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP292
Sample ID: CS3-21
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP293
Sample ID: CS3-22
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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TEST SUMMARY

Maxxam ID: DGP302
Sample ID: CS2-21
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP303
Sample ID: CS2-22
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP304
Sample ID: CS3-110
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP305
Sample ID: CS2-200
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP306
Sample ID: CS3-200
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP307
Sample ID: CS1-410
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
Package 2	2.0°C
Package 3	2.0°C

Sample DGP160-01 : F1/BTEX Analysis: Detection limits were adjusted for sample weight .

Sample DGP199-01 : F1/BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.
F2-F4 Analysis: Detection limits were adjusted for high moisture content.

PAH analysis: Detection limits were adjusted for high moisture content.

Sample DGP200-01 : F1/BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.
F2-F4 Analysis: Detection limits were adjusted for high moisture content.

PAH analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4715261	Leachable 4-Bromofluorobenzene	2016/10/26	100	70 - 130	100	70 - 130	98	%				
4715261	Leachable D4-1,2-Dichloroethane	2016/10/26	101	70 - 130	99	70 - 130	100	%				
4715261	Leachable D8-Toluene	2016/10/26	100	70 - 130	98	70 - 130	100	%				
4715933	1,4-Difluorobenzene	2016/10/24	112	60 - 140	114	60 - 140	114	%				
4715933	4-Bromofluorobenzene	2016/10/24	96	60 - 140	96	60 - 140	94	%				
4715933	D10-Ethylbenzene	2016/10/24	102	60 - 140	94	60 - 140	94	%				
4715933	D4-1,2-Dichloroethane	2016/10/24	94	60 - 140	94	60 - 140	95	%				
4716027	o-Terphenyl	2016/10/25	102	60 - 130	100	60 - 130	101	%				
4717063	D10-Anthracene	2016/10/25	87	50 - 130	98	50 - 130	102	%				
4717063	D14-Terphenyl (FS)	2016/10/25	87	50 - 130	93	50 - 130	96	%				
4717063	D8-Acenaphthylene	2016/10/25	79	50 - 130	83	50 - 130	83	%				
4720772	Leachable D10-Anthracene	2016/10/27	104	50 - 130	103	50 - 130	105	%				
4720772	Leachable D14-Terphenyl (FS)	2016/10/27	96	50 - 130	94	50 - 130	94	%				
4720772	Leachable D8-Acenaphthylene	2016/10/27	94	50 - 130	92	50 - 130	91	%				
4715261	Leachable Benzene	2016/10/26	91	70 - 130	97	70 - 130	<0.020	mg/L	NC	30		
4715297	Moisture	2016/10/24							0	20		
4715433	Available (CaCl2) pH	2016/10/25			99	97 - 103			0.52	N/A		
4715437	Available (CaCl2) pH	2016/10/25			98	97 - 103			0.013	N/A		
4715914	Moisture	2016/10/24							3.3	20		
4715933	Benzene	2016/10/24	98	60 - 140	97	60 - 140	<0.020	ug/g	NC	50		
4715933	Ethylbenzene	2016/10/24	110	60 - 140	112	60 - 140	<0.020	ug/g	NC	50		
4715933	F1 (C6-C10) - BTEX	2016/10/24					<10	ug/g	NC	30		
4715933	F1 (C6-C10)	2016/10/24	88	60 - 140	82	80 - 120	<10	ug/g	NC	30		
4715933	o-Xylene	2016/10/24	106	60 - 140	106	60 - 140	<0.020	ug/g	NC	50		
4715933	p+m-Xylene	2016/10/24	98	60 - 140	99	60 - 140	<0.040	ug/g	NC	50		
4715933	Toluene	2016/10/24	104	60 - 140	101	60 - 140	<0.020	ug/g	NC	50		
4715933	Total Xylenes	2016/10/24					<0.040	ug/g	NC	50		
4716027	F2 (C10-C16 Hydrocarbons)	2016/10/25	100	50 - 130	99	80 - 120	<10	ug/g	NC	30		
4716027	F3 (C16-C34 Hydrocarbons)	2016/10/25	100	50 - 130	99	80 - 120	<50	ug/g	NC	30		
4716027	F4 (C34-C50 Hydrocarbons)	2016/10/25	102	50 - 130	101	80 - 120	<50	ug/g	NC	30		
4716460	Acid Extractable Antimony (Sb)	2016/10/26	87	75 - 125	101	80 - 120	<0.20	ug/g	10	30		
4716460	Acid Extractable Arsenic (As)	2016/10/26	NC	75 - 125	99	80 - 120	<1.0	ug/g	2.8	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4716460	Acid Extractable Barium (Ba)	2016/10/26	NC	75 - 125	96	80 - 120	<0.50	ug/g	1.9	30		
4716460	Acid Extractable Beryllium (Be)	2016/10/26	91	75 - 125	96	80 - 120	<0.20	ug/g	2.4	30		
4716460	Acid Extractable Boron (B)	2016/10/26	83	75 - 125	95	80 - 120	<5.0	ug/g	NC	30		
4716460	Acid Extractable Cadmium (Cd)	2016/10/26	95	75 - 125	101	80 - 120	<0.10	ug/g	7.8	30		
4716460	Acid Extractable Chromium (Cr)	2016/10/26	NC	75 - 125	102	80 - 120	<1.0	ug/g	4.0	30		
4716460	Acid Extractable Cobalt (Co)	2016/10/26	94	75 - 125	100	80 - 120	<0.10	ug/g	0.21	30		
4716460	Acid Extractable Copper (Cu)	2016/10/26	NC	75 - 125	101	80 - 120	<0.50	ug/g	8.8	30		
4716460	Acid Extractable Lead (Pb)	2016/10/26	NC	75 - 125	101	80 - 120	<1.0	ug/g	2.0	30		
4716460	Acid Extractable Molybdenum (Mo)	2016/10/26	90	75 - 125	101	80 - 120	<0.50	ug/g	4.2	30		
4716460	Acid Extractable Nickel (Ni)	2016/10/26	NC	75 - 125	100	80 - 120	<0.50	ug/g	3.5	30		
4716460	Acid Extractable Selenium (Se)	2016/10/26	89	75 - 125	101	80 - 120	<0.50	ug/g	1.7	30		
4716460	Acid Extractable Silver (Ag)	2016/10/26	98	75 - 125	105	80 - 120	<0.20	ug/g	NC	30		
4716460	Acid Extractable Thallium (Tl)	2016/10/26	90	75 - 125	99	80 - 120	<0.050	ug/g	4.1	30		
4716460	Acid Extractable Uranium (U)	2016/10/26	92	75 - 125	100	80 - 120	<0.050	ug/g	2.2	30		
4716460	Acid Extractable Vanadium (V)	2016/10/26	NC	75 - 125	97	80 - 120	<5.0	ug/g	1.7	30		
4716460	Acid Extractable Zinc (Zn)	2016/10/26	NC	75 - 125	100	80 - 120	<5.0	ug/g	2.0	30		
4716478	Available (CaCl2) pH	2016/10/25			99	97 - 103			0.059	N/A		
4716498	Acid Extractable Antimony (Sb)	2016/10/25	91	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		
4716498	Acid Extractable Arsenic (As)	2016/10/25	97	75 - 125	100	80 - 120	<1.0	ug/g	1.4	30		
4716498	Acid Extractable Barium (Ba)	2016/10/25	NC	75 - 125	99	80 - 120	<0.50	ug/g	4.1	30		
4716498	Acid Extractable Beryllium (Be)	2016/10/25	97	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4716498	Acid Extractable Boron (B)	2016/10/25	89	75 - 125	93	80 - 120	<5.0	ug/g	NC	30		
4716498	Acid Extractable Cadmium (Cd)	2016/10/25	101	75 - 125	99	80 - 120	<0.10	ug/g	0.98	30		
4716498	Acid Extractable Chromium (Cr)	2016/10/25	NC	75 - 125	95	80 - 120	<1.0	ug/g	3.9	30		
4716498	Acid Extractable Cobalt (Co)	2016/10/25	NC	75 - 125	96	80 - 120	<0.10	ug/g	3.6	30		
4716498	Acid Extractable Copper (Cu)	2016/10/25	NC	75 - 125	102	80 - 120	<0.50	ug/g	1.6	30		
4716498	Acid Extractable Lead (Pb)	2016/10/25	NC	75 - 125	99	80 - 120	<1.0	ug/g	0.52	30		
4716498	Acid Extractable Molybdenum (Mo)	2016/10/25	94	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4716498	Acid Extractable Nickel (Ni)	2016/10/25	NC	75 - 125	96	80 - 120	<0.50	ug/g	0.58	30		
4716498	Acid Extractable Selenium (Se)	2016/10/25	94	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4716498	Acid Extractable Silver (Ag)	2016/10/25	98	75 - 125	102	80 - 120	<0.20	ug/g	NC	30		
4716498	Acid Extractable Thallium (Tl)	2016/10/25	88	75 - 125	96	80 - 120	<0.050	ug/g	NC	30		

Maxxam Job #: B6M4185
Report Date: 2016/10/28

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4716498	Acid Extractable Uranium (U)	2016/10/25	91	75 - 125	96	80 - 120	<0.050	ug/g	2.2	30		
4716498	Acid Extractable Vanadium (V)	2016/10/25	NC	75 - 125	96	80 - 120	<5.0	ug/g	4.1	30		
4716498	Acid Extractable Zinc (Zn)	2016/10/25	NC	75 - 125	110	80 - 120	<5.0	ug/g	1.2	30		
4716588	Acid Extractable Antimony (Sb)	2016/10/25	79	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4716588	Acid Extractable Arsenic (As)	2016/10/25	95	75 - 125	102	80 - 120	<1.0	ug/g	NC	30		
4716588	Acid Extractable Barium (Ba)	2016/10/25	NC	75 - 125	98	80 - 120	<0.50	ug/g	6.2	30		
4716588	Acid Extractable Beryllium (Be)	2016/10/25	97	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4716588	Acid Extractable Boron (B)	2016/10/25	91	75 - 125	95	80 - 120	<5.0	ug/g	NC	30		
4716588	Acid Extractable Cadmium (Cd)	2016/10/25	97	75 - 125	99	80 - 120	<0.10	ug/g	NC	30		
4716588	Acid Extractable Chromium (Cr)	2016/10/25	NC	75 - 125	102	80 - 120	<1.0	ug/g	4.0	30		
4716588	Acid Extractable Cobalt (Co)	2016/10/25	NC	75 - 125	101	80 - 120	<0.10	ug/g	0.97	30		
4716588	Acid Extractable Copper (Cu)	2016/10/25	NC	75 - 125	99	80 - 120	<0.50	ug/g	5.6	30		
4716588	Acid Extractable Lead (Pb)	2016/10/25	NC	75 - 125	101	80 - 120	<1.0	ug/g	5.3	30		
4716588	Acid Extractable Molybdenum (Mo)	2016/10/25	95	75 - 125	97	80 - 120	<0.50	ug/g	NC	30		
4716588	Acid Extractable Nickel (Ni)	2016/10/25	NC	75 - 125	100	80 - 120	<0.50	ug/g	1.7	30		
4716588	Acid Extractable Selenium (Se)	2016/10/25	93	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4716588	Acid Extractable Silver (Ag)	2016/10/25	102	75 - 125	100	80 - 120	<0.20	ug/g	NC	30		
4716588	Acid Extractable Thallium (Tl)	2016/10/25	93	75 - 125	97	80 - 120	<0.050	ug/g	NC	30		
4716588	Acid Extractable Uranium (U)	2016/10/25	96	75 - 125	99	80 - 120	<0.050	ug/g	NC	30		
4716588	Acid Extractable Vanadium (V)	2016/10/25	NC	75 - 125	98	80 - 120	<5.0	ug/g	2.6	30		
4716588	Acid Extractable Zinc (Zn)	2016/10/25	NC	75 - 125	100	80 - 120	<5.0	ug/g	1.7	30		
4717063	1-Methylnaphthalene	2016/10/25	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40		
4717063	2-Methylnaphthalene	2016/10/25	69	50 - 130	75	50 - 130	<0.0050	ug/g	NC	40		
4717063	Acenaphthene	2016/10/25	82	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Acenaphthylene	2016/10/25	75	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40		
4717063	Anthracene	2016/10/25	78	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(a)anthracene	2016/10/25	88	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(a)pyrene	2016/10/25	88	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(b/j)fluoranthene	2016/10/25	82	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(g,h,i)perylene	2016/10/25	92	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(k)fluoranthene	2016/10/25	83	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		
4717063	Chrysene	2016/10/25	90	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4717063	Dibenz(a,h)anthracene	2016/10/25	89	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40		
4717063	Fluoranthene	2016/10/25	93	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
4717063	Fluorene	2016/10/25	79	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40		
4717063	Indeno(1,2,3-cd)pyrene	2016/10/25	91	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Naphthalene	2016/10/25	76	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40		
4717063	Phenanthrene	2016/10/25	85	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Pyrene	2016/10/25	99	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40		
4718485	Acid Extractable Antimony (Sb)	2016/10/26	84	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4718485	Acid Extractable Arsenic (As)	2016/10/26	103	75 - 125	96	80 - 120	<1.0	ug/g	NC	30		
4718485	Acid Extractable Barium (Ba)	2016/10/26	NC	75 - 125	103	80 - 120	<0.50	ug/g	4.0	30		
4718485	Acid Extractable Beryllium (Be)	2016/10/26	103	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4718485	Acid Extractable Boron (B)	2016/10/26	97	75 - 125	99	80 - 120	<5.0	ug/g				
4718485	Acid Extractable Cadmium (Cd)	2016/10/26	103	75 - 125	95	80 - 120	<0.10	ug/g	NC	30		
4718485	Acid Extractable Chromium (Cr)	2016/10/26	NC	75 - 125	98	80 - 120	<1.0	ug/g	0.72	30		
4718485	Acid Extractable Cobalt (Co)	2016/10/26	107	75 - 125	99	80 - 120	<0.10	ug/g	2.3	30		
4718485	Acid Extractable Copper (Cu)	2016/10/26	103	75 - 125	100	80 - 120	<0.50	ug/g	3.3	30		
4718485	Acid Extractable Lead (Pb)	2016/10/26	103	75 - 125	97	80 - 120	<1.0	ug/g	0.33	30		
4718485	Acid Extractable Molybdenum (Mo)	2016/10/26	104	75 - 125	96	80 - 120	<0.50	ug/g	NC	30		
4718485	Acid Extractable Nickel (Ni)	2016/10/26	104	75 - 125	99	80 - 120	<0.50	ug/g	2.5	30		
4718485	Acid Extractable Selenium (Se)	2016/10/26	106	75 - 125	100	80 - 120	<0.50	ug/g	NC	30		
4718485	Acid Extractable Silver (Ag)	2016/10/26	104	75 - 125	96	80 - 120	<0.20	ug/g	NC	30		
4718485	Acid Extractable Thallium (Tl)	2016/10/26	103	75 - 125	95	80 - 120	<0.050	ug/g	NC	30		
4718485	Acid Extractable Uranium (U)	2016/10/26	103	75 - 125	93	80 - 120	<0.050	ug/g	2.3	30		
4718485	Acid Extractable Vanadium (V)	2016/10/26	NC	75 - 125	99	80 - 120	<5.0	ug/g	1.4	30		
4718485	Acid Extractable Zinc (Zn)	2016/10/26	NC	75 - 125	100	80 - 120	<5.0	ug/g	3.4	30		
4718486	Available (CaCl2) pH	2016/10/26			98	97 - 103			0.17	N/A		
4718914	Leachable Arsenic (As)	2016/10/27	97	80 - 120	102	80 - 120			NC	35	<0.2	mg/L
4718914	Leachable Barium (Ba)	2016/10/27	NC	80 - 120	97	80 - 120			NC	35	<0.2	mg/L
4718914	Leachable Boron (B)	2016/10/27	94	80 - 120	99	80 - 120			NC	35	<0.1	mg/L
4718914	Leachable Cadmium (Cd)	2016/10/27	100	80 - 120	98	80 - 120			NC	35	<0.05	mg/L
4718914	Leachable Chromium (Cr)	2016/10/27	97	80 - 120	100	80 - 120			NC	35	<0.1	mg/L
4718914	Leachable Lead (Pb)	2016/10/27	94	80 - 120	97	80 - 120			NC	35	<0.1	mg/L

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4718914	Leachable Selenium (Se)	2016/10/27	99	80 - 120	101	80 - 120			NC	35	<0.1	mg/L
4718914	Leachable Silver (Ag)	2016/10/27	95	80 - 120	94	80 - 120			NC	35	<0.01	mg/L
4718914	Leachable Uranium (U)	2016/10/27	98	80 - 120	100	80 - 120			NC	35	<0.01	mg/L
4720302	Leachable Mercury (Hg)	2016/10/27	113	75 - 125	110	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
4720772	Leachable Benzo(a)pyrene	2016/10/28	93	50 - 130	94	50 - 130	<0.10	ug/L	NC	40		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Eva Pranjic
CHARTERED
Eva Pranjic
CHEMIST

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

Page 1 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name	#47464 DST Consulting Engineers Inc	Company Name		Quotation #	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention	Accounts Payable	Attention	Geoffrey Lake	P.O. #			
Address	885 Regent Street Suite 3-1B	Address		Project		COC #:	Project Manager:
	Sudbury ON P3E 5M4			Project Name		C#581859-01-01	Augustyna Dobosz
Tel	(705) 523-6680 Fax (705) 523-6690	Tel	(705) 523-6680 x258 Fax	Site #			
Email	ap@dstgroup.com	Email	glake@dstgroup.com	Sampled By			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Table 2 [ ] Table 3 [ ] Table ___ [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other [ ] Medium/Fine [ ] Coarse [ ] For RSC

Other Regulations: [ ] CCME [ ] Reg 558 [ ] MISA [ ] PWQO [ ] Other ___ [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ICP/MS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	BTEX/PHC F1	PHC F2-F4	PAHs			# of Bottles	Comments
1		CS1-26	Oct 13 2016	0900	S		X	X									1	
2		CS1-27	Oct 12 2016	1600	S		X	X	X	X	X						5	
3		CS1-28	Oct 13 2016	0910	S		X	X									1	
4		CS1-29	Oct 13 2016	0915	S		X	X									1	Received in Sudbury
5		CS1-30	"	0920	S		X	X									1	
6		CS1-31	"	0930	S		X	X									1	
7		CS1-32	"	0940	S		X	X	X	X	X						4	17-Oct-16 11:14 Augustyna Dobosz
8		CS1-33	"	0950	S		X	X									2	B6M4185
9		CS1-34	"	1000	S		X	X									2	KP7 ENV-1167
10		CS1-35	"	1010	S		X	X				X	X	X			4	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Waddell Jonathan Waddell	16/10/17	1000	B. F. Brady Frazier	2016/10/17	11:14	
			Ashitha Sukumar ASHITHA SUKUMAR	2016/10/17	10:13	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4°C 2,2,2°C 2,2,2°C	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam

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6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 2 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#47464 DST Consulting Engineers Inc.	Company Name:		Quotation #:	B61802
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:	
Address:	885 Regent Street Suite 3-1B	Address:		Project:	
	Sudbury ON P3E 5M4			Project Name:	
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Site #:	
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Sampled By:	

Laboratory Use Only:

Maxxam Job #:	Bottle Order #:
	581859
COC #: C#581859-02-01	Project Manager: Augustyna Dobosz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- [x] Table 1
- [ ] Table 2
- [ ] Table 3
- [ ] Table ___
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/Other
- [ ] Medium/Fine
- [ ] Coarse
- [ ] For RSC

Other Regulations
- [ ] CCME
- [ ] Reg 558
- [ ] MISA
- [ ] PWQO
- [ ] Other
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw
- Municipality ______

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ______

Turnaround Time (TAT) Required: Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ______ Time Required: ______
Rush Confirmation Number: ______ (call lab for #)

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	PMS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	PHC F1/Btex	PHC F2-F4	PAHs			# of Bottles	Comments
1		CS1-36	Oct 13 2016	1020	S		✓	✓				✓	✓	✓			4	
2		CS1-37	"	1025	S		✓	✓				✓	✓	✓			4	
3		CS1-38	"	1030	S		✓	✓				✓	✓	✓			4	
4		CS1-39	"	1040	S		✓	✓									1	
5		CS1-40	"	1050	S		✓	✓									1	Received in Sudbury
6		CS1-41	"	1100	S		✓	✓									1	
7		CS1-42	"	1110	S		✓	✓	✓	✓	✓						2	
8		CS1-43	"	1120	S		✓	✓									1	
9		CS1-44	"	1130	S		✓	✓									1	
10		CS1-45	Oct 12 2016	1610	S		✓	✓									3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Jonathan Waddell	16/10/17	1000	Bradley Frazer	2016/10/17	11:14	
			Ashitha Sukumar	2016/10/18	10:13	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4°C 2,2,2°C 2,2,2°C	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTK

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Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 3 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc.	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			
Address:	885 Regent Street Suite 3-1B Sudbury ON P3E 5M4	Address:		Project:		COC #: C#581859-03-01	Project Manager: Augustyna Dobosz
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Project Name:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Res/Park [ ] Medium/Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/Other [ ] For RSC [ ] Table ___

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw [ ] Reg 558 [ ] Storm Sewer Bylaw [ ] MISA Municipality ___ [ ] PWQO [ ] Other ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC): Field Filtered (please circle): Metals / Hg / Cr VI; ICPMS Metals; pH; TCLP Metals; TCLP Benzene; TCLP B(a)P

Turnaround Time (TAT) Required: Please provide advance notice for rush projects

Regular (Standard) TAT: [X] (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) Date Required: ___ Time Required: ___ Rush Confirmation Number: ___ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	ICPMS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	# of Bottles	Comments
1		CS1-46	Oct 13 2016	1620	S		✓	✓	✓	✓	✓	2	
2		~~CS1-47~~ SW											No SAMPLE
3		~~CS1-48~~ SW											No SAMPLE
4		~~CS1-49~~ SW											No SAMPLE
5		~~CS1-50~~ SW											No SAMPLE
6		CS2-12	Oct 13 2016	~~0850~~ 0850			✓	✓				1	
7		CS2-13	Oct 12 2016	1300	S		✓	✓				2	
8		CS2-14	"	1310	S		✓	✓				2	Received in Sudbury
9		CS2-15	"	1320	S		✓	✓				2	
10		CS2-16	"	1330	S		✓	✓				2	

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
S. Waddell / Jonathan Waddell	16/10/17	1008	B. F. / Brooke Fuller	2016/10/17	11:14			2,2,4°C 2,2,2°C	Present	✓	
			Ashitha Sukumar / ASHITHA SUKUMAR	2016/10/18	10:13			2,2,2°C	Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACCR

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Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free 800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			
Address:	885 Regent Street Suite 3-1B, Sudbury ON P3E 5M4	Address:		Project:		COC #: C#581859-04-01	Project Manager: Augustyna Dobosz
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Project Name:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Site #: / Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Res/Park [ ] Medium/Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/Other [ ] For RSC [ ] Table ___

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw [ ] Reg 558 [ ] Storm Sewer Bylaw [ ] MISA Municipality ____ [ ] PWQO [ ] Other ____

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(will be applied if Rush TAT is not specified):
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Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____
Rush Confirmation Number: ____ (call lab for #)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ICPMS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	# of Bottles	Comments
1		CS2-17	Oct 12 2016	1350	S		✓	✓				1	
2		CS2-18	"	1400	S		✓	✓				1	
3		CS2-19	"	1420	S		✓	✓				2	
4		CS2-20	Oct 13 2016	13:10	S		✓	✓	✓	✓	✓	2	
5		CS3-11	Oct 12 2016	1000	S		✓	✓				1	
6		CS3-12	"	1010	S		✓	✓				2	Received in Sudbury
7		CS3-13	"	1020	S		✓	✓				1	
8		CS3-14	"	1030	S		✓	✓				1	
9		CS3-15	"	1040	S		✓	✓				1	
10		CS3-16	"	1050	S		✓	✓				1	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Southam Waddell	16/10/17	1000	Bradley Frazier	2016/10/17	11:14	
			Ashlee Sukumar ASHLITHA SUKUMAR	2016/10/18	10:13	

Laboratory Use Only: Time Sensitive | Temperature (°C) on Receipt: 2,2,4°C 2,2,2°C 2,2,2°C | Custody Seal: Yes ✓ No; Present ✓; Intact ✓

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White: Maxxam Yellow: Client

REFER TO ACTR

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CHAIN OF CUSTODY RECORD

Page 5 of 6

INVOICE TO:	REPORT TO:	PROJECT INFORMATION:	Laboratory Use Only:
Company Name: #47464 DST Consulting Engineers Inc	Company Name:	Quotation #: B61802	Maxxam Job #: / Bottle Order #: 581859
Attention: Accounts Payable	Attention: Geoffrey Lake	P.O. #:	
Address: 885 Regent Street Suite 3-1B, Sudbury ON P3E 5M4	Address:	Project: / Project Name:	COC #: C#581859-05-01 / Project Manager: Augustyna Dobosz
Tel: (705) 523-6680 Fax: (705) 523-6690	Tel: (705) 523-6680 x258 Fax:	Site #:	
Email: ap@dstgroup.com	Email: glake@dstgroup.com	Sampled By:	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Res/Park [ ] Medium/Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/Other [ ] For RSC [ ] Table ___

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw [ ] Reg 558 [ ] Storm Sewer Bylaw [ ] MISA Municipality ___ [ ] PWQO [ ] Other ___

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Include Criteria on Certificate of Analysis (Y/N)? ___

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Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ (call lab for #)

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ICP/MS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	# of Bottles	Comments
1		CS3-17	Oct 12 2016	1110	S		✓	✓					
2		CS3-18	"	1120	S		✓	✓					
3		CS3-19	"	1130	S		✓	✓					
4		CS3-20	"	1140	S		✓	✓					Received in Sudbury
5		CS3-21	"	1150	S		✓	✓					
6		CS3-22	"	1200	S		✓	✓					
7		~~CS3-23~~ SW											No Sample
8		~~CS3-24~~ SW											No Sample
9		~~CS3-25~~ SW											No Sample
10		~~CS3-26~~ SW											No Sample

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S Waddell / Jonathan Waddell	16/10/17	1000	B.F. / Bradley Frappier	2016/10/17	11:14	
			Ashitte Sukhwinder / Ashit...	2016/10/18	10:13	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4 °C 2,2,2 °C 2,2,2 °C	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 6 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc.	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			
Address:	885 Regent Street Suite 3-1B	Address:		Project:		COC #: C#581859-06-01	Project Manager: Augustyna Dobosz
	Sudbury ON P3E 5M4			Project Name:			
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Site #:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Res/Park [ ] Medium/Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/Other [ ] For RSC [ ] Table ___

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw [ ] Reg 558 [ ] Storm Sewer Bylaw [ ] MISA Municipality ____ [ ] PWQO [ ] Other ____

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ____

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____
Rush Confirmation Number: ____ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ICP MS METALS	pH	TCLP METALS	TCLP BENZENE	TCLP B(a)P	# of Bottles	Comments
1		CS2-21	OCT 12 2016	14:30	S		✓	✓	✓	✓	✓	2	
2		CS2-22	OCT 13 2016	13:40	S		✓	✓				1	
3		CS3-110	OCT 12 2016	1000	S		✓	✓				1	
4		CS2-200	OCT 13 2016	13:10	S		✓	✓	✓	✓	✓	2	Received in Sudbury
5		CS3-200	OCT 12 2016	11:40	S		✓	✓				1	
6		CS1-410	OCT 13 2016	11:00	S		✓	✓				1	
7		[illegible]	[illegible]	[illegible]	[illegible]							[illegible]	JW
8		CS2-3										1	HOLD
9													
10													

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
S Waddell / Scott Waddell	16/10/17	1000	B.F. - Bradley Fraser	2016/10/17	11:14			2,2,4°C 2,2,2°C	Present	✓	
			Ashtine Ashtine Sukcham	2016/10/18	10:13			2,2,2°C	Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

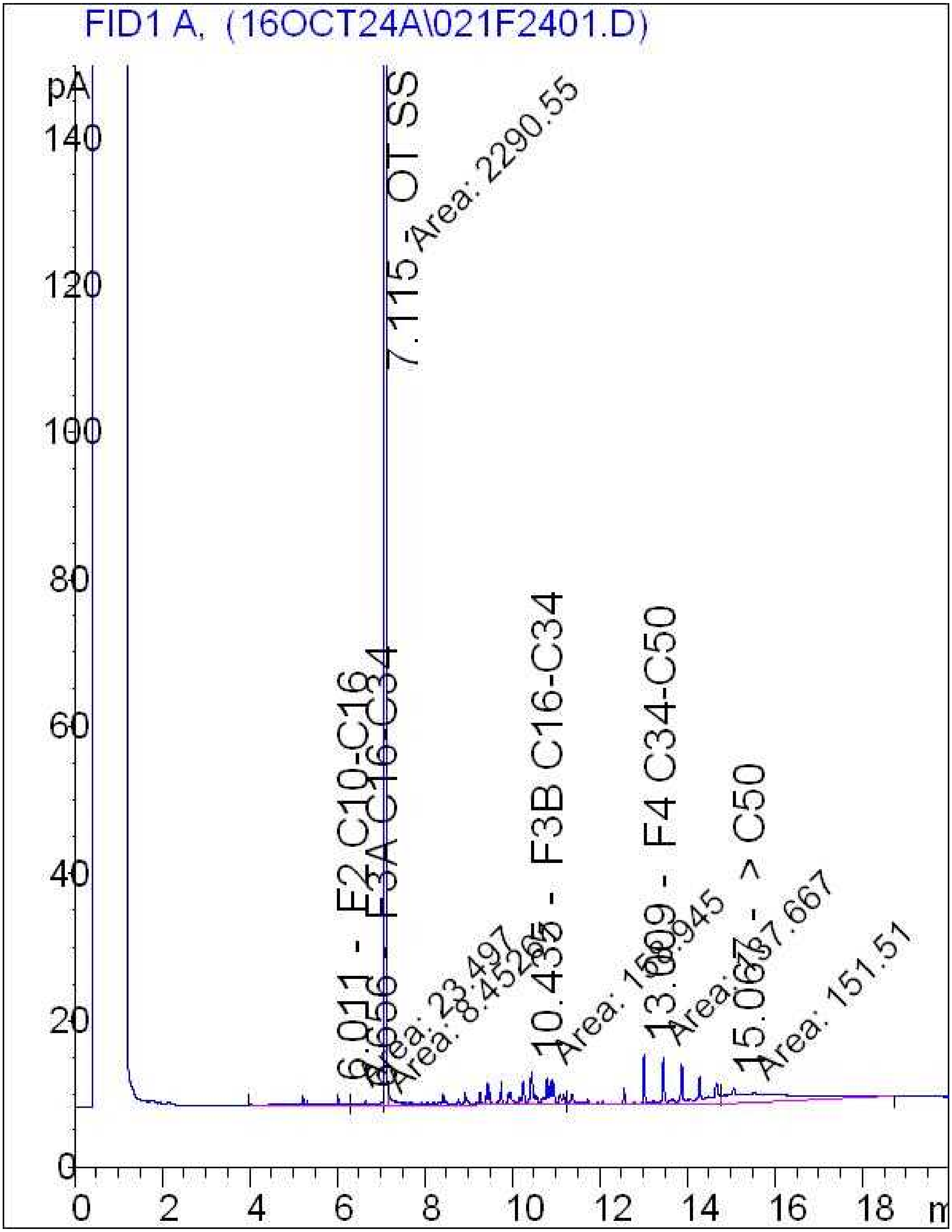
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER To ACTR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

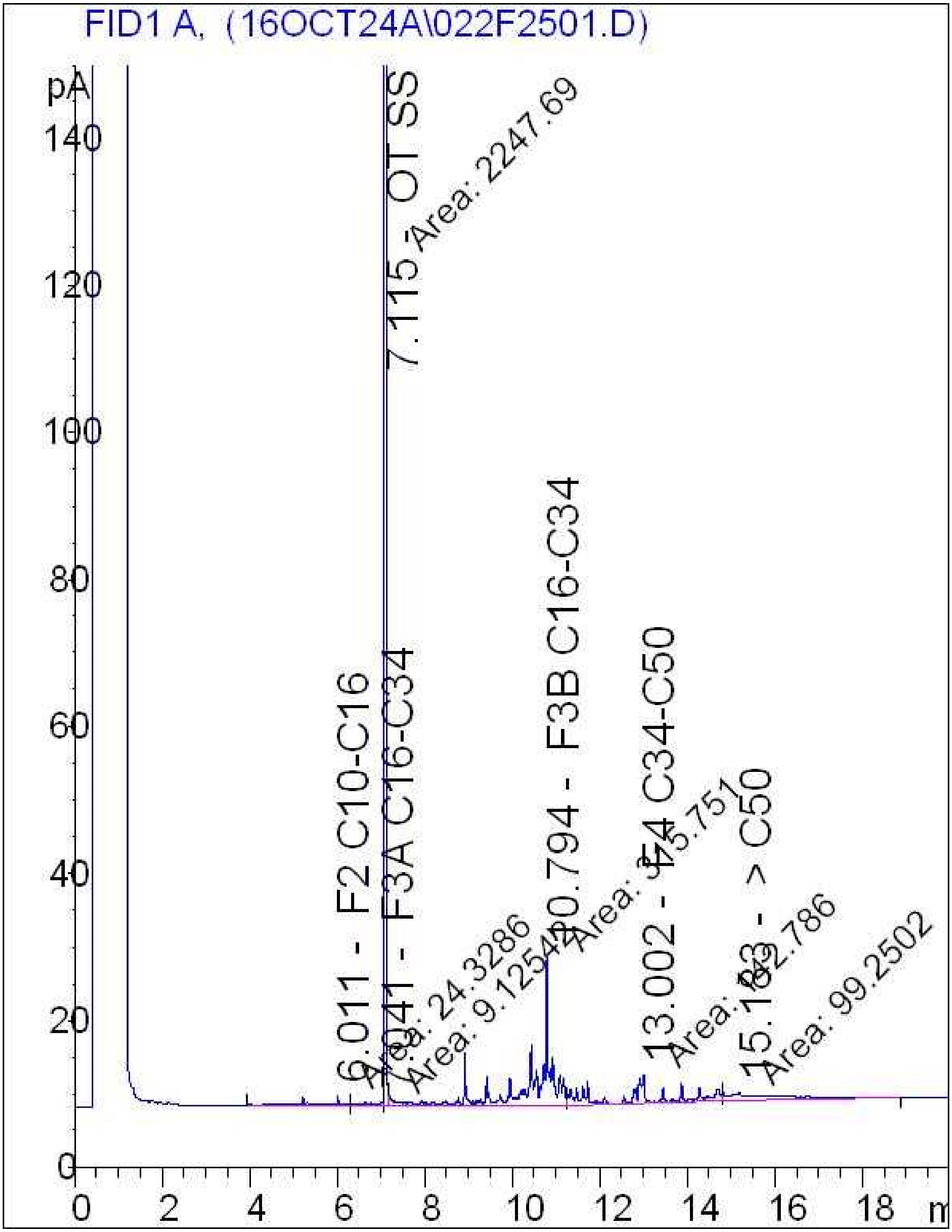


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6M4185
Report Date: 2016/10/28
Maxxam Sample: DGP199

DST Consulting Engineers Inc
Client Project #: GV-TB-027107
Client ID: CS1-36

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

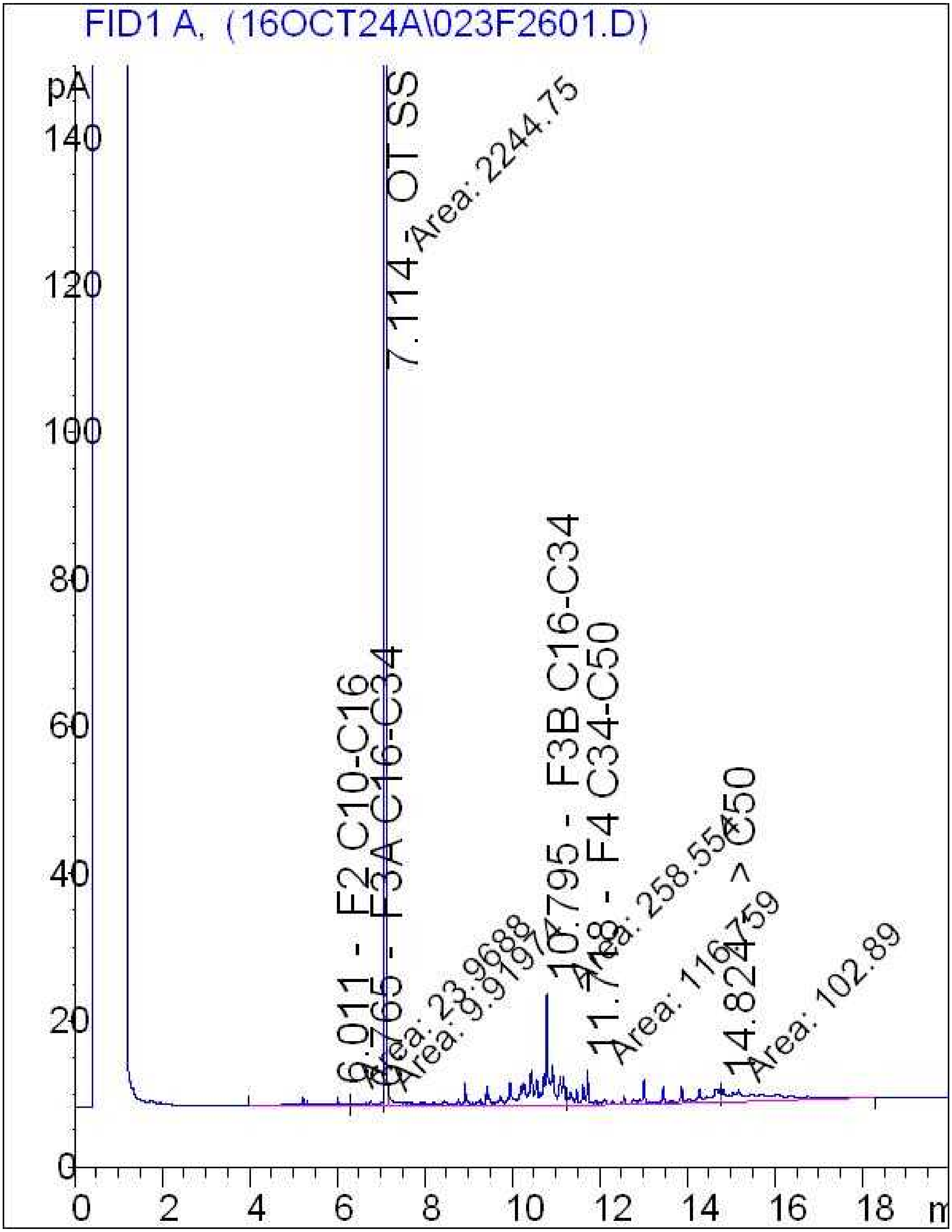


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6M4185
Report Date: 2016/10/28
Maxxam Sample: DGP200

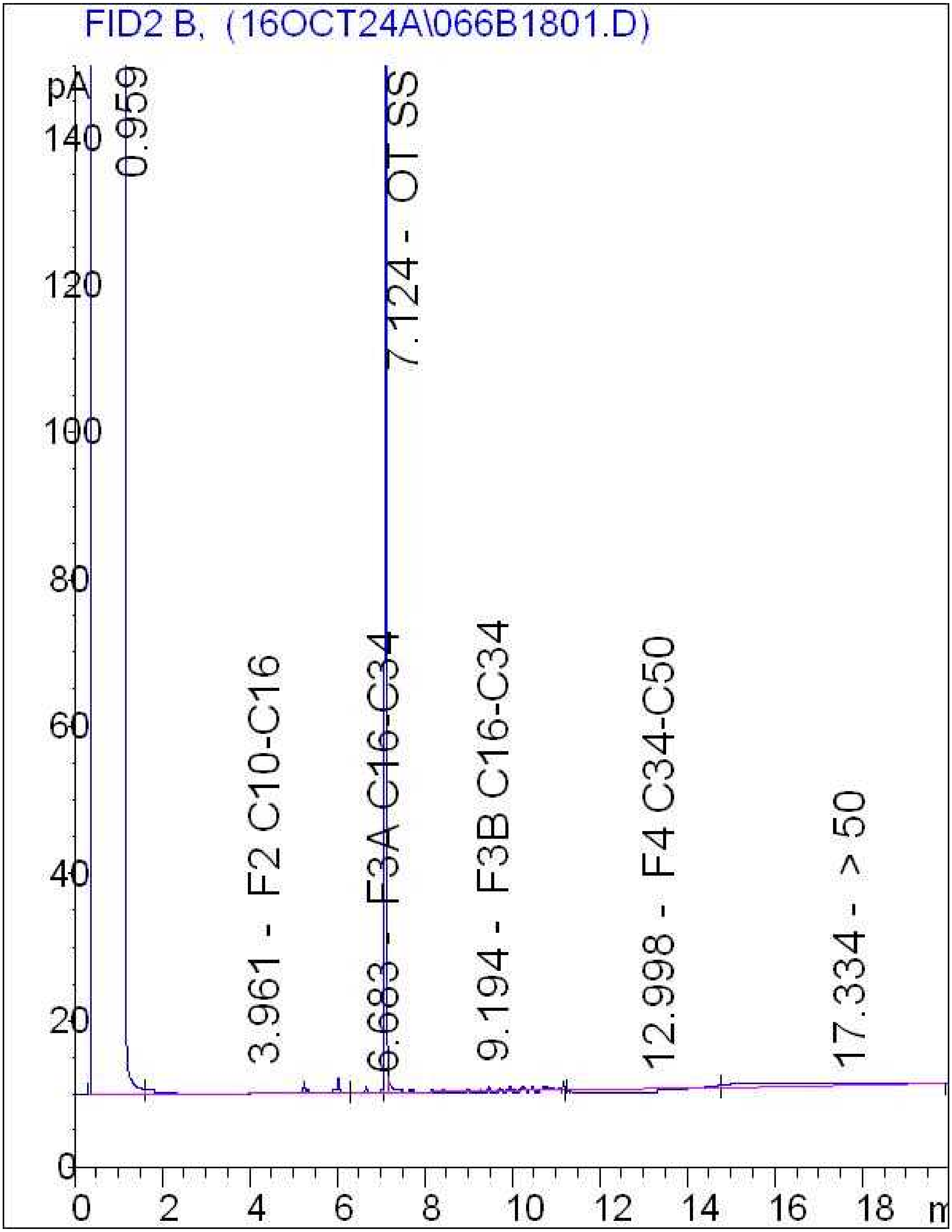
DST Consulting Engineers Inc
Client Project #: GV-TB-027107
Client ID: CS1-37

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: GV-TB-027107

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Your C.O.C. #: 581859-01-01, 581859-02-01, 581859-03-01, 581859-04-01, 581859-05-01, 581859-06-01

Report Date: 2016/10/28
Report #: R4227179
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6M4185
Received: 2016/10/17, 11:14

Sample Matrix: Soil
Samples Received: 48

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	4	N/A	2016/10/26	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	4	N/A	2016/10/25	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	4	2016/10/24	2016/10/25	CAM SOP-00316	CCME CWS m
Mercury (TCLP Leachable) (mg/L)	7	N/A	2016/10/27	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	34	2016/10/25	2016/10/25	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	13	2016/10/25	2016/10/26	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2016/10/26	2016/10/26	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	7	2016/10/26	2016/10/27	CAM SOP-00447	EPA 6020B m
Moisture	4	N/A	2016/10/24	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Leachate by GC/MS (SIM)	1	2016/10/27	2016/10/27	CAM SOP-00318	EPA 8270D m
PAH Compounds in Leachate by GC/MS (SIM)	6	2016/10/27	2016/10/28	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	4	2016/10/25	2016/10/26	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	47	2016/10/25	2016/10/25	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	1	2016/10/26	2016/10/26	CAM SOP-00413	EPA 9045 D m
TCLP - % Solids	7	2016/10/25	2016/10/26	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	7	N/A	2016/10/26	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	7	N/A	2016/10/26	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	7	2016/10/25	2016/10/26	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	7	2016/10/26	2016/10/26	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported:

Your Project #: GV-TB-027107

Attention:Geoffrey Lake

DST Consulting Engineers Inc
Sudbury - Standing Offer
885 Regent Street
Suite 3-1B
Sudbury, ON
P3E 5M4

Your C.O.C. #: 581859-01-01, 581859-02-01, 581859-03-01, 581859-04-01, 581859-05-01, 581859-06-01

Report Date: 2016/10/28
Report #: R4227179
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6M4185
Received: 2016/10/17, 11:14
unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Augustyna Dobosz, Project Manager
Email: ADobosz@maxxam.ca
Phone# (905)817-5700 Ext:5798
==
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP151	DGP151		DGP152	DGP153	DGP153		
Sampling Date		2016/10/13 09:00	2016/10/13 09:00		2016/10/12 16:00	2016/10/13 09:10	2016/10/13 09:10		
COC Number		581859-01-01	581859-01-01		581859-01-01	581859-01-01	581859-01-01		
	UNITS	**CS1-26**	**CS1-26 Lab-Dup**	**QC Batch**	**CS1-27**	**CS1-28**	**CS1-28 Lab-Dup**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.41	0.47	4716498	2.5	2.9	2.6	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	7.3	7.2	4716498	4.3	13	12	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	240	230	4716498	140	170	170	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	0.57	0.56	4716498	0.59	1.0	1.0	0.20	4716460
Acid Extractable Boron (B)	ug/g	6.8	6.9	4716498	5.1	<5.0	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	1.1	1.2	4716498	0.56	1.3	1.4	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	42	40	4716498	110	18	19	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	14	14	4716498	31	11	11	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	88	89	4716498	70	68	74	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	130	130	4716498	680	950	930	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.4	1.6	4716498	0.89	2.7	2.8	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	29	29	4716498	91	25	24	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	1.3	1.4	4716498	0.56	4.7	4.6	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	0.27	0.30	4716498	<0.20	0.27	0.29	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.094	0.084	4716498	0.11	0.35	0.33	0.050	4716460
Acid Extractable Uranium (U)	ug/g	1.9	1.9	4716498	0.41	0.84	0.86	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	55	53	4716498	79	31	30	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	230	230	4716498	290	540	530	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP154		DGP155		DGP156		
Sampling Date		2016/10/13 09:15		2016/10/13 09:20		2016/10/13 09:30		
COC Number		581859-01-01		581859-01-01		581859-01-01		
	UNITS	**CS1-29**	**QC Batch**	**CS1-30**	**QC Batch**	**CS1-31**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.57	4716460	3.7	4716498	0.45	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	2.9	4716460	4.8	4716498	4.9	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	22	4716460	140	4716498	140	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716460	<0.20	4716498	<0.20	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	4716460	5.7	4716498	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.35	4716460	0.78	4716498	1.6	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	2.7	4716460	27	4716498	24	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	0.68	4716460	17	4716498	5.4	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	6.8	4716460	30	4716498	49	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	59	4716460	570	4716498	160	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	0.65	4716460	0.74	4716498	1.2	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	2.8	4716460	36	4716498	19	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	0.68	4716460	0.76	4716498	1.0	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	4716460	<0.20	4716498	0.32	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	4716460	0.22	4716498	0.078	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.10	4716460	0.20	4716498	0.39	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	<5.0	4716460	59	4716498	41	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	12	4716460	150	4716498	120	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP157		DGP158		DGP159		
Sampling Date		2016/10/13 09:40		2016/10/13 09:50		2016/10/13 10:00		
COC Number		581859-01-01		581859-01-01		581859-01-01		
	UNITS	**CS1-32**	**QC Batch**	**CS1-33**	**QC Batch**	**CS1-34**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.47	4716498	0.39	4716460	0.56	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	7.4	4716498	5.3	4716460	9.2	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	270	4716498	57	4716460	170	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716498	<0.20	4716460	0.32	0.20	4716588
Acid Extractable Boron (B)	ug/g	5.6	4716498	<5.0	4716460	7.2	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	1.2	4716498	0.74	4716460	1.8	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	12	4716498	7.2	4716460	12	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	6.1	4716498	2.1	4716460	3.3	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	85	4716498	22	4716460	150	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	130	4716498	56	4716460	47	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	1.3	4716498	1.1	4716460	1.2	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	14	4716498	7.7	4716460	28	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	0.73	4716498	1.4	4716460	1.8	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	0.21	4716498	<0.20	4716460	0.35	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	0.090	4716498	0.060	4716460	0.088	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.24	4716498	0.80	4716460	1.1	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	15	4716498	6.2	4716460	8.5	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	280	4716498	31	4716460	94	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP160	DGP199	DGP200		DGP201	DGP201		
Sampling Date		2016/10/13 10:10	2016/10/13 10:20	2016/10/13 10:25		2016/10/13 10:30	2016/10/13 10:30		
COC Number		581859-01-01	581859-02-01	581859-02-01		581859-02-01	581859-02-01		
	UNITS	**CS1-35**	**CS1-36**	**CS1-37**	**QC Batch**	**CS1-38**	**CS1-38 Lab-Dup**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.51	0.54	4716498	<0.20	<0.20	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	2.2	4.6	4.7	4716498	2.4	2.5	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	81	190	120	4716498	48	45	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	0.33	<0.20	<0.20	4716498	0.28	0.26	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	4716498	<5.0	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.20	0.53	0.52	4716498	0.19	0.18	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	92	4.9	3.6	4716498	62	60	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	46	1.1	0.85	4716498	41	41	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	54	12	8.1	4716498	41	39	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	14	44	56	4716498	14	14	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	1.3	1.0	4716498	0.51	0.54	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	130	4.1	3.0	4716498	100	100	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	<0.50	1.4	0.97	4716498	<0.50	<0.50	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	4716498	<0.20	<0.20	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.055	0.075	4716498	<0.050	<0.050	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.11	0.36	0.19	4716498	0.17	0.16	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	160	5.8	5.1	4716498	160	150	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	100	34	20	4716498	67	65	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP202	DGP203	DGP204		DGP205		
Sampling Date		2016/10/13 10:40	2016/10/13 10:50	2016/10/13 11:00		2016/10/13 11:10		
COC Number		581859-02-01	581859-02-01	581859-02-01		581859-02-01		
	UNITS	**CS1-39**	**CS1-40**	**CS1-41**	**QC Batch**	**CS1-42**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.50	0.44	<0.20	4716498	0.62	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	8.1	7.5	1.5	4716498	2.7	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	130	180	40	4716498	120	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	0.46	0.31	<0.20	4716498	<0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	<5.0	7.8	<5.0	4716498	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	1.0	1.5	0.22	4716498	0.74	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	51	31	18	4716498	13	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	7.8	12	3.5	4716498	2.5	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	51	150	13	4716498	24	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	83	83	14	4716498	110	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.9	1.3	<0.50	4716498	1.0	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	24	47	9.3	4716498	10	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	1.1	1.4	<0.50	4716498	0.99	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	0.22	0.27	<0.20	4716498	<0.20	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.068	0.086	0.051	4716498	0.12	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.49	2.4	0.50	4716498	0.31	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	39	38	18	4716498	14	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	96	190	35	4716498	270	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP206		DGP207	DGP208		DGP245		
Sampling Date		2016/10/13 11:20		2016/10/13 11:30	2016/10/12 16:10		2016/10/13 16:20		
COC Number		581859-02-01		581859-02-01	581859-02-01		581859-03-01		
	UNITS	**CS1-43**	**QC Batch**	**CS1-44**	**CS1-45**	**QC Batch**	**CS1-46**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	1.1	4716588	0.96	0.43	4716498	0.46	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	3.1	4716588	5.6	2.0	4716498	4.2	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	97	4716588	230	110	4716498	170	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716588	0.24	<0.20	4716498	0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	6.6	4716588	5.1	<5.0	4716498	13	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	0.59	4716588	9.4	0.24	4716498	1.5	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	7.4	4716588	18	5.6	4716498	32	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	1.2	4716588	3.8	1.3	4716498	12	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	18	4716588	41	17	4716498	62	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	100	4716588	140	29	4716498	170	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.0	4716588	1.1	0.63	4716498	1.3	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	5.0	4716588	15	9.0	4716498	30	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	1.0	4716588	1.0	0.89	4716498	0.97	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	<0.20	4716588	<0.20	<0.20	4716498	0.33	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.054	4716588	0.10	<0.050	4716498	0.084	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.19	4716588	0.43	0.28	4716498	0.62	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	6.7	4716588	20	<5.0	4716498	39	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	120	4716588	190	13	4716498	210	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP246		DGP247		DGP248	DGP249		
Sampling Date		2016/10/13 08:50		2016/10/12 13:00		2016/10/12 13:10	2016/10/12 13:20		
COC Number		581859-03-01		581859-03-01		581859-03-01	581859-03-01		
	UNITS	**CS2-12**	**QC Batch**	**CS2-13**	**QC Batch**	**CS2-14**	**CS2-15**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.60	4716588	0.24	4716498	0.53	0.46	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	8.3	4716588	1.7	4716498	5.7	17	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	100	4716588	27	4716498	70	68	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	0.31	4716588	<0.20	4716498	<0.20	<0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	<5.0	4716588	6.0	4716498	<5.0	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	0.83	4716588	0.60	4716498	0.67	0.38	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	31	4716588	2.7	4716498	7.3	43	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	12	4716588	4.0	4716498	3.3	8.7	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	53	4716588	24	4716498	21	13	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	120	4716588	61	4716498	60	34	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	1.0	4716588	0.55	4716498	0.79	3.7	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	23	4716588	3.3	4716498	10	20	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	0.86	4716588	0.69	4716498	1.1	0.82	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	0.30	4716588	<0.20	4716498	1.3	0.23	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	0.082	4716588	<0.050	4716498	0.067	0.10	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.31	4716588	0.18	4716498	0.25	0.36	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	44	4716588	9.7	4716498	16	160	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	180	4716588	170	4716498	87	110	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP250	DGP278		DGP279		DGP280		
Sampling Date		2016/10/12 13:30	2016/10/12 13:50		2016/10/12 14:00		2016/10/12 14:20		
COC Number		581859-03-01	581859-04-01		581859-04-01		581859-04-01		
	UNITS	**CS2-16**	**CS2-17**	**QC Batch**	**CS2-18**	**QC Batch**	**CS2-19**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.31	0.31	4716498	0.30	4716588	0.21	0.20	4716498
Acid Extractable Arsenic (As)	ug/g	9.2	4.1	4716498	4.9	4716588	1.8	1.0	4716498
Acid Extractable Barium (Ba)	ug/g	87	51	4716498	73	4716588	32	0.50	4716498
Acid Extractable Beryllium (Be)	ug/g	0.51	0.34	4716498	<0.20	4716588	<0.20	0.20	4716498
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	4716498	<5.0	4716588	5.2	5.0	4716498
Acid Extractable Cadmium (Cd)	ug/g	0.69	0.28	4716498	1.1	4716588	0.81	0.10	4716498
Acid Extractable Chromium (Cr)	ug/g	61	58	4716498	8.4	4716588	11	1.0	4716498
Acid Extractable Cobalt (Co)	ug/g	17	19	4716498	6.3	4716588	1.8	0.10	4716498
Acid Extractable Copper (Cu)	ug/g	27	48	4716498	55	4716588	22	0.50	4716498
Acid Extractable Lead (Pb)	ug/g	19	170	4716498	61	4716588	17	1.0	4716498
Acid Extractable Molybdenum (Mo)	ug/g	4.8	1.3	4716498	1.0	4716588	1.9	0.50	4716498
Acid Extractable Nickel (Ni)	ug/g	24	62	4716498	9.4	4716588	8.5	0.50	4716498
Acid Extractable Selenium (Se)	ug/g	1.6	0.72	4716498	0.90	4716588	1.2	0.50	4716498
Acid Extractable Silver (Ag)	ug/g	1.1	<0.20	4716498	<0.20	4716588	<0.20	0.20	4716498
Acid Extractable Thallium (Tl)	ug/g	0.081	0.081	4716498	<0.050	4716588	<0.050	0.050	4716498
Acid Extractable Uranium (U)	ug/g	0.76	0.38	4716498	0.50	4716588	0.11	0.050	4716498
Acid Extractable Vanadium (V)	ug/g	130	210	4716498	51	4716588	6.2	5.0	4716498
Acid Extractable Zinc (Zn)	ug/g	140	170	4716498	98	4716588	160	5.0	4716498

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6M4185
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DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP281		DGP282		DGP283		
Sampling Date		2016/10/13 13:10		2016/10/12 10:00		2016/10/12 10:10		
COC Number		581859-04-01		581859-04-01		581859-04-01		
	UNITS	**CS2-20**	**QC Batch**	**CS3-11**	**QC Batch**	**CS3-12**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.44	4716498	0.69	4716460	<0.20	0.20	4716498
Acid Extractable Arsenic (As)	ug/g	2.6	4716498	4.3	4716460	4.6	1.0	4716498
Acid Extractable Barium (Ba)	ug/g	110	4716498	51	4716460	27	0.50	4716498
Acid Extractable Beryllium (Be)	ug/g	0.22	4716498	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Boron (B)	ug/g	<5.0	4716498	<5.0	4716460	<5.0	5.0	4716498
Acid Extractable Cadmium (Cd)	ug/g	0.76	4716498	0.24	4716460	0.23	0.10	4716498
Acid Extractable Chromium (Cr)	ug/g	7.7	4716498	15	4716460	17	1.0	4716498
Acid Extractable Cobalt (Co)	ug/g	8.7	4716498	6.2	4716460	10	0.10	4716498
Acid Extractable Copper (Cu)	ug/g	47	4716498	15	4716460	12	0.50	4716498
Acid Extractable Lead (Pb)	ug/g	1000	4716498	130	4716460	25	1.0	4716498
Acid Extractable Molybdenum (Mo)	ug/g	1.9	4716498	<0.50	4716460	<0.50	0.50	4716498
Acid Extractable Nickel (Ni)	ug/g	5.1	4716498	16	4716460	15	0.50	4716498
Acid Extractable Selenium (Se)	ug/g	0.57	4716498	<0.50	4716460	<0.50	0.50	4716498
Acid Extractable Silver (Ag)	ug/g	<0.20	4716498	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Thallium (Tl)	ug/g	0.17	4716498	<0.050	4716460	<0.050	0.050	4716498
Acid Extractable Uranium (U)	ug/g	0.51	4716498	0.12	4716460	0.13	0.050	4716498
Acid Extractable Vanadium (V)	ug/g	110	4716498	13	4716460	13	5.0	4716498
Acid Extractable Zinc (Zn)	ug/g	300	4716498	100	4716460	61	5.0	4716498

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP284	DGP285		DGP286		DGP287		
Sampling Date		2016/10/12 10:20	2016/10/12 10:30		2016/10/12 10:40		2016/10/12 10:50		
COC Number		581859-04-01	581859-04-01		581859-04-01		581859-04-01		
	UNITS	**CS3-13**	**CS3-14**	**QC Batch**	**CS3-15**	**QC Batch**	**CS3-16**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.54	0.58	4716588	1.7	4718485	2.6	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	12	3.7	4716588	9.1	4718485	36	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	220	51	4716588	95	4718485	520	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	0.37	0.28	4716588	0.44	4718485	2.1	0.20	4716588
Acid Extractable Boron (B)	ug/g	6.5	13	4716588	<5.0	4718485	9.5	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	1.7	0.89	4716588	1.9	4718485	1.8	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	32	16	4716588	32	4718485	29	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	16	7.0	4716588	20	4718485	18	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	130	140	4716588	88	4718485	200	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	110	200	4716588	240	4718485	1800	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	2.3	0.60	4716588	0.90	4718485	3.3	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	22	20	4716588	31	4718485	31	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	1.9	1.7	4716588	1.6	4718485	1.5	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	0.24	0.48	4716588	0.67	4718485	0.76	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	0.099	0.085	4716588	0.094	4718485	0.52	0.050	4716588
Acid Extractable Uranium (U)	ug/g	4.4	1.5	4716588	0.98	4718485	0.89	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	25	9.7	4716588	24	4718485	30	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	260	150	4716588	230	4718485	970	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP288	DGP289		DGP290	DGP291	DGP292		
Sampling Date		2016/10/12 11:10	2016/10/12 11:20		2016/10/12 11:30	2016/10/12 11:40	2016/10/12 11:50		
COC Number		581859-05-01	581859-05-01		581859-05-01	581859-05-01	581859-05-01		
	UNITS	**CS3-17**	**CS3-18**	**QC Batch**	**CS3-19**	**CS3-20**	**CS3-21**	**RDL**	**QC Batch**
Metals									
Acid Extractable Antimony (Sb)	ug/g	0.26	0.24	4716498	<0.20	0.64	0.48	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	4.2	28	4716498	5.4	3.1	20	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	85	53	4716498	20	36	76	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.42	4716498	<0.20	<0.20	0.25	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	4716498	<5.0	<5.0	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.55	0.71	4716498	0.27	0.36	1.4	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	19	350	4716498	18	18	16	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	3.1	17	4716498	9.7	9.0	9.9	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	24	26	4716498	25	27	47	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	25	160	4716498	18	150	45	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	0.87	<0.50	4716498	<0.50	0.59	1.9	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	9.6	170	4716498	22	19	29	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	0.79	1.0	4716498	<0.50	<0.50	0.85	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	0.25	4716498	<0.20	<0.20	0.67	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.075	4716498	<0.050	<0.050	0.12	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.36	0.36	4716498	0.093	0.23	0.43	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	12	38	4716498	13	11	23	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	56	52	4716498	77	99	130	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP293		DGP302		DGP303		
Sampling Date		2016/10/12 12:00		2016/10/12 14:30		2016/10/13 13:40		
COC Number		581859-05-01		581859-06-01		581859-06-01		
	UNITS	**CS3-22**	**QC Batch**	**CS2-21**	**QC Batch**	**CS2-22**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.60	4716588	0.23	4716460	0.26	0.20	4716498
Acid Extractable Arsenic (As)	ug/g	6.5	4716588	2.9	4716460	4.5	1.0	4716498
Acid Extractable Barium (Ba)	ug/g	37	4716588	84	4716460	46	0.50	4716498
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716588	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Boron (B)	ug/g	<5.0	4716588	<5.0	4716460	<5.0	5.0	4716498
Acid Extractable Cadmium (Cd)	ug/g	0.90	4716588	0.62	4716460	0.14	0.10	4716498
Acid Extractable Chromium (Cr)	ug/g	19	4716588	9.9	4716460	23	1.0	4716498
Acid Extractable Cobalt (Co)	ug/g	16	4716588	5.4	4716460	8.5	0.10	4716498
Acid Extractable Copper (Cu)	ug/g	78	4716588	23	4716460	31	0.50	4716498
Acid Extractable Lead (Pb)	ug/g	31	4716588	320	4716460	180	1.0	4716498
Acid Extractable Molybdenum (Mo)	ug/g	0.52	4716588	1.7	4716460	2.3	0.50	4716498
Acid Extractable Nickel (Ni)	ug/g	14	4716588	6.4	4716460	19	0.50	4716498
Acid Extractable Selenium (Se)	ug/g	<0.50	4716588	0.84	4716460	<0.50	0.50	4716498
Acid Extractable Silver (Ag)	ug/g	<0.20	4716588	<0.20	4716460	<0.20	0.20	4716498
Acid Extractable Thallium (Tl)	ug/g	<0.050	4716588	0.12	4716460	0.077	0.050	4716498
Acid Extractable Uranium (U)	ug/g	0.19	4716588	0.72	4716460	0.35	0.050	4716498
Acid Extractable Vanadium (V)	ug/g	16	4716588	64	4716460	170	5.0	4716498
Acid Extractable Zinc (Zn)	ug/g	340	4716588	120	4716460	82	5.0	4716498

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP304		DGP305		DGP306		
Sampling Date		2016/10/12 10:00		2016/10/13 13:10		2016/10/12 11:40		
COC Number		581859-06-01		581859-06-01		581859-06-01		
	UNITS	**CS3-110**	**QC Batch**	**CS2-200**	**QC Batch**	**CS3-200**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	1.2	4716588	0.38	4716460	0.41	0.20	4716588
Acid Extractable Arsenic (As)	ug/g	2.9	4716588	2.5	4716460	3.2	1.0	4716588
Acid Extractable Barium (Ba)	ug/g	53	4716588	86	4716460	31	0.50	4716588
Acid Extractable Beryllium (Be)	ug/g	<0.20	4716588	0.24	4716460	<0.20	0.20	4716588
Acid Extractable Boron (B)	ug/g	<5.0	4716588	<5.0	4716460	<5.0	5.0	4716588
Acid Extractable Cadmium (Cd)	ug/g	0.19	4716588	0.76	4716460	0.30	0.10	4716588
Acid Extractable Chromium (Cr)	ug/g	14	4716588	6.8	4716460	18	1.0	4716588
Acid Extractable Cobalt (Co)	ug/g	5.3	4716588	10	4716460	9.2	0.10	4716588
Acid Extractable Copper (Cu)	ug/g	13	4716588	45	4716460	35	0.50	4716588
Acid Extractable Lead (Pb)	ug/g	150	4716588	560	4716460	150	1.0	4716588
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	4716588	1.8	4716460	<0.50	0.50	4716588
Acid Extractable Nickel (Ni)	ug/g	13	4716588	5.5	4716460	19	0.50	4716588
Acid Extractable Selenium (Se)	ug/g	<0.50	4716588	0.69	4716460	<0.50	0.50	4716588
Acid Extractable Silver (Ag)	ug/g	<0.20	4716588	<0.20	4716460	<0.20	0.20	4716588
Acid Extractable Thallium (Tl)	ug/g	<0.050	4716588	0.16	4716460	<0.050	0.050	4716588
Acid Extractable Uranium (U)	ug/g	0.13	4716588	0.57	4716460	0.13	0.050	4716588
Acid Extractable Vanadium (V)	ug/g	11	4716588	110	4716460	12	5.0	4716588
Acid Extractable Zinc (Zn)	ug/g	100	4716588	280	4716460	100	5.0	4716588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		DGP307		
Sampling Date		2016/10/13 11:00		
COC Number		581859-06-01		
	UNITS	**CS1-410**	**RDL**	**QC Batch**
Metals				
Acid Extractable Antimony (Sb)	ug/g	0.22	0.20	4716460
Acid Extractable Arsenic (As)	ug/g	1.7	1.0	4716460
Acid Extractable Barium (Ba)	ug/g	40	0.50	4716460
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.20	4716460
Acid Extractable Boron (B)	ug/g	<5.0	5.0	4716460
Acid Extractable Cadmium (Cd)	ug/g	0.14	0.10	4716460
Acid Extractable Chromium (Cr)	ug/g	18	1.0	4716460
Acid Extractable Cobalt (Co)	ug/g	3.6	0.10	4716460
Acid Extractable Copper (Cu)	ug/g	12	0.50	4716460
Acid Extractable Lead (Pb)	ug/g	13	1.0	4716460
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.50	4716460
Acid Extractable Nickel (Ni)	ug/g	10	0.50	4716460
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	4716460
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	4716460
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.050	4716460
Acid Extractable Uranium (U)	ug/g	0.73	0.050	4716460
Acid Extractable Vanadium (V)	ug/g	20	5.0	4716460
Acid Extractable Zinc (Zn)	ug/g	36	5.0	4716460

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 PAHS (SOIL)

Maxxam ID		DGP160		DGP199			DGP200		DGP201		
Sampling Date		2016/10/13 10:10		2016/10/13 10:20			2016/10/13 10:25		2016/10/13 10:30		
COC Number		581859-01-01		581859-02-01			581859-02-01		581859-02-01		
	UNITS	**CS1-35**	**RDL**	**CS1-36**	**RDL**	**QC Batch**	**CS1-37**	**RDL**	**CS1-38**	**RDL**	**QC Batch**
Inorganics											
Moisture	%	17	1.0	59	1.0	4715914	70	1.0	23	1.0	4715297
Calculated Parameters											
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	<0.014	0.014	4714848	<0.021	0.021	<0.0071	0.0071	4714848
Polyaromatic Hydrocarbons											
Acenaphthene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Acenaphthylene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Anthracene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(a)anthracene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(a)pyrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	0.040	0.015	<0.0050	0.0050	4717063
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Chrysene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	0.021	0.015	<0.0050	0.0050	4717063
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Fluoranthene	ug/g	<0.0050	0.0050	0.012	0.010	4717063	0.027	0.015	<0.0050	0.0050	4717063
Fluorene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
1-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
2-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Naphthalene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Phenanthrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	<0.015	0.015	<0.0050	0.0050	4717063
Pyrene	ug/g	<0.0050	0.0050	<0.010	0.010	4717063	0.021	0.015	0.0065	0.0050	4717063
Surrogate Recovery (%)											
D10-Anthracene	%	85		78		4717063	75		88		4717063
D14-Terphenyl (FS)	%	82		83		4717063	81		87		4717063
D8-Acenaphthylene	%	79		78		4717063	76		82		4717063

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		DGP160		DGP199		DGP200		DGP201		
Sampling Date		2016/10/13 10:10		2016/10/13 10:20		2016/10/13 10:25		2016/10/13 10:30		
COC Number		581859-01-01		581859-02-01		581859-02-01		581859-02-01		
	UNITS	**CS1-35**	**RDL**	**CS1-36**	**RDL**	**CS1-37**	**RDL**	**CS1-38**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
Toluene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
Ethylbenzene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
o-Xylene	ug/g	<0.040	0.040	<0.10	0.10	<0.20	0.20	<0.020	0.020	4715933
p+m-Xylene	ug/g	<0.080	0.080	<0.20	0.20	<0.40	0.40	<0.040	0.040	4715933
Total Xylenes	ug/g	<0.080	0.080	<0.20	0.20	<0.40	0.40	<0.040	0.040	4715933
F1 (C6-C10)	ug/g	44	20	<50	50	<100	100	<10	10	4715933
F1 (C6-C10) - BTEX	ug/g	44	20	<50	50	<100	100	<10	10	4715933
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	<20	20	<30	30	<10	10	4716027
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	150	100	160	150	<50	50	4716027
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	<100	100	<150	150	<50	50	4716027
Reached Baseline at C50	ug/g	Yes		Yes		Yes		Yes		4716027
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	112		111		112		113		4715933
4-Bromofluorobenzene	%	96		93		93		97		4715933
D10-Ethylbenzene	%	94		92		98		103		4715933
D4-1,2-Dichloroethane	%	95		94		95		96		4715933
o-Terphenyl	%	98		96		96		93		4716027

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 558 TCLP BENZO(A)PYRENE

Maxxam ID		DGP152	DGP152	DGP157	DGP205	DGP245	DGP281		
Sampling Date		2016/10/12 16:00	2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10		
COC Number		581859-01-01	581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01		
	UNITS	**CS1-27**	**CS1-27 Lab-Dup**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons									
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4720772
Surrogate Recovery (%)									
Leachable D10-Anthracene	%	104	105	94	103	95	107		4720772
Leachable D14-Terphenyl (FS)	%	101	98	69	81	79	96		4720772
Leachable D8-Acenaphthylene	%	86	89	88	89	87	89		4720772

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		DGP302	DGP305		
Sampling Date		2016/10/12 14:30	2016/10/13 13:10		
COC Number		581859-06-01	581859-06-01		
	UNITS	**CS2-21**	**CS2-200**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons					
Leachable Benzo(a)pyrene	ug/L	<0.10	<0.10	0.10	4720772
Surrogate Recovery (%)					
Leachable D10-Anthracene	%	102	108		4720772
Leachable D14-Terphenyl (FS)	%	94	95		4720772
Leachable D8-Acenaphthylene	%	89	90		4720772

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 558 TCLP BENZENE (SOIL)

Maxxam ID		DGP152	DGP157	DGP205	DGP245	DGP281		
Sampling Date		2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10		
COC Number		581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01		
	UNITS	**CS1-27**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**RDL**	**QC Batch**
Charge/Prep Analysis								
Amount Extracted (Wet Weight) (g)	N/A	25	25	25	25	25	N/A	4716626
Volatile Organics								
Leachable Benzene	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4715261
Surrogate Recovery (%)								
Leachable 4-Bromofluorobenzene	%	97	97	96	99	98		4715261
Leachable D4-1,2-Dichloroethane	%	101	100	103	104	102		4715261
Leachable D8-Toluene	%	99	99	100	98	97		4715261

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		DGP302	DGP305		
Sampling Date		2016/10/12 14:30	2016/10/13 13:10		
COC Number		581859-06-01	581859-06-01		
	UNITS	**CS2-21**	**CS2-200**	**RDL**	**QC Batch**
Charge/Prep Analysis					
Amount Extracted (Wet Weight) (g)	N/A	25	25	N/A	4716626
Volatile Organics					
Leachable Benzene	mg/L	<0.020	<0.020	0.020	4715261
Surrogate Recovery (%)					
Leachable 4-Bromofluorobenzene	%	98	100		4715261
Leachable D4-1,2-Dichloroethane	%	107	103		4715261
Leachable D8-Toluene	%	97	99		4715261

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

O.REG 558 TCLP LEACHATE PREPARATION (SOIL)

Maxxam ID		DGP152	DGP157	DGP205	DGP245	DGP281	DGP302		
Sampling Date		2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10	2016/10/12 14:30		
COC Number		581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01	581859-06-01		
	UNITS	**CS1-27**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**CS2-21**	**RDL**	**QC Batch**
Inorganics									
Final pH	pH	5.21	4.98	4.93	4.96	4.91	4.89		4717866
Initial pH	pH	8.27	5.47	5.16	6.08	5.48	5.09		4717866
TCLP - % Solids	%	100	100	100	100	100	100	0.2	4717858
TCLP Extraction Fluid	N/A	FLUID 1	FLUID 1	FLUID 1	FLUID 1	FLUID 1	FLUID 1		4717865

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DGP305		
Sampling Date		2016/10/13 13:10		
COC Number		581859-06-01		
	UNITS	**CS2-200**	**RDL**	**QC Batch**
Inorganics				
Final pH	pH	4.90		4717866
Initial pH	pH	5.63		4717866
TCLP - % Solids	%	100	0.2	4717858
TCLP Extraction Fluid	N/A	FLUID 1		4717865

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

O.REG 558 TCLP METALS (SOIL)

Maxxam ID		DGP152	DGP157	DGP205	DGP245	DGP281	DGP302		
Sampling Date		2016/10/12 16:00	2016/10/13 09:40	2016/10/13 11:10	2016/10/13 16:20	2016/10/13 13:10	2016/10/12 14:30		
COC Number		581859-01-01	581859-01-01	581859-02-01	581859-03-01	581859-04-01	581859-06-01		
	UNITS	**CS1-27**	**CS1-32**	**CS1-42**	**CS1-46**	**CS2-20**	**CS2-21**	**RDL**	**QC Batch**
Metals									
Leachable Mercury (Hg)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	4720302
Leachable Arsenic (As)	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	4718914
Leachable Barium (Ba)	mg/L	0.6	0.5	0.3	0.3	0.2	0.3	0.2	4718914
Leachable Boron (B)	mg/L	0.2	0.2	0.2	0.3	0.2	<0.1	0.1	4718914
Leachable Cadmium (Cd)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4718914
Leachable Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4718914
Leachable Lead (Pb)	mg/L	0.3	<0.1	<0.1	<0.1	0.3	0.1	0.1	4718914
Leachable Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4718914
Leachable Silver (Ag)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	4718914
Leachable Uranium (U)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	4718914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DGP305		
Sampling Date		2016/10/13 13:10		
COC Number		581859-06-01		
	UNITS	**CS2-200**	**RDL**	**QC Batch**
Metals				
Leachable Mercury (Hg)	mg/L	<0.0010	0.0010	4720302
Leachable Arsenic (As)	mg/L	<0.2	0.2	4718914
Leachable Barium (Ba)	mg/L	<0.2	0.2	4718914
Leachable Boron (B)	mg/L	<0.1	0.1	4718914
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	4718914
Leachable Chromium (Cr)	mg/L	<0.1	0.1	4718914
Leachable Lead (Pb)	mg/L	0.1	0.1	4718914
Leachable Selenium (Se)	mg/L	<0.1	0.1	4718914
Leachable Silver (Ag)	mg/L	<0.01	0.01	4718914
Leachable Uranium (U)	mg/L	<0.01	0.01	4718914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP151	DGP152	DGP152	DGP153		DGP154	DGP155	
Sampling Date		2016/10/13 09:00	2016/10/12 16:00	2016/10/12 16:00	2016/10/13 09:10		2016/10/13 09:15	2016/10/13 09:20	
COC Number		581859-01-01	581859-01-01	581859-01-01	581859-01-01		581859-01-01	581859-01-01	
	UNITS	**CS1-26**	**CS1-27**	**CS1-27 Lab-Dup**	**CS1-28**	**QC Batch**	**CS1-29**	**CS1-30**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	5.99	7.14	7.18	5.63	4715433	3.39	4.90	4715437

QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		DGP156	DGP157		DGP158	DGP159	DGP160	
Sampling Date		2016/10/13 09:30	2016/10/13 09:40		2016/10/13 09:50	2016/10/13 10:00	2016/10/13 10:10	
COC Number		581859-01-01	581859-01-01		581859-01-01	581859-01-01	581859-01-01	
	UNITS	**CS1-31**	**CS1-32**	**QC Batch**	**CS1-33**	**CS1-34**	**CS1-35**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	3.40	4.44	4715437	3.26	5.39	4.93	4715433

QC Batch = Quality Control Batch

Maxxam ID		DGP199	DGP200	DGP201	DGP202		DGP203	DGP204	
Sampling Date		2016/10/13 10:20	2016/10/13 10:25	2016/10/13 10:30	2016/10/13 10:40		2016/10/13 10:50	2016/10/13 11:00	
COC Number		581859-02-01	581859-02-01	581859-02-01	581859-02-01		581859-02-01	581859-02-01	
	UNITS	**CS1-36**	**CS1-37**	**CS1-38**	**CS1-39**	**QC Batch**	**CS1-40**	**CS1-41**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.26	3.31	5.35	4.08	4715437	6.30	6.91	4715433

QC Batch = Quality Control Batch

Maxxam ID		DGP205		DGP206		DGP207	DGP207	DGP208	
Sampling Date		2016/10/13 11:10		2016/10/13 11:20		2016/10/13 11:30	2016/10/13 11:30	2016/10/12 16:10	
COC Number		581859-02-01		581859-02-01		581859-02-01	581859-02-01	581859-02-01	
	UNITS	**CS1-42**	**QC Batch**	**CS1-43**	**QC Batch**	**CS1-44**	**CS1-44 Lab-Dup**	**CS1-45**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.81	4718486	3.85	4716478	3.93	3.93	4.79	4715437

QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP245		DGP246		DGP247		DGP248	
Sampling Date		2016/10/13 16:20		2016/10/13 08:50		2016/10/12 13:00		2016/10/12 13:10	
COC Number		581859-03-01		581859-03-01		581859-03-01		581859-03-01	
	UNITS	**CS1-46**	**QC Batch**	**CS2-12**	**QC Batch**	**CS2-13**	**QC Batch**	**CS2-14**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	5.49	4716478	4.75	4715437	4.55	4715433	3.30	4716478
QC Batch = Quality Control Batch									

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP249		DGP250		DGP278	DGP279	
Sampling Date		2016/10/12 13:20		2016/10/12 13:30		2016/10/12 13:50	2016/10/12 14:00	
COC Number		581859-03-01		581859-03-01		581859-04-01	581859-04-01	
	UNITS	**CS2-15**	**QC Batch**	**CS2-16**	**QC Batch**	**CS2-17**	**CS2-18**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	3.82	4715433	4.58	4715437	4.65	2.99	4715433
QC Batch = Quality Control Batch								

Maxxam ID		DGP280		DGP281		DGP282	DGP283	
Sampling Date		2016/10/12 14:20		2016/10/13 13:10		2016/10/12 10:00	2016/10/12 10:10	
COC Number		581859-04-01		581859-04-01		581859-04-01	581859-04-01	
	UNITS	**CS2-19**	**QC Batch**	**CS2-20**	**QC Batch**	**CS3-11**	**CS3-12**	**QC Batch**
Inorganics								
Available (CaCl2) pH	pH	5.40	4715437	4.07	4716478	5.86	4.70	4715437
QC Batch = Quality Control Batch								

Maxxam ID		DGP284		DGP285		DGP286		DGP287	
Sampling Date		2016/10/12 10:20		2016/10/12 10:30		2016/10/12 10:40		2016/10/12 10:50	
COC Number		581859-04-01		581859-04-01		581859-04-01		581859-04-01	
	UNITS	**CS3-13**	**QC Batch**	**CS3-14**	**QC Batch**	**CS3-15**	**QC Batch**	**CS3-16**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	4.83	4715433	6.64	4715437	4.83	4716478	4.71	4715437
QC Batch = Quality Control Batch									

Maxxam ID		DGP288	DGP289		DGP290	DGP291	DGP292	DGP293	
Sampling Date		2016/10/12 11:10	2016/10/12 11:20		2016/10/12 11:30	2016/10/12 11:40	2016/10/12 11:50	2016/10/12 12:00	
COC Number		581859-05-01	581859-05-01		581859-05-01	581859-05-01	581859-05-01	581859-05-01	
	UNITS	**CS3-17**	**CS3-18**	**QC Batch**	**CS3-19**	**CS3-20**	**CS3-21**	**CS3-22**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.64	5.00	4715437	6.15	6.33	3.34	4.66	4715433
QC Batch = Quality Control Batch									

Maxxam ID		DGP302		DGP303		DGP304		DGP305	
Sampling Date		2016/10/12 14:30		2016/10/13 13:40		2016/10/12 10:00		2016/10/13 13:10	
COC Number		581859-06-01		581859-06-01		581859-06-01		581859-06-01	
	UNITS	**CS2-21**	**QC Batch**	**CS2-22**	**QC Batch**	**CS3-110**	**QC Batch**	**CS2-200**	**QC Batch**
Inorganics									
Available (CaCl2) pH	pH	3.83	4716478	4.17	4715437	5.73	4715433	3.90	4716478
QC Batch = Quality Control Batch									

RESULTS OF ANALYSES OF SOIL

Maxxam ID		DGP306	DGP307	
Sampling Date		2016/10/12 11:40	2016/10/13 11:00	
COC Number		581859-06-01	581859-06-01	
	UNITS	**CS3-200**	**CS1-410**	**QC Batch**
Inorganics				
Available (CaCl2) pH	pH	6.30	6.93	4715433
QC Batch = Quality Control Batch				

Maxxam Job #: B6M4185
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DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP151
Sample ID: CS1-26
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP151 Dup
Sample ID: CS1-26
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu

Maxxam ID: DGP152
Sample ID: CS1-27
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/27	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP152 Dup
Sample ID: CS1-27
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP153
Sample ID: CS1-28
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP153 Dup
Sample ID: CS1-28
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri

Maxxam ID: DGP154
Sample ID: CS1-29
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP155
Sample ID: CS1-30
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP156
Sample ID: CS1-31
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP157
Sample ID: CS1-32
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP158
Sample ID: CS1-33
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP159
Sample ID: CS1-34
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/26	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP160
Sample ID: CS1-35
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715914	N/A	2016/10/24	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP199
Sample ID: CS1-36
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715914	N/A	2016/10/24	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP200
Sample ID: CS1-37
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715297	N/A	2016/10/24	Min Yang

TEST SUMMARY

Maxxam ID: DGP200
Sample ID: CS1-37
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP201
Sample ID: CS1-38
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	4714848	N/A	2016/10/26	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4715933	N/A	2016/10/25	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4716027	2016/10/24	2016/10/25	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
Moisture	BAL	4715297	N/A	2016/10/24	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	4717063	2016/10/25	2016/10/26	Mitesh Raj
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP201 Dup
Sample ID: CS1-38
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu

Maxxam ID: DGP202
Sample ID: CS1-39
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP203
Sample ID: CS1-40
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP204
Sample ID: CS1-41
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP205
Sample ID: CS1-42
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4718486	2016/10/26	2016/10/26	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP206
Sample ID: CS1-43
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP207
Sample ID: CS1-44
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP207 Dup
Sample ID: CS1-44
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP208
Sample ID: CS1-45
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

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Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP245
Sample ID: CS1-46
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP246
Sample ID: CS2-12
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP247
Sample ID: CS2-13
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP248
Sample ID: CS2-14
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP249
Sample ID: CS2-15
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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TEST SUMMARY

Maxxam ID: DGP250 **Collected:** 2016/10/12
Sample ID: CS2-16 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP278 **Collected:** 2016/10/12
Sample ID: CS2-17 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP279 **Collected:** 2016/10/12
Sample ID: CS2-18 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP280 **Collected:** 2016/10/12
Sample ID: CS2-19 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP281 **Collected:** 2016/10/13
Sample ID: CS2-20 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP282 **Collected:** 2016/10/12
Sample ID: CS3-11 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP283 **Collected:** 2016/10/12
Sample ID: CS3-12 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP284 **Collected:** 2016/10/12
Sample ID: CS3-13 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP285 **Collected:** 2016/10/12
Sample ID: CS3-14 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP286 **Collected:** 2016/10/12
Sample ID: CS3-15 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4718485	2016/10/26	2016/10/26	Daniel Teclu
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP287 **Collected:** 2016/10/12
Sample ID: CS3-16 **Shipped:**
Matrix: Soil **Received:** 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

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Maxxam Job #: B6M4185
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DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP288
Sample ID: CS3-17
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP289
Sample ID: CS3-18
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP290
Sample ID: CS3-19
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP291
Sample ID: CS3-20
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP292
Sample ID: CS3-21
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP293
Sample ID: CS3-22
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP302
Sample ID: CS2-21
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam ID: DGP303
Sample ID: CS2-22
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716498	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715437	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP304
Sample ID: CS3-110
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP305
Sample ID: CS2-200
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (TCLP Leachable) (mg/L)	CV/AA	4720302	N/A	2016/10/27	Magdalena Carlos
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4718914	2016/10/26	2016/10/27	Cristina Petran
PAH Compounds in Leachate by GC/MS (SIM)	GC/MS	4720772	2016/10/27	2016/10/28	Mitesh Raj
pH CaCl2 EXTRACT	AT	4716478	2016/10/25	2016/10/25	Neil Dassanayake
TCLP - % Solids	BAL	4717858	2016/10/25	2016/10/26	Walt Wang
TCLP - Extraction Fluid		4717865	N/A	2016/10/26	Walt Wang
TCLP - Initial and final pH	PH	4717866	N/A	2016/10/26	Walt Wang
TCLP Zero Headspace Extraction		4716626	2016/10/25	2016/10/26	Walt Wang
VOCs in ZHE Leachates	GC/MS	4715261	2016/10/26	2016/10/26	Karen Huynh

Maxxam Job #: B6M4185
Report Date: 2016/10/28

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

TEST SUMMARY

Maxxam ID: DGP306
Sample ID: CS3-200
Matrix: Soil

Collected: 2016/10/12
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716588	2016/10/25	2016/10/25	Daniel Teclu
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

Maxxam ID: DGP307
Sample ID: CS1-410
Matrix: Soil

Collected: 2016/10/13
Shipped:
Received: 2016/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	4716460	2016/10/25	2016/10/26	Viviana Canzonieri
pH CaCl2 EXTRACT	AT	4715433	2016/10/25	2016/10/25	Neil Dassanayake

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
Package 2	2.0°C
Package 3	2.0°C

Sample DGP160-01 : F1/BTEX Analysis: Detection limits were adjusted for sample weight .

Sample DGP199-01 : F1/BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.
F2-F4 Analysis: Detection limits were adjusted for high moisture content.

PAH analysis: Detection limits were adjusted for high moisture content.

Sample DGP200-01 : F1/BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.
F2-F4 Analysis: Detection limits were adjusted for high moisture content.

PAH analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4715261	Leachable 4-Bromofluorobenzene	2016/10/26	100	70 - 130	100	70 - 130	98	%				
4715261	Leachable D4-1,2-Dichloroethane	2016/10/26	101	70 - 130	99	70 - 130	100	%				
4715261	Leachable D8-Toluene	2016/10/26	100	70 - 130	98	70 - 130	100	%				
4715933	1,4-Difluorobenzene	2016/10/24	112	60 - 140	114	60 - 140	114	%				
4715933	4-Bromofluorobenzene	2016/10/24	96	60 - 140	96	60 - 140	94	%				
4715933	D10-Ethylbenzene	2016/10/24	102	60 - 140	94	60 - 140	94	%				
4715933	D4-1,2-Dichloroethane	2016/10/24	94	60 - 140	94	60 - 140	95	%				
4716027	o-Terphenyl	2016/10/25	102	60 - 130	100	60 - 130	101	%				
4717063	D10-Anthracene	2016/10/25	87	50 - 130	98	50 - 130	102	%				
4717063	D14-Terphenyl (FS)	2016/10/25	87	50 - 130	93	50 - 130	96	%				
4717063	D8-Acenaphthylene	2016/10/25	79	50 - 130	83	50 - 130	83	%				
4720772	Leachable D10-Anthracene	2016/10/27	104	50 - 130	103	50 - 130	105	%				
4720772	Leachable D14-Terphenyl (FS)	2016/10/27	96	50 - 130	94	50 - 130	94	%				
4720772	Leachable D8-Acenaphthylene	2016/10/27	94	50 - 130	92	50 - 130	91	%				
4715261	Leachable Benzene	2016/10/26	91	70 - 130	97	70 - 130	<0.020	mg/L	NC	30		
4715297	Moisture	2016/10/24							0	20		
4715433	Available (CaCl2) pH	2016/10/25			99	97 - 103			0.52	N/A		
4715437	Available (CaCl2) pH	2016/10/25			98	97 - 103			0.013	N/A		
4715914	Moisture	2016/10/24							3.3	20		
4715933	Benzene	2016/10/24	98	60 - 140	97	60 - 140	<0.020	ug/g	NC	50		
4715933	Ethylbenzene	2016/10/24	110	60 - 140	112	60 - 140	<0.020	ug/g	NC	50		
4715933	F1 (C6-C10) - BTEX	2016/10/24					<10	ug/g	NC	30		
4715933	F1 (C6-C10)	2016/10/24	88	60 - 140	82	80 - 120	<10	ug/g	NC	30		
4715933	o-Xylene	2016/10/24	106	60 - 140	106	60 - 140	<0.020	ug/g	NC	50		
4715933	p+m-Xylene	2016/10/24	98	60 - 140	99	60 - 140	<0.040	ug/g	NC	50		
4715933	Toluene	2016/10/24	104	60 - 140	101	60 - 140	<0.020	ug/g	NC	50		
4715933	Total Xylenes	2016/10/24					<0.040	ug/g	NC	50		
4716027	F2 (C10-C16 Hydrocarbons)	2016/10/25	100	50 - 130	99	80 - 120	<10	ug/g	NC	30		
4716027	F3 (C16-C34 Hydrocarbons)	2016/10/25	100	50 - 130	99	80 - 120	<50	ug/g	NC	30		
4716027	F4 (C34-C50 Hydrocarbons)	2016/10/25	102	50 - 130	101	80 - 120	<50	ug/g	NC	30		
4716460	Acid Extractable Antimony (Sb)	2016/10/26	87	75 - 125	101	80 - 120	<0.20	ug/g	10	30		
4716460	Acid Extractable Arsenic (As)	2016/10/26	NC	75 - 125	99	80 - 120	<1.0	ug/g	2.8	30		

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QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4716460	Acid Extractable Barium (Ba)	2016/10/26	NC	75 - 125	96	80 - 120	<0.50	ug/g	1.9	30		
4716460	Acid Extractable Beryllium (Be)	2016/10/26	91	75 - 125	96	80 - 120	<0.20	ug/g	2.4	30		
4716460	Acid Extractable Boron (B)	2016/10/26	83	75 - 125	95	80 - 120	<5.0	ug/g	NC	30		
4716460	Acid Extractable Cadmium (Cd)	2016/10/26	95	75 - 125	101	80 - 120	<0.10	ug/g	7.8	30		
4716460	Acid Extractable Chromium (Cr)	2016/10/26	NC	75 - 125	102	80 - 120	<1.0	ug/g	4.0	30		
4716460	Acid Extractable Cobalt (Co)	2016/10/26	94	75 - 125	100	80 - 120	<0.10	ug/g	0.21	30		
4716460	Acid Extractable Copper (Cu)	2016/10/26	NC	75 - 125	101	80 - 120	<0.50	ug/g	8.8	30		
4716460	Acid Extractable Lead (Pb)	2016/10/26	NC	75 - 125	101	80 - 120	<1.0	ug/g	2.0	30		
4716460	Acid Extractable Molybdenum (Mo)	2016/10/26	90	75 - 125	101	80 - 120	<0.50	ug/g	4.2	30		
4716460	Acid Extractable Nickel (Ni)	2016/10/26	NC	75 - 125	100	80 - 120	<0.50	ug/g	3.5	30		
4716460	Acid Extractable Selenium (Se)	2016/10/26	89	75 - 125	101	80 - 120	<0.50	ug/g	1.7	30		
4716460	Acid Extractable Silver (Ag)	2016/10/26	98	75 - 125	105	80 - 120	<0.20	ug/g	NC	30		
4716460	Acid Extractable Thallium (Tl)	2016/10/26	90	75 - 125	99	80 - 120	<0.050	ug/g	4.1	30		
4716460	Acid Extractable Uranium (U)	2016/10/26	92	75 - 125	100	80 - 120	<0.050	ug/g	2.2	30		
4716460	Acid Extractable Vanadium (V)	2016/10/26	NC	75 - 125	97	80 - 120	<5.0	ug/g	1.7	30		
4716460	Acid Extractable Zinc (Zn)	2016/10/26	NC	75 - 125	100	80 - 120	<5.0	ug/g	2.0	30		
4716478	Available (CaCl2) pH	2016/10/25			99	97 - 103			0.059	N/A		
4716498	Acid Extractable Antimony (Sb)	2016/10/25	91	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		
4716498	Acid Extractable Arsenic (As)	2016/10/25	97	75 - 125	100	80 - 120	<1.0	ug/g	1.4	30		
4716498	Acid Extractable Barium (Ba)	2016/10/25	NC	75 - 125	99	80 - 120	<0.50	ug/g	4.1	30		
4716498	Acid Extractable Beryllium (Be)	2016/10/25	97	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4716498	Acid Extractable Boron (B)	2016/10/25	89	75 - 125	93	80 - 120	<5.0	ug/g	NC	30		
4716498	Acid Extractable Cadmium (Cd)	2016/10/25	101	75 - 125	99	80 - 120	<0.10	ug/g	0.98	30		
4716498	Acid Extractable Chromium (Cr)	2016/10/25	NC	75 - 125	95	80 - 120	<1.0	ug/g	3.9	30		
4716498	Acid Extractable Cobalt (Co)	2016/10/25	NC	75 - 125	96	80 - 120	<0.10	ug/g	3.6	30		
4716498	Acid Extractable Copper (Cu)	2016/10/25	NC	75 - 125	102	80 - 120	<0.50	ug/g	1.6	30		
4716498	Acid Extractable Lead (Pb)	2016/10/25	NC	75 - 125	99	80 - 120	<1.0	ug/g	0.52	30		
4716498	Acid Extractable Molybdenum (Mo)	2016/10/25	94	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4716498	Acid Extractable Nickel (Ni)	2016/10/25	NC	75 - 125	96	80 - 120	<0.50	ug/g	0.58	30		
4716498	Acid Extractable Selenium (Se)	2016/10/25	94	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4716498	Acid Extractable Silver (Ag)	2016/10/25	98	75 - 125	102	80 - 120	<0.20	ug/g	NC	30		
4716498	Acid Extractable Thallium (Tl)	2016/10/25	88	75 - 125	96	80 - 120	<0.050	ug/g	NC	30		

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B6M4185
Report Date: 2016/10/28

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: GV-TB-027107

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4716498	Acid Extractable Uranium (U)	2016/10/25	91	75 - 125	96	80 - 120	<0.050	ug/g	2.2	30		
4716498	Acid Extractable Vanadium (V)	2016/10/25	NC	75 - 125	96	80 - 120	<5.0	ug/g	4.1	30		
4716498	Acid Extractable Zinc (Zn)	2016/10/25	NC	75 - 125	110	80 - 120	<5.0	ug/g	1.2	30		
4716588	Acid Extractable Antimony (Sb)	2016/10/25	79	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4716588	Acid Extractable Arsenic (As)	2016/10/25	95	75 - 125	102	80 - 120	<1.0	ug/g	NC	30		
4716588	Acid Extractable Barium (Ba)	2016/10/25	NC	75 - 125	98	80 - 120	<0.50	ug/g	6.2	30		
4716588	Acid Extractable Beryllium (Be)	2016/10/25	97	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4716588	Acid Extractable Boron (B)	2016/10/25	91	75 - 125	95	80 - 120	<5.0	ug/g	NC	30		
4716588	Acid Extractable Cadmium (Cd)	2016/10/25	97	75 - 125	99	80 - 120	<0.10	ug/g	NC	30		
4716588	Acid Extractable Chromium (Cr)	2016/10/25	NC	75 - 125	102	80 - 120	<1.0	ug/g	4.0	30		
4716588	Acid Extractable Cobalt (Co)	2016/10/25	NC	75 - 125	101	80 - 120	<0.10	ug/g	0.97	30		
4716588	Acid Extractable Copper (Cu)	2016/10/25	NC	75 - 125	99	80 - 120	<0.50	ug/g	5.6	30		
4716588	Acid Extractable Lead (Pb)	2016/10/25	NC	75 - 125	101	80 - 120	<1.0	ug/g	5.3	30		
4716588	Acid Extractable Molybdenum (Mo)	2016/10/25	95	75 - 125	97	80 - 120	<0.50	ug/g	NC	30		
4716588	Acid Extractable Nickel (Ni)	2016/10/25	NC	75 - 125	100	80 - 120	<0.50	ug/g	1.7	30		
4716588	Acid Extractable Selenium (Se)	2016/10/25	93	75 - 125	98	80 - 120	<0.50	ug/g	NC	30		
4716588	Acid Extractable Silver (Ag)	2016/10/25	102	75 - 125	100	80 - 120	<0.20	ug/g	NC	30		
4716588	Acid Extractable Thallium (Tl)	2016/10/25	93	75 - 125	97	80 - 120	<0.050	ug/g	NC	30		
4716588	Acid Extractable Uranium (U)	2016/10/25	96	75 - 125	99	80 - 120	<0.050	ug/g	NC	30		
4716588	Acid Extractable Vanadium (V)	2016/10/25	NC	75 - 125	98	80 - 120	<5.0	ug/g	2.6	30		
4716588	Acid Extractable Zinc (Zn)	2016/10/25	NC	75 - 125	100	80 - 120	<5.0	ug/g	1.7	30		
4717063	1-Methylnaphthalene	2016/10/25	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40		
4717063	2-Methylnaphthalene	2016/10/25	69	50 - 130	75	50 - 130	<0.0050	ug/g	NC	40		
4717063	Acenaphthene	2016/10/25	82	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Acenaphthylene	2016/10/25	75	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40		
4717063	Anthracene	2016/10/25	78	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(a)anthracene	2016/10/25	88	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(a)pyrene	2016/10/25	88	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(b/j)fluoranthene	2016/10/25	82	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(g,h,i)perylene	2016/10/25	92	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40		
4717063	Benzo(k)fluoranthene	2016/10/25	83	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		
4717063	Chrysene	2016/10/25	90	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4717063	Dibenz(a,h)anthracene	2016/10/25	89	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40		
4717063	Fluoranthene	2016/10/25	93	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
4717063	Fluorene	2016/10/25	79	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40		
4717063	Indeno(1,2,3-cd)pyrene	2016/10/25	91	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Naphthalene	2016/10/25	76	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40		
4717063	Phenanthrene	2016/10/25	85	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
4717063	Pyrene	2016/10/25	99	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40		
4718485	Acid Extractable Antimony (Sb)	2016/10/26	84	75 - 125	98	80 - 120	<0.20	ug/g	NC	30		
4718485	Acid Extractable Arsenic (As)	2016/10/26	103	75 - 125	96	80 - 120	<1.0	ug/g	NC	30		
4718485	Acid Extractable Barium (Ba)	2016/10/26	NC	75 - 125	103	80 - 120	<0.50	ug/g	4.0	30		
4718485	Acid Extractable Beryllium (Be)	2016/10/26	103	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
4718485	Acid Extractable Boron (B)	2016/10/26	97	75 - 125	99	80 - 120	<5.0	ug/g				
4718485	Acid Extractable Cadmium (Cd)	2016/10/26	103	75 - 125	95	80 - 120	<0.10	ug/g	NC	30		
4718485	Acid Extractable Chromium (Cr)	2016/10/26	NC	75 - 125	98	80 - 120	<1.0	ug/g	0.72	30		
4718485	Acid Extractable Cobalt (Co)	2016/10/26	107	75 - 125	99	80 - 120	<0.10	ug/g	2.3	30		
4718485	Acid Extractable Copper (Cu)	2016/10/26	103	75 - 125	100	80 - 120	<0.50	ug/g	3.3	30		
4718485	Acid Extractable Lead (Pb)	2016/10/26	103	75 - 125	97	80 - 120	<1.0	ug/g	0.33	30		
4718485	Acid Extractable Molybdenum (Mo)	2016/10/26	104	75 - 125	96	80 - 120	<0.50	ug/g	NC	30		
4718485	Acid Extractable Nickel (Ni)	2016/10/26	104	75 - 125	99	80 - 120	<0.50	ug/g	2.5	30		
4718485	Acid Extractable Selenium (Se)	2016/10/26	106	75 - 125	100	80 - 120	<0.50	ug/g	NC	30		
4718485	Acid Extractable Silver (Ag)	2016/10/26	104	75 - 125	96	80 - 120	<0.20	ug/g	NC	30		
4718485	Acid Extractable Thallium (Tl)	2016/10/26	103	75 - 125	95	80 - 120	<0.050	ug/g	NC	30		
4718485	Acid Extractable Uranium (U)	2016/10/26	103	75 - 125	93	80 - 120	<0.050	ug/g	2.3	30		
4718485	Acid Extractable Vanadium (V)	2016/10/26	NC	75 - 125	99	80 - 120	<5.0	ug/g	1.4	30		
4718485	Acid Extractable Zinc (Zn)	2016/10/26	NC	75 - 125	100	80 - 120	<5.0	ug/g	3.4	30		
4718486	Available (CaCl2) pH	2016/10/26			98	97 - 103			0.17	N/A		
4718914	Leachable Arsenic (As)	2016/10/27	97	80 - 120	102	80 - 120			NC	35	<0.2	mg/L
4718914	Leachable Barium (Ba)	2016/10/27	NC	80 - 120	97	80 - 120			NC	35	<0.2	mg/L
4718914	Leachable Boron (B)	2016/10/27	94	80 - 120	99	80 - 120			NC	35	<0.1	mg/L
4718914	Leachable Cadmium (Cd)	2016/10/27	100	80 - 120	98	80 - 120			NC	35	<0.05	mg/L
4718914	Leachable Chromium (Cr)	2016/10/27	97	80 - 120	100	80 - 120			NC	35	<0.1	mg/L
4718914	Leachable Lead (Pb)	2016/10/27	94	80 - 120	97	80 - 120			NC	35	<0.1	mg/L

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4718914	Leachable Selenium (Se)	2016/10/27	99	80 - 120	101	80 - 120			NC	35	<0.1	mg/L
4718914	Leachable Silver (Ag)	2016/10/27	95	80 - 120	94	80 - 120			NC	35	<0.01	mg/L
4718914	Leachable Uranium (U)	2016/10/27	98	80 - 120	100	80 - 120			NC	35	<0.01	mg/L
4720302	Leachable Mercury (Hg)	2016/10/27	113	75 - 125	110	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
4720772	Leachable Benzo(a)pyrene	2016/10/28	93	50 - 130	94	50 - 130	<0.10	ug/L	NC	40		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

CHARTERED
Eva Pranjic
CHEMIST

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

Page 1 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name	#47464 DST Consulting Engineers Inc	Company Name		Quotation #	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention	Accounts Payable	Attention	Geoffrey Lake	P.O. #			
Address	885 Regent Street Suite 3-1B	Address		Project		COC #: C#581859-01-01	Project Manager: Augustyna Dobosz
	Sudbury ON P3E 5M4			Project Name			
Tel	(705) 523-6680 Fax (705) 523-6690	Tel	(705) 523-6680 x258 Fax	Site #			
Email	ap@dstgroup.com	Email	glake@dstgroup.com	Sampled By			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Res/Park [ ] Medium/Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/Other [ ] For RSC [ ] Table ___

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw [ ] Reg 558 [ ] Storm Sewer Bylaw [ ] MISA Municipality ______ [ ] PWQO [ ] Other ______

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ______

Analysis Requested (please be specific): Field Filtered (please circle): Metals / Hg / Cr VI

Turnaround Time (TAT) Required: Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ______ Time Required: ______
Rush Confirmation Number: ______ (call lab for #)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	ICP/MS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	BTEX/PHC F1	PHC F2-F4	PAHs			# of Bottles	Comments
1		CS1-26	Oct 13 2016	0900	S		X	X									1	
2		CS1-27	Oct 12 2016	1600	S		X	X	X	X	X						5	
3		CS1-28	Oct 13 2016	0910	S		X	X									1	
4		CS1-29	Oct 13 2016	0915	S		X	X									1	Received in Sudbury
5		CS1-30	"	0920	S		X	X									1	
6		CS1-31	"	0930	S		X	X									1	
7		CS1-32	"	0940	S		X	X	X	X	X						4	17-Oct-16 11:14 Augustyna Dobosz
8		CS1-33	"	0950	S		X	X									2	B6M4185
9		CS1-34	"	1000	S		X	X									2	KP7 ENV-1167
10		CS1-35	"	1010	S		X	X				X	X	X			4	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Waddell Jonathan Waddell	16/10/17	1000	B.F. Brody Frazier	2016/10/17	11:14	
			Ashitha Sukumar ASHITHA SUKUMAR	2016/10/18	10:13	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4°C 2,2,2°C 2,2,2°C	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTR

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6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 2 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#47464 DST Consulting Engineers Inc.	Company Name:		Quotation #:	B61802
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:	
Address:	885 Regent Street Suite 3-1B	Address:		Project:	
	Sudbury ON P3E 5M4			Project Name:	
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Site #:	
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Sampled By:	

Laboratory Use Only:

Maxxam Job #:	Bottle Order #:
	581859
COC #:	Project Manager:
C#581859-02-01	Augustyna Dobosz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- [x] Table 1 [ ] Res/Park [ ] Medium/Fine
- [ ] Table 2 [ ] Ind/Comm [ ] Coarse
- [ ] Table 3 [ ] Agri/Other [ ] For RSC
- [ ] Table ___

Other Regulations
- [ ] CCME [ ] Sanitary Sewer Bylaw
- [ ] Reg 558 [ ] Storm Sewer Bylaw
- [ ] MISA Municipality ______
- [ ] PWQO
- [ ] Other ______

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ______

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ______ Time Required: ______
Rush Confirmation Number: ______ (call lab for #)

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	RPMS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	PHC F1/BTEX	PHC F2-F4	PAHs			# of Bottles	Comments
1		CS1-36	Oct 13 2016	1020	S		✓	✓				✓	✓	✓			4	
2		CS1-37	"	1025	S		✓	✓				✓	✓	✓			4	
3		CS1-38	"	1030	S		✓	✓				✓	✓	✓			4	
4		CS1-39	"	1040	S		✓	✓									1	
5		CS1-40	"	1050	S		✓	✓									1	Received in Sudbury
6		CS1-41	"	1100	S		✓	✓									1	
7		CS1-42	"	1110	S		✓	✓	✓	✓	✓						2	
8		CS1-43	"	1120	S		✓	✓									1	
9		CS1-44	"	1130	S		✓	✓									1	
10		CS1-45	Oct 12 2016	1610	S		✓	✓									3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
J. Waddell Jonathan Waddell	16/10/17	1000	B. F. Bradley Frazer	2016/10/17	11:14	
			Ashitha Sukumar ASHITHA SUKUMAR	2016/10/18	10:13	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4°C 2,2,2°C 2,2,2°C	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

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CHAIN OF CUSTODY RECORD

Page 3 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc.	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			
Address:	885 Regent Street Suite 3-1B, Sudbury ON P3E 5M4	Address:		Project:		COC #: C#581859-03-01	Project Manager: Augustyna Dobosz
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Project Name:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Table 2 [ ] Table 3 [ ] Table ___ ; [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other ; [ ] Medium/Fine [ ] Coarse [ ] For RSC

Other Regulations: [ ] CCME [ ] Reg 558 [ ] MISA [ ] PWQO [ ] Other ; [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw ; Municipality ______

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ______

ANALYSIS REQUESTED (PLEASE BE SPECIFIC): Field Filtered (please circle): Metals / Hg / Cr VI; ICPMS Metals; pH; TCLP Metals; TCLP Benzene; TCLP B(a)P

Turnaround Time (TAT) Required: Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ______ Time Required: ______
Rush Confirmation Number: ______ (call lab for #)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	ICPMS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	# of Bottles	Comments
1		CS1-46	Oct 13 2016	1620	S		✓	✓	✓	✓	✓	2	
2		~~CS1-47~~ SW											No SAMPLE
3		~~CS1-48~~ SW											No SAMPLE
4		~~CS1-49~~ SW											No SAMPLE
5		~~CS1-50~~ SW											No SAMPLE
6		CS2-12	Oct 13 2016	~~0850~~ 0850			✓	✓				1	
7		CS2-13	Oct 12 2016	1300	S		✓	✓				2	
8		CS2-14	"	1310	S		✓	✓				2	Received in Sudbury
9		CS2-15	"	1320	S		✓	✓				2	
10		CS2-16	"	1330	S		✓	✓				2	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Wonddell / Jonathan Wonddell	16/10/17	1008	B. F. / Brooke Fuller	2016/10/17	11:14	
			Ashitha Sukumar / ASHITHA SUKUMAR	2016/10/18	10:13	

Laboratory Use Only: Time Sensitive; Temperature (°C) on Receipt: 2,2,4°C 2,2,2°C 2,2,2°C; Custody Seal: Present — Yes ✓; Intact — Yes ✓

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACCR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free 800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 4 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			581859
Address:	885 Regent Street Suite 3-1B	Address:		Project:		COC #:	Project Manager:
	Sudbury ON P3E 5M4			Project Name:		C#581859-04-01	Augustyna Dobosz
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Site #:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Res/Park [ ] Medium/Fine [ ] Table 2 [ ] Ind/Comm [ ] Coarse [ ] Table 3 [ ] Agri/Other [ ] For RSC [ ] Table ___

Other Regulations: [ ] CCME [ ] Sanitary Sewer Bylaw [ ] Reg 558 [ ] Storm Sewer Bylaw [ ] MISA Municipality ______ [ ] PWQO [ ] Other ______

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ______

ANALYSIS REQUESTED (PLEASE BE SPECIFIC): Field Filtered (please circle): Metals / Hg / Cr VI; ICPMS Metals; pH; TCLP METALS; TCLP BENZENE; TCLP B(a)P

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ______ Time Required: ______
Rush Confirmation Number: ______ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	ICPMS Metals	pH	TCLP METALS	TCLP BENZENE	TCLP B(a)P	# of Bottles	Comments
1		CS2-17	Oct 12 2016	13 50	S		✓	✓				1	
2		CS2-18	"	14 00	S		✓	✓				1	
3		CS2-19	"	14 20	S		✓	✓				2	
4		CS2-20	Oct 13 2016	13:10	S		✓	✓	✓	✓	✓	2	
5		CS3-11	Oct 12 2016	10 00	S		✓	✓				1	
6		CS3-12	"	10 10	S		✓	✓				2	Received in Sudbury
7		CS3-13	"	10 20	S		✓	✓				1	
8		CS3-14	"	10 30	S		✓	✓				1	
9		CS3-15	"	10 40	S		✓	✓				1	
10		CS3-16	"	10 50	S		✓	✓				1	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Waddell / Sonathan Waddell	16/10/17	1000	B. F / Bradley Frazier	2016/10/17	11:14	
			Ashitha Surekumar / ASHITHA SURKUMAR	2016/10/18	10:13	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4°C 2,2,2°C 2,2,2°C	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 5 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			581859
Address:	885 Regent Street Suite 3-1B	Address:		Project:		COC #:	Project Manager:
	Sudbury ON P3E 5M4			Project Name:		C#581859-05-01	Augustyna Dobosz
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Site #:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): [X] Table 1 [ ] Table 2 [ ] Table 3 [ ] Table ___ [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other [ ] Medium/Fine [ ] Coarse [ ] For RSC

Other Regulations: [ ] CCME [ ] Reg 558 [ ] MISA [ ] PWQO [ ] Other ___ [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required: Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ (call lab for #)

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ICP/MS Metals	pH	TCLP Metals	TCLP Benzene	TCLP B(a)P	# of Bottles	Comments
1		CS3-17	Oct 12 2016	1110	S		✓	✓					
2		CS3-18	"	1120	S		✓	✓					
3		CS3-19	"	1130	S		✓	✓					
4		CS3-20	"	1140	S		✓	✓					Received in Sudbury
5		CS3-21	"	1150	S		✓	✓					
6		CS3-22	"	1200	S		✓	✓					
7		~~CS3-23~~ SW											No Sample
8		~~CS3-24~~ SW											No Sample
9		~~CS3-25~~ SW											No Sample
10		~~CS3-26~~ SW											No Sample

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
[signature] Jonathan Waddell	16/10/17	1000	[signature] Bradley Frappier	2016/10/17	11:14	
			[signature] ASHLEY ...	2016/10/18	10:13	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	2,2,4 °C 2,2,2 °C	Present	✓	
	2,2,2 °C	Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics
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CHAIN OF CUSTODY RECORD

Page 6 of 6

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#47464 DST Consulting Engineers Inc.	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #: 581859
Attention:	Accounts Payable	Attention:	Geoffrey Lake	P.O. #:			
Address:	885 Regent Street Suite 3-1B	Address:		Project:		COC #:	Project Manager:
	Sudbury ON P3E 5M4			Project Name:		C#581859-06-01	Augustyna Dobosz
Tel:	(705) 523-6680 Fax: (705) 523-6690	Tel:	(705) 523-6680 x258 Fax:	Site #:			
Email:	ap@dstgroup.com	Email:	glake@dstgroup.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

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Include Criteria on Certificate of Analysis (Y/N)? ____

ANALYSIS REQUESTED (PLEASE BE SPECIFIC): Field Filtered (please circle): Metals / Hg / Cr VI; ICP MS METALS; pH; TCLP METALS; TCLP BENZENE; TCLP B(a)P

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Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____
Rush Confirmation Number: ____ (call lab for #)

#	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	ICP MS METALS	pH	TCLP METALS	TCLP BENZENE	TCLP B(a)P	# of Bottles	Comments
1		CS2-21	OCT 12 2016	14:30 JW	S		✓	✓	✓	✓	✓	2	
2		CS2-22	OCT 13 2016	13:40	S		✓	✓				1 JW	
3		CS3-110	OCT 12 2016	10:00	S		✓	✓				1	
4		CS2-200	OCT 13 2016	13:10	S		✓	✓	✓	✓	✓	2	Received in Sudbury
5		CS3-200	OCT 12 2016	11:40	S		✓	✓				1	
6		CS1-410	OCT 13 2016	11:00	S		✓	✓				1	
7		~~[illegible]~~	~~OCT 13 2016~~	~~11:40~~	~~SA~~		~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~2~~	JW
8		CS2-3										1	HOLD
9													
10													

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
S. Waddell / Southern Waddell	16/10/17	10:00	B.F. - Bradley Fraser	2016/10/17	11:14			2,2,4°C 2,2,2°C	Present	✓	
			Arlitha Alleniwa / ARLITHA SUKCIKIM	2016/10/18	10:13			2,2,2°C	Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

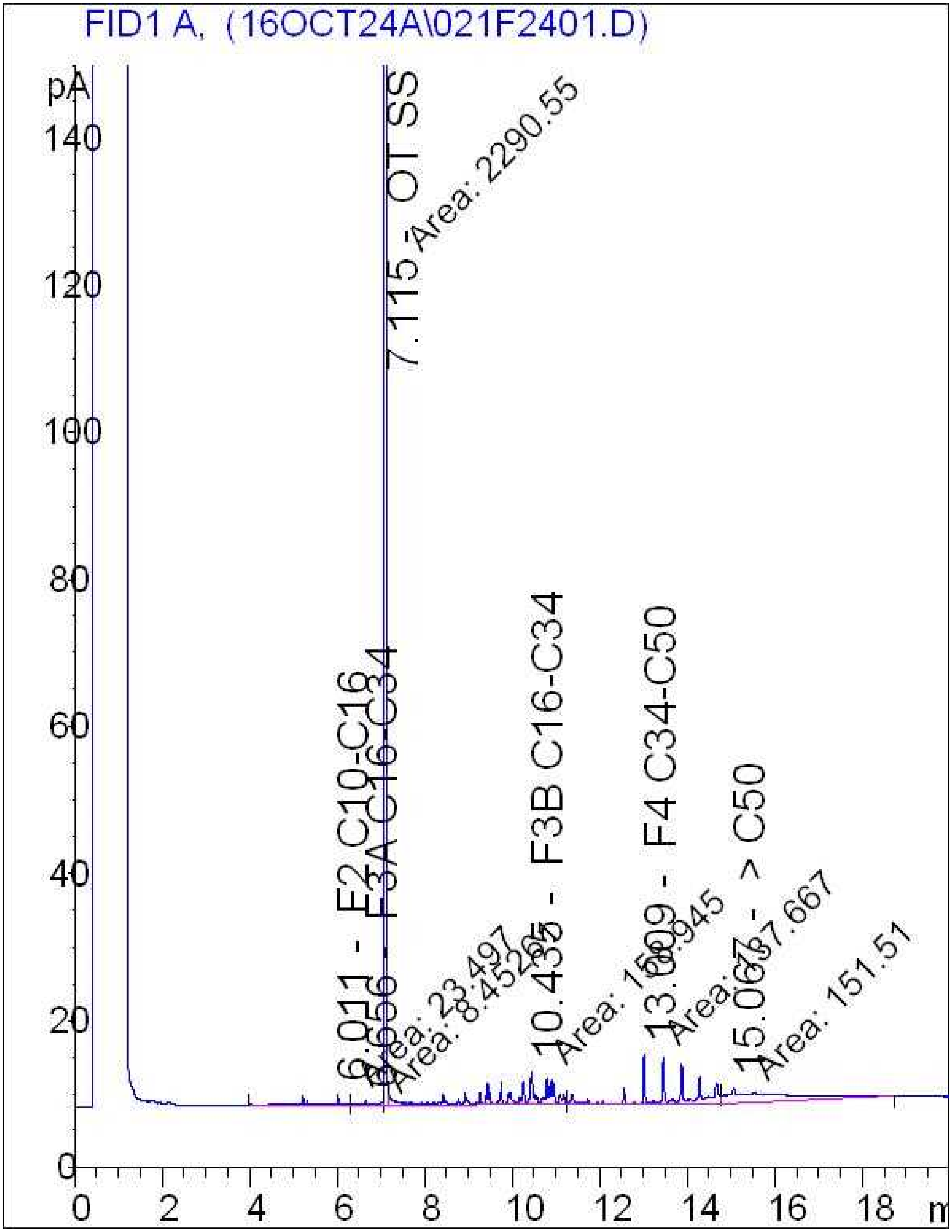
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

REFER TO ACTR

Maxxam Analytics International Corporation o/a Maxxam Analytics

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

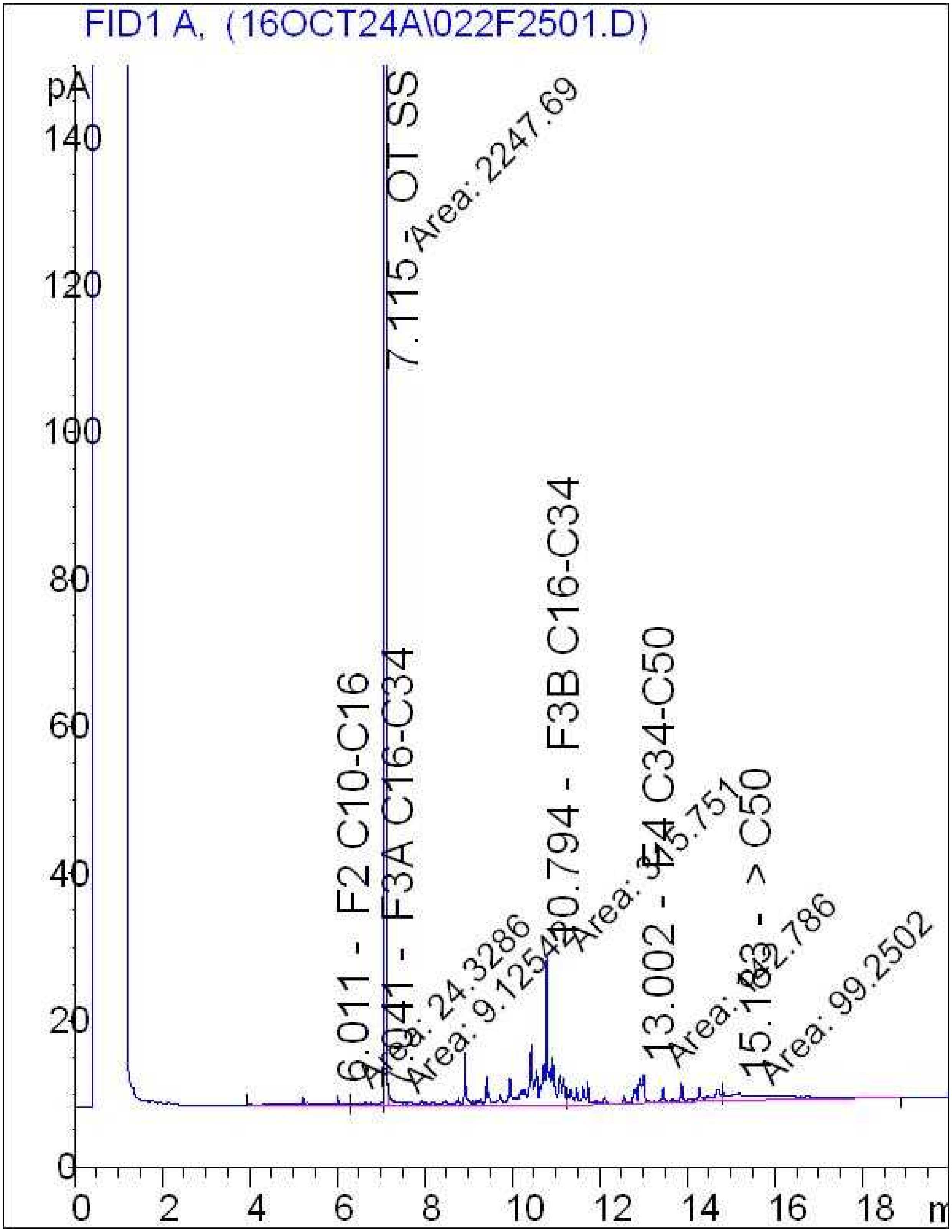


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6M4185
Report Date: 2016/10/28
Maxxam Sample: DGP199

DST Consulting Engineers Inc
Client Project #: GV-TB-027107
Client ID: CS1-36

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

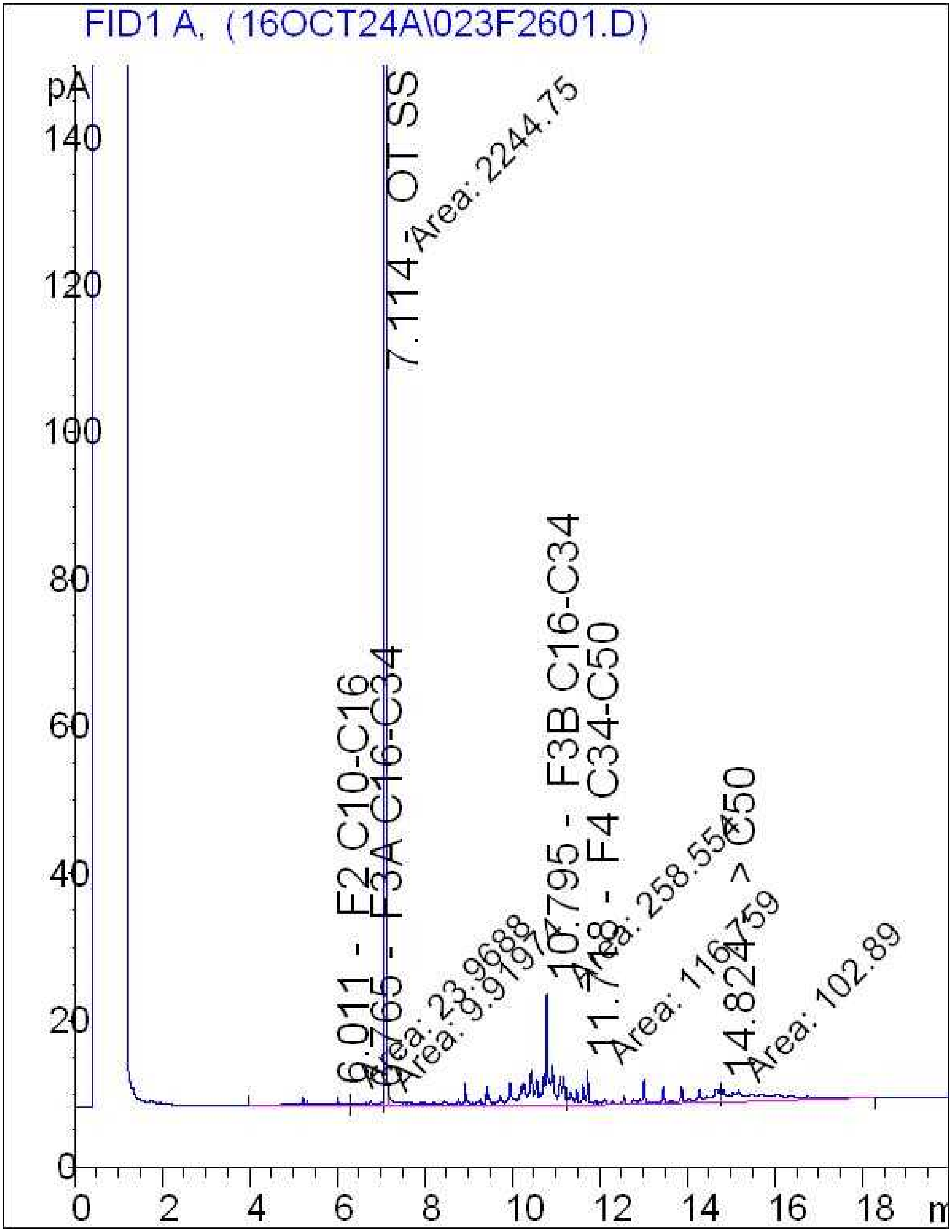


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B6M4185
Report Date: 2016/10/28
Maxxam Sample: DGP200

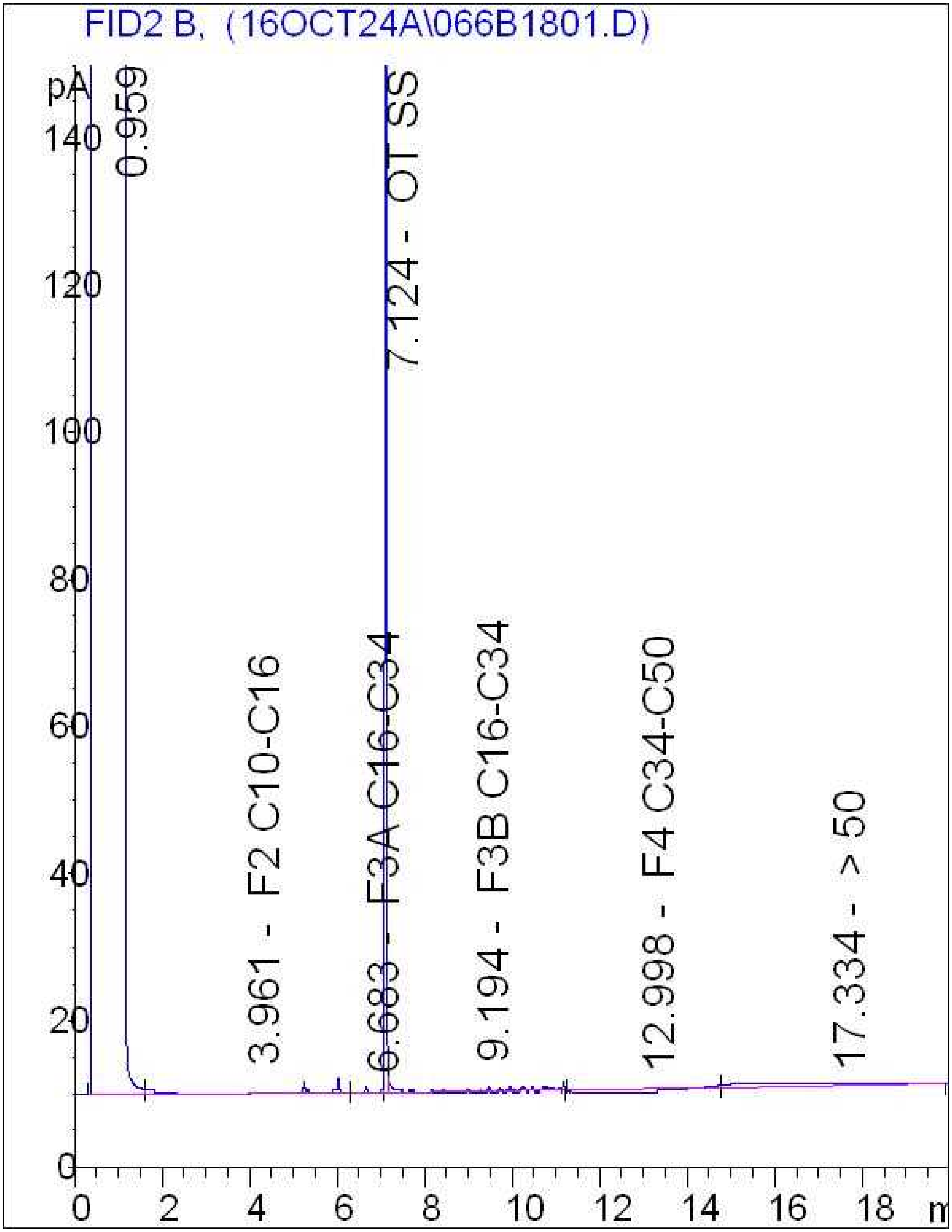
DST Consulting Engineers Inc
Client Project #: GV-TB-027107
Client ID: CS1-37

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

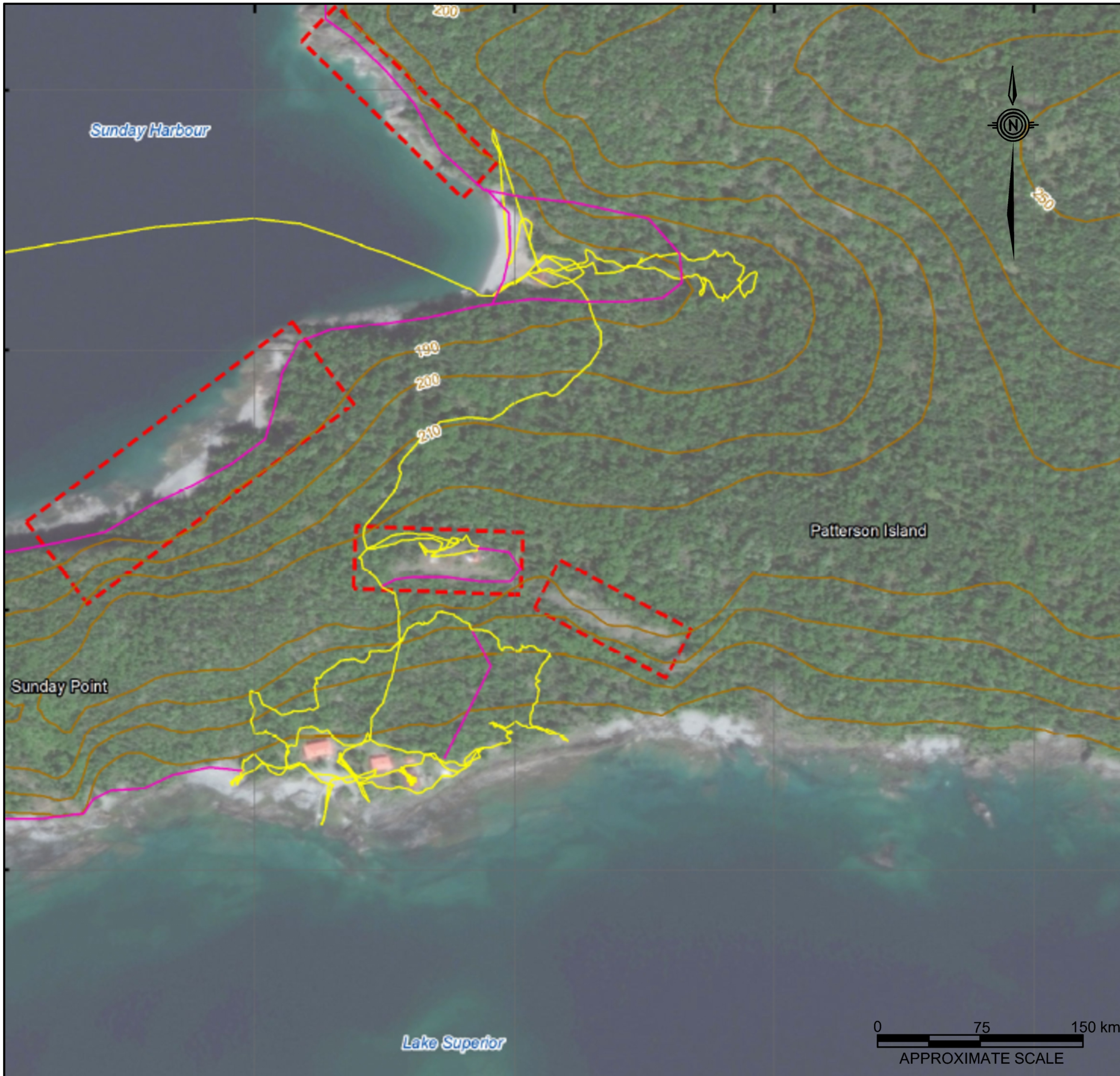


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Appendix D

Sepcies at Risk Survey

Figures



DST
consulting engineers
885 REGENT STREET, SUITE 3-1B
SUDBURY, ONTARIO, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

- CLIFF AREA
- GPS TRACKS
- CONTOUR
- ESTIMATED TRACKS

NOTES:

1. THIS FIGURE SHALL BE READ IN CONJUNCTION WITH THE ACCOMPANYING TECHNICAL REPORT
2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - CANADA
3. BING MAPS, 2017

1	29/03/17	FINAL	CS
0	12/5/16	DRAFT	CS
REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

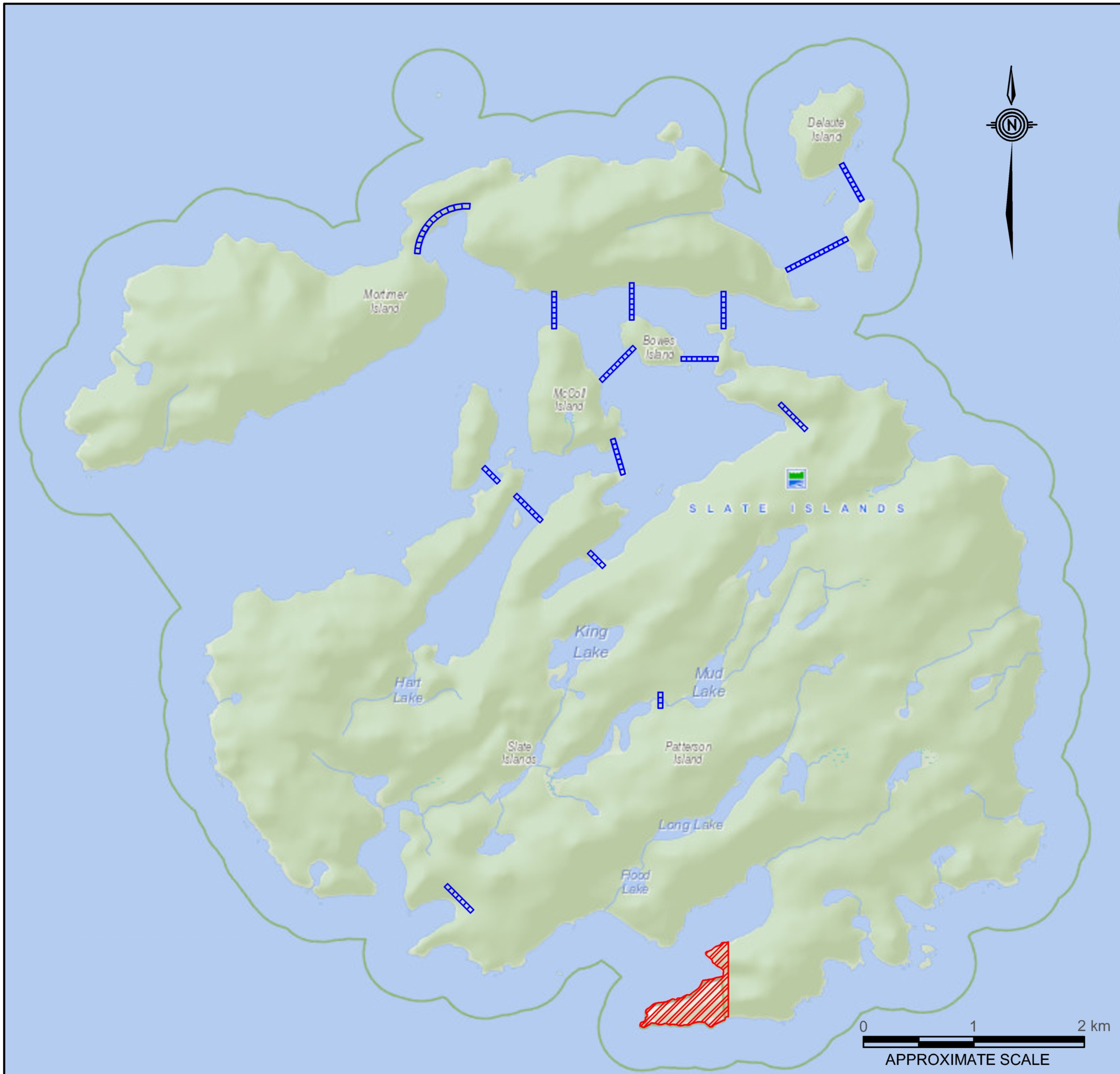
ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE:

SPECIES AT RISK INVESTIGATION TRACKING

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 16



DST consulting engineers
885 REGENT STREET, SUITE 3-1B
SUDBURY, ONTARIO, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
www.dstgroup.com

LEGEND:

KNOWN CARIBOU CROSSING ROUTE

PROPERTY BOUNDARY

NOTES:

1. THIS FIGURE SHALL BE READ IN CONJUNCTION WITH THE ACCOMPANYING TECHNICAL REPORT
2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - CANADA
3. MINISTRY OF NATURAL RESOURCES AND FORESTRY

1	29/03/17	FINAL	CS
0	12/5/16	DRAFT	CS
REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

ENVIRONMENTAL PROGRAM REPORT - SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND,
LAKE SUPERIOR, ON

DRAWING TITLE:

KNOWN CARIBOU CROSSING ROUTES

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: MARCH 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE 17

Correspondence

Environmental Assessment Section
Environmental Protection Operations Division
4905 Dufferin Street
Toronto, Ontario. M3H 5Y4

October 17, 2016

ECCC File: 2016-013
DST Reference No.: GV-SD-027105

Jennifer Rainville
Environmental Technician
DST Consulting Engineers Inc.
885 Regent Street, Suite 3-1B
Sudbury, Ontario P3E 5M4

Dear Ms. Rainville:

Re: Slate Islands Coast Guard Site, Patterson Island, Lake Superior, Ontario

This is in response to your letter dated October 3, 2016 requesting comments from Environment and Climate Change Canada (ECCC) regarding the Environmental Effects Evaluation to meet requirements of the Canadian Coast Guard under Section 67 of the *Canadian Environmental Assessment Act* 2012 (CEAA 2012). The letter was sent to Rob Dobos, Manager of the Environmental Assessment Section of ECCC Ontario Region regarding the Soil Remediation/Lead Abatement Project at the Canadian Coast Guard site on Patterson Island located in Lake Superior.

ECCC does not possess any information regarding environmentally significant areas, distinctive environmental features, easements or species at risk (SAR) occurrences for this site. However, ECCC is providing advice regarding relevant legislation and permitting to assist with the scoping of the environmental assessment, which should include an assessment of potential impacts to migratory birds in additional to SAR. We can also provide further comments and recommendations regarding impacts and mitigation measures once we receive a more fulsome project description, environmental assessment and environmental effects evaluation for our review.

Species at Risk

ECCC administers and enforces the federal *Species at Risk Act* (SARA), in partnership with the Department of Fisheries and Oceans (DFO), and the Parks Canada Agency. DFO is responsible for aquatic species. Parks Canada is responsible for SARA listed species on Parks Canada land, and ECCC is responsible for terrestrial species off of Parks Canada land.

The purpose of the SARA is to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened. Schedule 1 of the SARA provides a list of wildlife species at risk in Canada that are considered extirpated, endangered, threatened, or of special concern. The SARA provides automatic protection for individuals and residences of aquatic species and migratory birds protected by the *Migratory Bird Convention Act, 1994* (MBCA), if they are listed as extirpated, endangered or threatened. This protection applies whether these species are on federal, provincial or territorial lands. These protections also apply to all other species listed as extirpated, endangered or threatened which are located on federal lands. Please note that under subsection 79(2) of the SARA, CCG (as the responsible "person") must identify any adverse effects of the project on Schedule 1 listed wildlife species (including Special Concern species) and their critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans. They must also notify the competent minister for the species (in this case ECCC's minister for terrestrial species not on Parks Canada land).

With respect to SAR, ECCC advises that Critical Habitat for Boreal Woodland Caribou overlaps with the site, therefore the assessment should include a comprehensive consideration of potential impacts to individuals, residences and critical habitat. The assessment should also be scoped to include all SARA listed species with ranges that overlap the area to be impacted by the project, such as Canada Warbler, Common Nighthawk, Eastern Whip-poor will, Olive-sided Flycatcher, and bat species at risk (Northern Myotis, Little Brown Myotis, Tricolored Bat). It will also be important to be very clear on the ownership of the lands where any SAR may be impacted (federal, provincial, or Parks Canada). To assist in the environmental assessment, information on individual SAR and their habitats can be found on our SAR Registry: **https://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1**.

Permits are required by those persons conducting activities affecting species listed on **Schedule 1** of SARA as Extirpated, Endangered, or Threatened, that is, activities which contravene the Act's general or critical habitat prohibitions, an Emergency Order issued under s.80 of SARA, or regulations made under subsections 53, 59 or 71. ECCC does not have enough information on the project or its potential effects at this time to advise on the need for SARA permits (or if they can even be issued). It is also important to note that authorizations to carry out prohibited activities can only be issued if the proponent is able to demonstrate in the permit application that the preconditions set out in subsection 73(3) of SARA have been met:

a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;

b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and,

c) the activity will not jeopardize the survival or recovery of the species.

Migratory Birds

The *Migratory Birds Convention Act, 1994* (MBCA) prohibits the deposit of a substance that is harmful to migratory birds in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area. The MBCA also prohibits the possession of a migratory bird, nest or egg without lawful excuse. The *Migratory Bird Regulations* prohibit hunting of migratory birds; the term "hunt" is given a broad definition in the regulations which includes attempting in any manner to kill, injure or harass migratory birds. The regulations also prohibit the disturbance, destruction, or taking of a nest, egg or nest shelter of a migratory bird.

The environmental effects evaluation should consider impacts on migratory birds as there is a high likelihood that migratory birds are using the project areas for nesting and for various life stage requirements. ECCC advises avoidance as the best approach, and failing that we recommend using the website: http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=1B16EAFB-1 for information about avoidance and how to work during the core nesting periods. Information on General Nesting Periods of Migratory Birds in Canada can be found on our website to assist in ensuring the works are conducted when migratory birds are not using the area: https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1.

Additional recommended links include: Avoidance of Detrimental Effects to Migratory Birds (Incidental Take): http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=C51C415F-1, Determining the Presence of Nests: http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1#_03_1, Avoidance Guidelines: http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=AB36A082-1, and Beneficial Management Practices: http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=7800177F-1

Federal Contaminated Sites Action Plan (FCSAP)

ECCC administers the FCSAP program on behalf of the Government of Canada. There are three contaminated sites at this location on Patterson Island listed in the FCSAP inventory list, however it is not clear whether FCSAP funds will be used for this project. Could you please confirm if this project will be proceeding with or without funding from FCSAP? If funding is intended to be provided by FCSAP there are specific procedures required that must be followed including, Guidance on Assessing Human Health and Ecological Risks Associated with Contaminated Sites, which can be found at: http://www.federalcontaminatedsites.gc.ca/default.asp?lang=En&n=B15E990A-1

Environmental Protection

The following is provided as general advice to the extent that they are applicable to this project:

Construction Zone:

All construction equipment and machinery to be used on the island should be in clean condition and free of all fluid leaks. Any washing, refuelling or servicing to construction equipment in use on the island should be away from the water on a flat, impermeable stable surface to prevent any deleterious substances from entering the water.

Construction Related Air Emissions:

ECCC suggests that a site specific air pollutant environmental management plan be developed and implemented. Such a plan would identify the objectives to be achieved (e.g., visual inspection, neighbour complaints, quantified maximum concentrations around the site, etc.), the methods to be applied, the people responsible for managing and implementing the plan, and the records to be maintained in order to demonstrate adoption of best management practices (and compliance with regulatory requirements or contractual obligations where applicable). Further specific guidance may be sought in the "*Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities*" prepared for ECCC by Cheminfo Services (March 2005). A copy of the guidance document is available at: http://www.bieapfremp.org/Toolbox%20pdfs/EC%20-%20Final%20Code%20of%20Practice%20-%20Construction%20%20Demolition.pdf

ECCC recommends that the proponent should ensure that transportation of the contaminated soil to the mainland is properly contained and secured so that wind does not blow contaminated soil particles into the water. Transportation across the water during storms with heavy rainfall or high winds should be avoided to minimize risk. Transportation using authorized hazardous waste haulers and disposal facilities must comply with Provincial regulations.

Sediment and Erosion:

To prevent suspended sediment, mud, debris, fill, rock dust, etc. associated with construction of the project from entering downstream watercourses and any sensitive habitats, ECCC recommends that an erosion and sediment control plan (ESCP) be developed and implemented that is consistent with the following recommendations and the standards and guidelines referenced below. Implementation of these measures will help to ensure that adverse water quality effects during construction are minimized.

Notwithstanding any requirements ECCC recommends that measures such as the following be implemented by the proponent:

- Minimize areas disturbed by work, for example: vegetated buffers should be left in place adjacent to watercourses to the maximum extent possible (at least a 15 m minimum width is recommended); only grub areas to be re-graded, phase clearing and grubbing, etc.

- Ensure that silt fences/curtains, sediment traps and/or check dams are installed as appropriate. It has been our experience that straw bale flow check dams are often installed incorrectly and are prone to failure, therefore, we recommend that temporary rock flow check dams be used, particularly at locations conveying substantial volumes of flow.

- Ensure that measures are in place to minimize mud tracking by construction vehicles, and to allow timely cleanup of any tracked mud, dirt and debris along access routes and areas outside of the immediate work area where the above sediment controls would not be in place (and there would also be a potential for nuisance dust).

- Ensure that any temporary mitigation measures are installed prior to commencement of any site clearing, grubbing, excavation, filling or grading works and that they are maintained on a regular basis, prior to and after runoff events. For example:
  - Any accumulated materials should be cleaned out regularly to maintain performance, and prior to removal of mitigation measures.
  - All disturbed areas on land to be restored to natural conditions should be re-vegetated as soon as conditions allow in order to prevent erosion (and restore habitat functions).
  - Land-based measures should not be removed until vegetation has been re-established to a sufficient degree (or surface soils stabilized using other measures) so as to provide adequate erosion protection to disturbed work areas.

In summary, ECCC's comments and recommendations are based on the limited information provided in your letter. Please note that, the responsibility for achieving regulatory compliance and completing an environmental effects evaluation lies solely with the project proponent.

If you have any questions or concerns regarding the comments provided please contact me at 416-739-5910 or via email at sheelagh.hysenaj@canada.ca

Regards,

Sheelagh Hysenaj

Sheelagh Hysenaj
Environmental Assessment Officer
Environmental Protection Branch
Environment and Climate Change Canada,
Toronto, Ontario Tel.: (416) 739-5910

cc: R. Dobos, ECCC
S. Michajluk, ECCC
M. Petrou, ECCC
N. Klenavic, ECCC
D. Fell, ECCC

From: Hysenaj, Sheelagh (EC) <sheelagh.hysenaj@canada.ca>
Sent: Monday, October 17, 2016 3:21 PM
To: Jennifer A. Rainville
Cc: Dobos, Rob (EC); Michajluk, Shawn (EC); Petrou, Maria (EC); Klenavic, Nancy (EC); Fell, Denise (EC)
Subject: Slate Islands CCG Site, Soil Remediation/Lead Abatement Project
Attachments: Slate Islands CCG Site.pdf

Hello Jennifer,

Please find attached Environment and Climate Change Canada's comments on the proposed soil remediation, lead abatement, waste debris removal project at the Slate Islands Canadian Coast Guard site on Patterson Island in Lake Superior. When the Environmental Effects Evaluation has been completed, we would like the opportunity to review the document.

If you have any questions regarding the comments, please contact me at 416-739-5910 or via email.

Regards,

Sheelagh

Sheelagh Hysenaj

Environmental Assessment Officer, Environmental Protection Branch
Environment and Climate Change Canada / Government of Canada
sheelagh.hysenaj@canada.ca / Tel: 416-739-5910

Agent d'évaluation environnementale, Direction générale de la protection de l'environnement
Environnement et Changement climatique Canada / Gouvernement du Canada
sheelagh.hysenaj@canada.ca /Tél.: 416-739-5910

Government of Canada Gouvernement du Canada

Canada

From: McNaughton, Kimberly (MNRF) <kimberly.mcnaughton@ontario.ca>
Sent: Monday, November 14, 2016 11:08 AM
To: Jennifer A. Rainville
Cc: McNaughton, Kimberly (MNRF)
Subject: FW: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)
Attachments: MNR_SAR_BMP_AGGR_CAR_EN.PDF; SlateIslands_ArcticAlpine_SpeciesList2014.pdf

Good afternoon Jennifer,

MNRF has reviewed the information provided, and in turn provide the following comments. Please note that at this time, without knowing the scope and scale of the project, the comments can only be general:

- Timing and types of activities might have impacts on caribou if during calving/nursery period (May 1st – July 30th). The Best Management Practices for aggregates is attached. There may need to be consideration of whether an ESA permit may be required (depending on more detailed information about proposed activities)?
- Timing and types of activities may have impacts on other wildlife.
- Timing and types of activities may impact recreation opportunities (use of the trail form the lighthouse keeper's house to the lighthouse etc.)
- Timing and types of activities may impact recreation opportunities (use of the natural harbour in Sunday Bay)
- Ontario Parks (OP) and Natural Heritage Information Center have inventoried and mapped rare plant communities on park lands at the Slate Islands. There may be arctic alpine disjunct communities associated with the remediation site that should be considered; (see attached report).
- There should be notices posted on the Terrace Bay website as well as at the Terrace Beach/Marina and in Rossport to advise park visitors about this work.
- Through review of the patent information provided, it does not appear that any trees are reserved to the Crown.
- Should there be any improvements/undertakings associated with the shoreline (66'shoreline allowance), authorization from the Crown may be required.

It would be most appropriate for DST /PWGSC to keep MNRF/OP apprised of this project and its details as it proceeds.

Thank you,

Kimberly

Kimberly McNaughton
Planner
Nipigon District, MNRF
807-887-5113

From: Jennifer A. Rainville [mailto:jrainville@dstgroup.com]
Sent: Wednesday, October 26, 2016 12:39 PM

To: McNaughton, Kimberly (MNRF)
Cc: Chauvin, Chantal (MNRF); Geoffrey Lake
Subject: RE: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Hi Kimberly,

1) The original letter of patent has been requested. Once obtained, we'll send it to you.

2) The proposed undertaking is as follows: Currently, PWGSC is doing delineation of soils. The soil volumes and remediation methods are undetermined (that information will be decided in the future). Debris removal from dumpsites on DFO property and lead based paint abatement on the exteriors of the site structures. No trees are anticipated to be harvested or cleared.

3) So far we've consulted with DFO (who in turn consulted with their inside agencies including Real Property, and Fisheries Protection Group), Environment Canada (who also included Canadian Wildlife Services), Lake Superior National Marine Conservation, the Municipality of Terrace Bay, and INAC. Municipality of Terrace Bay and INAC were sent consultation requests just to be inclusive of any interested parties.

4) Yes, consideration will be taken into account regarding timings and impacts on caribou and incorporated into the EEE. The EEE will encompass all the information that we gather from all consulted parties, and will include mitigation measures, and/or required permits with regards to SAR, wildlife, waterways, etc.

5) This point was mistakenly put into the letter. Please disregard.

6) The work is anticipated to be undertaken in the next fiscal year.

Thanks in advance,

Jennifer A. Rainville
Technician

DST Consulting Engineers Inc.
885 Regent Street, Unit 3-1B
Sudbury ON, P3E 5M4
Canada

T 1.705.523.6680 ,231 **M** 1.705.618.3462
F 1.705.523.6690
www.dstgroup.com jrainville@dstgroup.com

From: McNaughton, Kimberly (MNRF) [mailto:kimberly.mcnaughton@ontario.ca]
Sent: October 19, 2016 4:24 PM
To: Jennifer A. Rainville <jrainville@dstgroup.com>
Cc: Chauvin, Chantal (MNRF) <Chantal.Chauvin@ontario.ca>
Subject: FW: nvironmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Good afternoon Jennifer,

MNRF is currently undertaking review of the attached proposal and have a few initial questions / request for information prior to completing our review of this project…

1) To understand whether there would be Forestry requirements or other on this property MNRF will require the original letters patent for the property. This information is available at Thunder Bay Lands Titles Office and information which could be used to search this location is as follows:

patent is MG 1301, Date of the patent is Feb 3, 1882, and the patentee was J C PATTERSON .Requests for patent information can be sent in an email to crownlandregistry@ontario.ca.

Enclosed is a copy of Geowarehouse Search as well as the title instrument to assist with the search. This land has been identified as Federally owned and Provincial Parks Division of MNRF would be the adjacent land owners.

2) What exactly is the proposed works being undertaken? Will any trees be harvested/cleared?
3) What other agencies have you notified/been in discussions with?
    a. MNRF does not have well-head information, have you engaged MOECC?
4) Have there been considerations for Endangered Species Act with respect to timing of activities, consideration of impacts on caribou, etc?
5) Why is there a request for stream thermal regimes for this project? is there any in-water work being planned?
6) When is the proponent looking to undertake these activities?

Very much appreciate a clearer understanding of this project.

Kindest regards,

Kimberly McNaughton

From: lisa.nyman@pc.gc.ca
Sent: Wednesday, October 19, 2016 10:38 AM
To: Jennifer A. Rainville
Cc: Geoffrey Lake; sue.hamel@pc.gc.ca
Subject: Re: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Good Morning Jennifer,

As the Lake Superior National Marine Conservation works toward formal establishment, I appreciate the opportunity to provide input into projects that that the potential to impact our site. I apologize for the delay in my response. I trust you are consulting with Ontario Parks and that they will be able to provide you with some of the information you are seeking.

The Lake Superior National Marine Conservation Area boundary, when established, will be 400m away from the high water mark of the Slate Islands. The project lands will not be subject to the Canada National Marine Conservation Areas Act, and therefore will not require authorization from Parks Canada. With control measures to ensure water from any excavation does not enter waterways and sediment and erosion controls, I do not have any concerns regarding impacts to the Lake Superior National Marine Conservation Area.

Please consider there is a "highly sensitive classified feature (within 2km)" as identified on Environment Canada's Environmental Sensitivity Atlas for Lake Superior's Canadian Shoreline (1993), and that the Slate Islands are identified as having a globally significant woodland caribou population with rare arctic-alpine plant habitat.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Lisa Nyman

Resource Conservation Manager, Lake Superior National Marine Conservation Area
Parks Canada / Government of Canada
22 Third Street, Nipigon, ON P0T 2J0
lisa.nyman@pc.gc.ca / Tel: 807-887-5536

Gestionnaire de la Conservation des Ressources, Aire marine nationale de conservation du Lac-Supérieur
Parcs Canada / Gouvernement du Canada
22, rue Third, Nipigon, ON P0T 2J0
lisa.nyman@pc.gc.ca / Tél. : 807-887-5536

Time to Connect / Un bon temps pour se rapprocher

From: "Jennifer A. Rainville" <jrainville@dstgroup.com>
To: "lisa.nyman@pc.gc.ca" <lisa.nyman@pc.gc.ca>
Cc: Geoffrey Lake <glake@dstgroup.com>
Date: 03/10/2016 09:53 AM
Subject: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Good morning Ms. Nyman,

Please see the attached letter with regards to an Environmental Effects Evaluation that is being completed at the Slate Island Lighthouse Station in Lake Superior.
If you have any questions or concerns, please don't hesitate to contact me.
Sincerely,

Jennifer A. Rainville
Field Technician
DST Consulting Engineers Inc.
885 Regent Street, Unit 3-1B
Sudbury ON, P3E 5M4
Canada

T 1.705.523.6680 ,231
F 1.705.523.6690
www.dstgroup.com

M 1.705.618.3462
jrainville@dstgroup.com

consulting engineers

Please consider the environment before printing this e-mail.

From: Sifton, Jennifer <Jennifer.Sifton@dfo-mpo.gc.ca>
Sent: Tuesday, October 18, 2016 12:53 PM
To: Jennifer A. Rainville
Cc: Geoffrey Lake; Martin Bouwma
Subject: RE: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Hi Jennifer,

DFO –Real Property did not have any further information to provide.

The response back from Fisheries Protection group was as follows: Fisheries and Oceans Canada has changed the way new project proposals (referrals), reports of potential Fisheries Act violations (occurrences) and information requests are managed in Central and Arctic Region (Alberta, Saskatchewan, Manitoba, Ontario, Nunavut and the Northwest Territories). Please be advised that general information regarding the management of impacts to fish and fish habitat and self-assessment tools (e.g. Measures to Avoid Harm) that enable you to determine Fisheries Act requirements are available at DFO's "Projects Near Water" website at www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html. For all occurrence reports, or project proposals where you have determined, following self-assessment, that you cannot avoid impacts to fish and fish habitat, please submit to fisheriesprotection@dfo-mpo.gc.ca. For general inquiries call 1 855 852-8320.

If you require any additional information, please let me know. Thank you.

Regards,

Jennifer
905-315-5287

From: Sifton, Jennifer
Sent: October-03-16 2:14 PM
To: 'Jennifer A. Rainville'
Cc: Geoffrey Lake; 'Martin Bouwma'
Subject: RE: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Hi Jennifer,

I will forward to the Fisheries Protection Group and Real Property. The requested information isn't information I typically have available to me, but hopefully Fisheries Protection and/or RP will be able to provide you some information.

Regards,

Jennifer
905-315-5287

From: Jennifer A. Rainville [mailto:jrainville@dstgroup.com]
Sent: October-03-16 1:47 PM
To: Sifton, Jennifer
Cc: Geoffrey Lake
Subject: RE: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Hi Jennifer,

The letter was only sent to you. Is there someone else that I should send it to?
Let me know, thank you.

Jennifer A. Rainville
Field Technician

DST Consulting Engineers Inc.
885 Regent Street, Unit 3-1B
Sudbury ON, P3E 5M4
Canada

T 1.705.523.6680 ,231 **M** 1.705.618.3462
F 1.705.523.6690
www.dstgroup.com jrainville@dstgroup.com

From: Sifton, Jennifer [mailto:Jennifer.Sifton@dfo-mpo.gc.ca]
Sent: October 3, 2016 1:45 PM
To: Jennifer A. Rainville <jrainville@dstgroup.com>
Cc: Geoffrey Lake <glake@dstgroup.com>
Subject: RE: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Hi Jennifer,

Did you send this to anyone else within DFO or just me? Thanks.

Regards,

Jennifer
905-315-5287

From: Jennifer A. Rainville [mailto:jrainville@dstgroup.com]
Sent: October-03-16 9:38 AM
To: Sifton, Jennifer
Cc: Geoffrey Lake
Subject: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior)

Good morning Ms. Sifton,

Please see the attached letter with regards to an Environmental Effects Evaluation that is being completed at the Slate Island Lighthouse Station in Lake Superior.

Please don't hesitate to contact me if you have any questions or concerns.
Sincerely,

Jennifer A. Rainville
Field Technician

DST Consulting Engineers Inc.
885 Regent Street, Unit 3-1B
Sudbury ON, P3E 5M4
Canada

T 1.705.523.6680 ,231
F 1.705.523.6690
www.dstgroup.com

M 1.705.618.3462
jrainville@dstgroup.com

Please consider the environment before printing this e-mail.

From: Jon Hall <cao@terracebay.ca>
Sent: Thursday, November 24, 2016 4:17 PM
To: Jennifer A. Rainville
Cc: cds@terracebay.ca
Subject: RE: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior

Jennifer,

Here are links to our official plan and zoning bylaw.

Zoning By-law
http://www.terracebay.ca/uploads/documents/Official%20Plan/_ZBL%20July%2018%202016%20(amended%20-%20complete).pdf

Official Plan
http://www.terracebay.ca/wp-content/uploads/2016/11/135031-Ministers-Modified-OP-Terrace-Bay-2016-08-12.pdf

To answer some of your questions:

Land use designation (if applicable); In the Official Plan the land is designated as Environmental Protection
- Property zoning (if applicable);); In the Zoning Bylaw the land is designated as Environmental Protection
- Environmentally Significant Areas or distinctive environmental features (e.g. high groundwater level, groundwater wells, streams, rivers, natural corridors, woodlots, springs, water bodies, significant topography, ravines, rock outcrops) ; All of the Slates are designated caribou habitat
- Lands associated with the Site that may be subject to the Township of Terrace Bay regulations; The slates are only accessible by water and the boat launch at Terrace Bay Beach belongs to us.
- Information on any permitting that may be required by the Township of Terrace Bay to proceed with the work specified above; The Ontario Building Code would apply and any permits are applied for through our offices
- Information on the occurrence of Species at Risk or their habitats; Not aware of anything and don't have anything in front of me at the moment but I will keep digging.
- Information on thermal regimes of water courses associated with the Site; and Not sure we would have this or can help with this
- Information on any surface or underground easements on the Site. None that we are aware of or that we can see on our GIS, but this would be a very high level look.

Please do not hesitate to contact myself or Dean if you have further inquiry.

Regards,

Jon Hall
Chief Administrative Officer / Cl
Township of Terrace Bay
P.O. Box 40, 1 Selkirk Avenue,
Terrace Bay, ON P0T 2W0
Office: (807) 825-3315, Ext. 232
Fax: (807) 825-9576, Cell: (807) 228-47
www.terracebay.

From: Dean Main [mailto:cds@terracebay.ca]
Sent: Tuesday, November 22, 2016 16:06
To: 'Jonathan Hall'
Subject: FW: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior

Jon:

Please review and provide direction.

Dean

Dean Main
Community Development Supervisor
Township of Terrace Bay
P.O. Box 40, 1 Selkirk Avenue,
Terrace Bay, ON P0T 2W0
Office: (807) 825-3315, Ext. 230
Fax: (807) 825-9576, Cell: (807) 229-6058
www.terracebay.ca

Find us on Facebook, Follow us on Twitter, Watch us on Youtube!

From: Jennifer A. Rainville [mailto:jrainville@dstgroup.com]
Sent: November-21-16 3:18 PM
To: cds@terracebay.ca
Subject: FW: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior

Good afternoon Dean,

I'm just following up with the letter I had sent a while back. Do you know when DST can anticipate your response?
Thanks in advance,

Jennifer A. Rainville
Technician

DST Consulting Engineers Inc.
885 Regent Street, Unit 3-1B
Sudbury ON, P3E 5M4
Canada

T 1.705.523.6680 ,231 **M** 1.705.618.3462
F 1.705.523.6690
www.dstgroup.com jrainville@dstgroup.com

From: Jennifer A. Rainville
Sent: October 3, 2016 9:44 AM
To: 'cds@terracebay.ca' <cds@terracebay.ca>
Cc: Geoffrey Lake <glake@dstgroup.com>
Subject: Environmental Effects Evaluation Consultation Letter (Slate Island, Lake Superior

Good morning Dean,

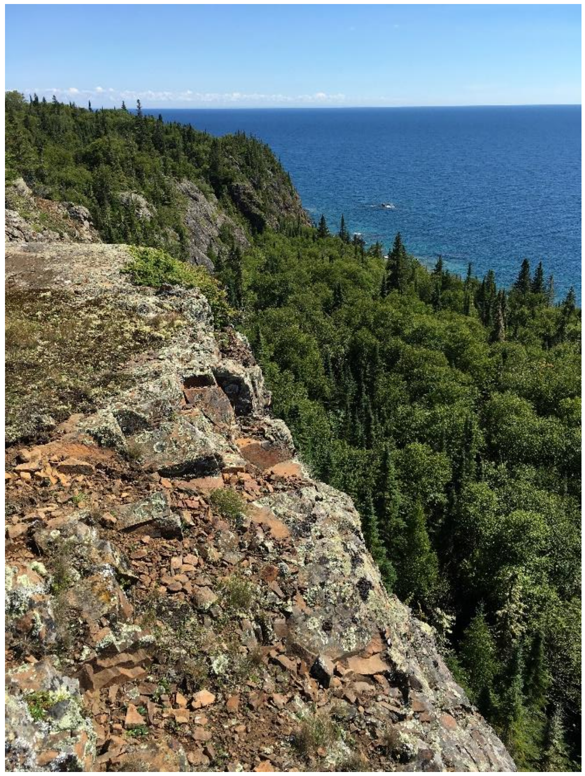
Please see the attached letter with regards to an Environmental Effects Evaluation that is being completed at the Slate Island Lighthouse Station in Lake Superior.
Please don't hesitate to contact me if you have any questions or concerns.
Sincerely,

Jennifer A. Rainville
Field Technician

DST Consulting Engineers Inc.
885 Regent Street, Unit 3-1B
Sudbury ON, P3E 5M4
Canada

T 1.705.523.6680 ,231 **M** 1.705.618.3462
F 1.705.523.6690
www.dstgroup.com jrainville@dstgroup.com

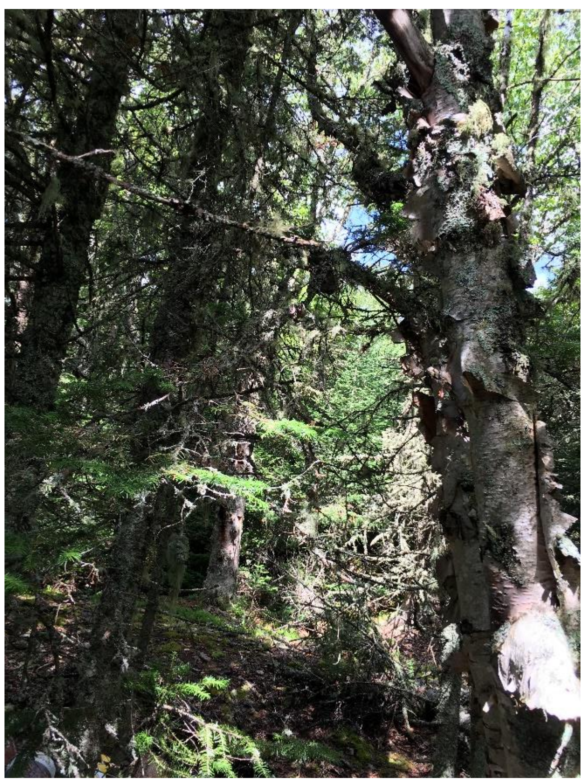
Photographs



Photograph 1: View from Lighthouse area, facing southeast.

Photograph 2: Typical understory in area of Lighthouse.

Photograph 3: Typical understory and ground cover in forested area of Main Site.



Photograph 4: Understory in area of historic dump.

Photograph 5: Open grassy area near Old Dwelling.

Photograph 6: Weathered caribou antler located in area of Old Dwelling.

Appendix E

Environmental Effects Evaluation (EEE)

Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

Canada

Environmental Effects Evaluation (EEE) Report

Sections 67 of the

Canadian Environmental Assessment Act, 2012

Abatement and Soil Remediation
Slate Islands Coast Guard Site
Patterson Island, Lake Superior, Ontario
PWGSC Project No. R.083149.001 & .004

Prepared by
Public Works and Government Services Canada –
Environment Services
4900 Yonge Street, 11th Floor
Toronto, ON M2N 6A6

<February 8, 2017>

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Environmental Effects Evaluation (EEE) Report

PART A: PROJECT INFORMATION

Project Title:	**Abatement and Soil Remediation**
Project Location:	**Slate Island Coast Guard Site, Patterson Island, Lake Superior, Ontario**
Lead Federal Authority:	**Department of Fisheries and Oceans**
Lead Authority contact:	
Other FA's:	**Not Applicable**
EEE Assessor contact:	**Jennifer Rainville (Author) and Kris Tuuttila (Peer Review), DST Consulting Engineers Inc.**
ES(D) contact information: (if not the assessor)	**N/A**
PWGSC Project Number:	**R.083149.001 & .004**
Client contact:	**Martin Bouwma, Public Works and Government Services Canada**

PART B: SCOPE OF PROJECT

B.1 Project Description

The Slate Islands Coast Guard Site is located within the Slate Islands group near the north shore of Lake Superior, approximately 18 km south of the community of Terrace Bay, Ontario. The Site occupies approximately 12.1 ha and is located on Sunday Point, Patterson Island; the largest and most southerly of the Slate Islands. The Site is further sub-divided into three areas, named CS-1 through CS-3, as described below.
The Main Site (CS-1) is located on the south side of Sunday Point. The structural features of this area consist of the main Coast Guard station including the main dwelling, the duplex dwelling, the two-storey old fog alarm building, the former oil house building, the new fog alarm building, the new diesel generator building and various other structures. Most buildings on-site are wood construction with wood clad or shingle siding. A concrete dock is located south of the duplex dwelling. The structures on-Site are connected by concrete pathways. The Site is inhabited seasonally by private lease holders who use the Site as a seasonal home from April to October each year.

The Lighthouse Area (CS-2) is located on the rocky summit of Sunday Point. Structural features of this area consist of the three-storey lighthouse building, a helicopter pad, and a solar shed that supports several solar panels found east of the lighthouse building.

The Old Dwelling Area (CS-3) is located north of CS-1 and CS-2 in a sheltered bay in Sunday Harbour. From the water edge, CS-3 has a sand and gravel beach extending into an area covered by grass. The area surrounding the grassed area is wooded. The structural features of this are include a two-story residential dwelling referred to as the old dwelling building, an outhouse and former boat winch.

The objective of the proposed remediation program is to remove the primary sources of soil contamination at the Site; that is to abate and remove and dispose of exterior lead-containing substances and any debris piles observed at the Site. Interior lead paint abatement and some asbestos abatement will be completed as well. Soil remediation may also be included in the program.

It is anticipated that the lead abatement will be completed using a paint removal gel product or by removing the entire substrate. It is also anticipate that debris removal will be completed using small machinery such as a mini excavator or backhoe, and/or by hand where use of equipment is not feasible, or would otherwise impact species at risk or other environmental features. Machinery, along with any other equipment and materials, would be transported to and from the Site by an approved vessel such as a barge. It is expected that debris (and possibly soil) being removed from the Site would be placed in double lined bulk tote bags, and brought to a vessel by hand or by machinery to be transported to the main land for subsequent disposal.

Project Phase	Project Components	
	Core Project Components	**Ancillary Works Other Projects & Activities**
Pre-Construction Phase	Deliver machinery and equipment to Site, and create construction staging areas at CS1 through CS3.	Create an offload area on the shoreline of CS 1 and CS 3. Create a construction staging area at CS 1 and CS 3.
Lead/Asbestos Abatement	Removal of exterior paint on all existing Site buildings using paint removal gel product or the complete removal of the substrate. Offloading of impacted building materials onto barge/boat.	Removal of paint on existing Site buildings will be completed in accordance with the Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA): 1) Ontario Regulation 213/91, Construction Projects, and R.R.O. 1990, 2) Ontario Regulation 490/09 "Designated Substances". 3) Guideline: Lead on Construction Projects, September 2004 (Revised April 2011). 4) Ontario Regulation 278/05, Asbestos on Construction Projects and in Buildings and Repair Operations enabled under the Occupational Health and Safety Act R.S.O. 1990, Chapter 1. The disposal of construction waste containing lead and asbestos will be completed in accordance with 1990 R.R.O. Reg. 347- General – Waste Management, as amended under the Environmental Protection Act (Reg. 347). The transport of the waste to the appropriate disposal site will be completed in accordance with the federal Transportation of Dangerous Goods Act (TDGA), 1992 and provincial regulations.
Debris Removal	Removal of the existing debris at dumpsites located at the Site. Volume reduction and containerization of the debris. Offloading of debris material onto barge/boat.	Excavation and removal of surficial debris. Disposal of soils and non-recyclable waste in an approved landfill. The disposal of non-recyclable waste will be completed in accordance with Reg. 347. The transport of the waste to an approved landfill will be completed in accordance with the federal Transportation of Dangerous Goods Act (TDGA), 1992 and provincial regulations.
Soil Remediation (Contingency)	Removal of contaminated soil around lighthouse, other structures and in dumpsite areas may be completed. Containerization of impacted soils and offloading of impacted soils onto barge/boat.	Excavation and removal of contaminated soil. Disposal of soils and non-recyclable waste in an approved landfill. The disposal of hazardous waste will be completed in accordance with Reg. 347. The transport of the waste to an approved landfill will be completed in accordance with the federal Transportation of Dangerous Goods Act (TDGA), 1992 and Reg 347.

B.2 Scheduling

The proposed project (i.e. lead abatement and debris removal) is anticipated to be completed in the fiscal year starting April 2017. Consideration will be taken into account for key breeding periods and periods of high usage of migratory birds (generally April 15th to August 15th) that are listed on the Species at Risk Act (SARA) with ranges that overlap the Site. Further consideration will be taken for timing of project activities during sensitive periods of the Boreal Woodland Caribou nursery areas (May 1 to July 14 very low tolerance, July 15 to September 15 low tolerance), winter use areas (December 1 to March 31), travel corridors (April and/or November) as this species is also listed in the SARA, and its critical habitat range overlaps the Site. Considerations will also be taken into account for safe boat access to the Site, based on water levels, and current and wind conditions. According to locals, the ideal season providing calm conditions, is late spring. The timing windows for activities is quite limited. See Tables 2.1 through 2.8 for further information regarding mitigation measures and in what situations approvals/permits would be required.

B.3 Regulatory

The regulatory regimes that must be followed include:

1) Federal Level
    a. Species At Risk Act, 2002
        i. Potential for permit requirement due to noise disturbance and habitat disturbance during proposed work
    b. Migratory Bird Convention Act, 1994
        i. Potential for permit requirement due to noise disturbance, and habitat disturbance during proposed work.
    c. Transportation of Dangerous Goods Act, 1992
    d. Fisheries Act, 1985

2) Provincial Level
    a. Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA):
        i. Ontario Regulation 213/91, Construction Projects, and R.R.O. 1990,
        ii. Ontario Regulation 490/09 “Designated Substances”.
        iii. Guideline: Lead on Construction Projects, September 2004 (Revised April 2011)
        iv. Ontario Regulation 278/05, Asbestos on Construction Projects and in Buildings and Repair Operations enabled under the Occupational Health and Safety Act R.S.O. 1990, Chapter 1.
    b. Environmental Protection Act, 1990
        i. Ontario Regulation 347- General – Waste Management
    c. Endangered Species Act, 2007

PART C: SCOPE OF EVALUATION

C.1 Environmental Setting

The Slate Island Coast Guard Site (herein referred to as the “Site”) is located on Sunday Point, Patterson Island, which is the largest and most southerly in the Slate Islands group in Lake Superior, Ontario. The town of Terrace Bay is located on the mainland approximately 18.5 km to the northeast. See Figure A1 for the Site location and Figure A2 for Site plan in Appendix A. The Site is approximately 12 hectares in size. The Site consists of three separate sites and are as follows:

- Site 1 consists of a single dwelling, a double dwelling (duplex), former oil house, old fog alarm and generator building, and, new diesel generator and electrical buildings, all located on the south shore of Sunday Point (see attached Figure A3);
- Site 2 consists of the lighthouse and upper heli-pad on the rocky summit on Sunday Point (see attached

Figure A4); and

- Site 3 consists of the assistant lighthouse keeper's house on the north side of Sunday Point (see attached Figure A5).

The Site is inhabited seasonally by private lease holders who use the site as a seasonal home from April to October each year.

C.2 Physical Environment

The Site consists mainly of exposed cobbles, with areas of exposed bedrock in the western region of the Site, along with grassy areas to the north, northeast and northwest of the Site, and an area of fresh cut trees in the northwest region of the Site. Beyond the grassy areas to the north is forested. Soil is shallow on-Site and mainly consists of coarse-textured, dark brown, organic-rich topsoil, with many cobbles (lithic rich). The topography is moderately hilly, with a 20 m steep cliff climbing upwards from the south shore to the lighthouse on the summit. Surface water runoff drains into Lake Superior.

According the Ministry of Northern Development and Mines (MNDM, 2016), the geology of the Site consists of felsic to intermediate metavolcanic rock – dacitic and andesitic flows, tuffs and breccias. Outcrops of basalt flows are present along the shoreline on-Site.

C.3 Biological Environment

The littoral (nearshore) area typically consists of horizontal outcrops of basalt rock, with no visible aquatic vegetation.

Terrestrial vegetation consists of typical Boreal forest species composition, including black spruce, white spruce, jack pine, cedar, black ash, willow and elderberry trees, as well as numerous grasses and shrubs.

Mammals that can be found on Patterson Island include (but are not limited to) Boreal Woodland Caribou, beavers, red foxes, snowshoe hares, muskrat and short tailed weasels.

Great Lakes Arctic-Alpine Bedrock Shoreline vascular plant species are disjunct on the Slate Islands archipelago. According to the Ministry of Natural Resources and Forestry's (MNRF; acronym herein used to refer to organization under previous names) Natural Heritage Information Centre (NHIC), the plant species have a provincial rank of S3, which means it is rare in Ontario, usually 20-100 occurrences in the province. Although considered rare in this particular area, this group of species are not listed as Species at Risk.

The following species are considered Species at Risk (SAR) on the Slate Islands archipelago according to previous SAR studies completed at the Site (DST, 2005), Federal Species at Risk Public Registry (Schedule 1, SARA), Species at Risk in Ontario (SARO) website (Thunder Bay Region), Environment Canada, the Fisheries and Oceans Canada (DFO) Aquatic Species at risk mapping, and the MNRF NHIC mapping:

Mammals:

1) Woodland Caribou (Boreal) (*Rangifer tarandus caribou)* – Threatened (Federal and Provincial)

The boreal population of Woodland Caribou reside in the boreal forest all year. Only the boreal population are listed as a SAR in Ontario, and in the Species at Risk Act, Schedule 1.

Prior to 1990s, the caribou population on the Slate Islands had reached its highest population density, however a food shortage in the 1990s caused the population to decline. According to Environment Canada the Slate Islands are critical habitat for the caribou.

2) Northern Myotis *(Myotis septentrionalis)* – Endangered (Federal, Provincial)

The Northern Myotis is common throughout forested portions of southern Ontario, north to the north shore of Lake Superior, and has been found as far north as Moosonee. This species is typically associated with boreal forest types, roosting under loose bark or in the cavities of trees. Like the Little Brown Myotis, this species hibernates from October or November, through to March or April, selecting humid caves and abandoned mines as hibernacula (MNRF 2011).

3) Little Brown Myotis *(Myotis lucifugus)* – Endangered (Federal, Provincial)

The Little Brown Myotis is common across southern Ontario and as far north as Moose Factory and Favourable Lake, Ontario. It forms summer colonies in attics, abandoned buildings and barns, where it raises its young. It hibernates from October or November through March or April. Humid caves and abandoned mines that stay above freezing throughout the winter are generally selected as hibernacula (MNRF 2011).

4) Tri-colored Bat *(Glyphonycteris sylvestris)* – Endangered (Federal, Provincial)

The Tri-coloured bat is found in a variety of forested habitats during the summer months. It forms day roosts and maternity colonies in older forest and occasionally in barns or other structures. Foraging occurs over water and along streams in the forest. Tri-colored Bats eat flying insects and spiders gleaned from webs. In the fall, they travel to a location where they swarm; it is generally near the cave or underground location where they will overwinter. Caves are generally selected as winter hibernacula (MNRF 2011). This bat is found in southern Ontario and as far north as Espanola near Sudbury.

5.) Eastern Wolf (a.k.a. Algonquin Wolf) *(Canis lycaon)* – Special Concern (Federal), Threatened (Provincial)

Eastern wolves typically occur in deciduous and mixed forest landscapes with low human density, south of the Boreal Forest Region. Their current distribution is thought to be restricted to mixed coniferous-deciduous forest of central Ontario and southwestern Quebec. According to the SSRA completed by DST in 2005, it was reported that at least two wolves accessed the island when Lake Superior froze over in the winter of 2002/2003.

Birds:

1) Canada Warbler *(Cardinella Canadensis)* – Threatened (Federal), Special Concern (Provincial)

The Canada Warbler is found most abundantly in wet, mixed deciduous-coniferous forest with a well-developed shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. Its primary breeding range is in the Boreal Shield, extending north into the Hudson Plains and south into the Mixedwood Plains.

2) Common Nighthawk *(Chordeiles minor)* - Threatened (Federal), Special Concern (Provincial)

Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings.

3) Eastern Whip-poor will *(Caprimulgus vociferous)* – Threatened (Federal, Provincial)

Eastern Whip poor will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting.

4) Olive Sided Flycatcher (*Contopus cooperi)* – Threatened (Federal), Special Concern (Provincial)

The Olive-sided flycatcher is most often found along natural forest edges and openings. It will use forests that have been logged or burned, if there are ample tall snags and trees to use for foraging perches. Its breeding habitat usually consists of coniferous or mixed forest adjacent to rivers or wetlands. In Ontario, Olive-sided flycatchers commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.

Peregrine Falcon (anatum/tundrius) (*Falco peregrinus)* – Special Concern (Federal and Provincial)

The peregrine falcon can be found in every province and territories except Prince Edward Island, Nunavut, and the island of Newfoundland. It can be found in various types of habitat, from Arctic tundra to coastal areas, and from prairies to urban centres. It nests alone on cliff edges and crevices close to large bodies of water. According to the MNRF's Natural Heritage Information Centre (NHIC) mapping, there have been peregrine falcon occurrences in the area of the Site.

Insects:
Monarch butterfly *(danaus plexippus)* – Special Concern (Federal and Provincial)

There are three populations of the monarch butterfly: western, central and eastern. The eastern butterfly is the largest group of the three. Their range extends from Central America to southern Canada. In Canada, they are most abundant in southern Ontario and Quebec where milkweed plants and breeding habitat are widespread. Only the caterpillars feed on milkweed plants. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.

Aquatic Species:
Deepwater Sculpin – Great Lakes – Western St. Lawrence (*Myoxocephalus thompsonii*) – Special Concern (Federal), Not Listed (Provincial)

The Deepwater Sculpin is a lake-dwelling sculpin of the family Cottidae. It is a bottom-dwelling fish that is found in cold (<7 degrees Celsius), well oxygenated, deep lakes. In the Great Lakes, adults usually live between 60 and 150 meters in depth. Spawning appears to occur during the winter.

Upper Great Lakes Kiyi (*Coregonus kiyi kiyi)* – Special Concern (Federal and Provincial)

The Kiyi is among the deepest water forms of cisco species found in Canada. It lives in a clear, cold-water environment at depths ranging from 10 meters to 305 meters, with peak abundances found at depths between 130 to 150 meters. Kiyi have been collected over lake bottoms of clay and mud substrates. Spawning generally occurs in the late fall at depths between 91 and 168 meters.

C.4 Socio-economic Environment

The Site is owned and maintained by DFO. The past and current land use is partly residential, and as a station to operate a navigation light. Neighbouring lands are designated as Provincial Park lands and are owned by the MNRF. No negative socio-economic impacts are expected as a result of this project.

C.5 Scoping

This environmental effects evaluation considers the full range of project / environment interactions and the environmental factors that could be affected by the project as defined above and the significance of related effects after mitigation. The environmental effects of a project to be considered include at a minimum, but are not limited to those described under subsection 5(1) and 5(2) of CEAA 2012. The environmental effects considered under this report include:

Table 1: Potential Project / Environment Interactions Matrix

NOTE TO THE ASSESOR: Professional judgment should dictate the ecosystem components that may be evaluated under the Due Diligence columns. Only components that are relevant should be included in the table. Also, if the proposed project involves an activity that will impact non-migratory birds (something that doesn't necessarily require assessment under CEAA 2012) then" Birds/Wildlife" may still be inserted as a Due Diligence Valued Ecosystem Component.

Lead/Asbestos Abatement, Debris Removal and Soil Remediation (Contingency) - Slate Island Coast Guard Site, Patterson Island, Lake Superior

P = Potential Effect of Project on Environment;' - ' = No Interaction

	As per Section 5(1)				*Section 5(1c) Aboriginal Interest*				*Section 5(2)*			*Due Diligence*				
Project Phase / Physical Work/Activity	*Fish (Fisheries Act)*	*Aquatic Species (SARA)*	*Terrestrial Species (SARA)*	*Birds (MBCA)*	*Health and Socio economic*	*Physical and cultural heritage*	*Land use*	**HAPA Significance*	*Health and Socio economic*	*Physical and cultural heritage*	*HAPA Significance*	*Water (ground surface, drainage, etc.*	*Birds / Wildlife / Plant Species*	*Air*	*Soil*	*Health and Socio Economic*
Construction																
Pre-Construction Phase	P	P	P	-	-	-	-	-	-	-	-	P	P	-	P	-
Lead/Asbestos Abatement	P	P	P	P	-	-	-	-	-	-	-	P	P	-	P	P
Debris Removal	P	P	P	P	-	-	-	-	-	-	-	P	P	P	P	P
Soil Remediation	P	P	P	P	-	-	-	-	-	-	-	P	P	P	P	P

*HAPA –*structure, site or thing that is of historical, archaeological, paleontological or architectural significant*

Table 2.1 – 2.9*: Potential Project / Valued Ecosystem Interactions and Mitigation Measures *(S.2 (1))*

Table 2.1 Valued Ecosystem Component - Fish (Fisheries Act) – Section 5(1)	
Potential Effect: Harmful effects to fish.	
Potential Interaction	**Mitigation**
Due to the proximity of the site buildings and some waste areas to Lake Superior, project activities may result in debris entering a nearby freshwater environment. Potential for contamination of surface water from temporarily stored equipment during project activities. Potential for runoff of paint removal product during lead abatement.	· No work should be undertaken below the water line. · A Sediment and Erosion Control Plan must be developed and implemented. · Erosion control structures (silt fences/curtains, sediment traps and or check dams) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the project activities. These structures are to be installed prior to the commencement of project activities, and are left in place until vegetation is re-established and/or all exposed soils are stabilized. · Polyethylene sheeting is to be used, as appropriate, to prevent surface water contamination from gel applications during lead abatement activities. Selection of a non-toxic, environmentally friendly paint removal product, if available, for lead abatement activities. · Ensure loading/unloading of machinery/equipment/materials does not impact the banks and cause erosion into the water. · Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways. · The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization. · Work must be scheduled to avoid periods of heavy precipitation, when possible to avoid paint removal product runoff during lead abatement, and to avoid sediment erosion during debris and soil removal. · All paint debris and contaminated soils must be disposed of in a provincially approved manner so as to mitigate potential effects generated by leachate entering the adjacent waters. · If any construction debris/material (e.g., domestic waste, paint cans, glass etc.) enter the aquatic environments they must be removed immediately and disposed in a provincially approved manner. - Implement a Spill Prevention and Spill Response Plan for the project activities. Ensure that appropriate inspection personnel and certified inspection personnel are employed through all stages of the project life cycle. Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-

	hour environmental emergencies reporting system (1-800-565-1633). - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.

Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	Reversible	Immediate	Short-term	Once

Residual Effects:	**Insignificant**
Monitoring:	**Inspection and maintenance of sediment control measures and structures during the course of construction.**

Comments: Work is not anticipated below the water line. Paint debris generated and excavated soil during project activities has the potential to negatively impact adjacent waters and fish/fish habitat for the short-term. Such effects can be avoided through the application of effective mitigation measures.

Table 2.2 Valued Ecosystem Component – Aquatic Species (SARA) – Section 5(1)	
Potential Effect: Harmful effects to SAR fish and SAR fish habitat	
Potential Interaction	**Mitigation**
Due to the proximity of the site buildings and some waste areas to Lake Superior, project activities may result in debris entering a nearby freshwater environment, and result in impacts or disturbance to SAR aquatic species. Potential for contamination of surface water from temporarily stored equipment during project activities. Potential for runoff of paint removal product during lead abatement to enter nearby freshwater environment and result in impacts or disturbance to SAR aquatic species.	· No work should be undertaken below the water line. · A Sediment and Erosion Control Plan must be developed and implemented. · Erosion control structures (silt fences/curtains, sediment traps and or check dams) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the project activities. These structures are to be installed prior to the commencement of project activities, and are left in place until vegetation is re-established and/or all exposed soils are stabilized. · Polyethylene sheeting is to be used, as appropriate, to prevent surface water contamination from gel applications during lead abatement activities. Selection of a non-toxic, environmentally friendly paint removal product, if available, for lead abatement activities. · Ensure loading/unloading of machinery/equipment/materials does not impact the banks and cause erosion into the water. · Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways. · The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization. · Work must be scheduled to avoid periods of heavy precipitation, when possible to avoid paint removal product runoff during lead abatement, and to avoid sediment erosion during debris and soil removal. · All paint debris and contaminated soils must be disposed of in a provincially approved manner so as to mitigate potential effects generated by leachate entering the adjacent waters. · If any construction debris/material (e.g., domestic waste, paint cans, glass etc.) enter the aquatic environments they must be removed immediately and disposed in a provincially approved manner. - Implement a Spill Prevention and Spill Response Plan for the project activities. Ensure that appropriate inspection personnel and certified inspection personnel are employed through all stages of the project life cycle. Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633). - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.

Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Small	Reversible	Immediate	Short-term	Once

Residual Effects:	**Insignificant**
Monitoring:	**Inspection and maintenance of sediment control measures and structures during the course of construction.**

Comments: Work is not anticipated below the water line. Both SAR fish species identified are typically found in deep water. Through the application of appropriate mitigation measures, no impacts to SAR fish species are anticipated.

Table 2.3 Valued Ecosystem Component – Terrestrial Species (SARA) – Section 5(1)	
Potential Effect: Harmful effects to woodland caribou.	
Potential Interaction	**Mitigation**
Due to the site overlapping critical habitat of woodland caribou, project activities may result in impacts and/or disturbance to the woodland caribou population. Project activities might disturb potential bat habitat.	· An Overall Benefit Permit may be required under Endangered Species Act. A thorough review of sensitive areas needs to be undertaken to determine whether significant impacts to the woodland caribou sensitive areas is anticipated, and warrant a permit, according to ECCC. The process to obtain access to sensitive data is underway. · Project activities that produce significant noise should be avoided, if possible, during woodland caribou sensitive periods when reproduction and rearing, winter aggregation and foraging, and seasonal dispersal is occurring: • Nursery Areas (May 1 to July 14 very low tolerance, July 15 to September 15 low tolerance) • Winter Use areas (December 1 to March 31) • Travel Corridors (April and/or November) · Proponents, contractors and workers must be advised of the potential presence of SAR, and be familiar with the SAR species during the undertaking. · SAR sweeps should be conducted prior to work commencing each day by a qualified individual. SAR sweeps should include wolf dens. If a SAR is encountered, work must stop, the immediate area shall be avoided, and an experienced Biologist must be consulted and/or contact Environment Canada to discuss the way forward.· Once project specific details are finalized, consultation with ECCC and MNRF must occur to discuss and develop project specific mitigation measures that can be implemented for this unique population of caribou and circumstances. · Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to habitat. · Ensure all exhaust systems have mufflers installed properly and that all machinery is operating as per specifications, and avoid idling to minimize noise disturbance to woodland caribou. · If/where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to OMNR (2011) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical.

Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	Reversible	Immediate	Short-term	Once

Residual Effects:	**Insignificant**
Monitoring:	**None required.**
Comments: The potential exists for the disturbance of woodland caribou due to an increase in noise and dust around the project site. The potential also exists to disturb bat habitat if trees are removed. Such effects are likely to be of short duration and confined to the project site and can be avoided through the application of effective mitigation measures.	

Table 2.4 Valued Ecosystem Component – Birds (MBCA) – Section 5 (1)	
Potential Effect: Disturbance to migratory birds and loss of bird habitat.	
Potential Interaction	**Mitigation**
Project activities may result in disturbance to migratory birds. Impacts on bird habitat may occur due to potential vegetation clearing of debris removal and soil remediation areas.	· No migratory birds, nests or eggs can be disturbed or destroyed per the Migratory Birds Convention Act of 1994. If project activities are unavoidable during the core migratory bird breeding season of April 15th to August 15th, nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is required. · Low impact machinery or low impact removal procedures must be used as part of debris removal phase of construction. · Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to potential bird habitat... · Proponents, contractors and/or a qualified biologist must complete a nesting sweep prior to commencing work. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered prior to the work, work must stop, the immediate area shall be avoided, and an experienced Avian Biologist must be consulted for advice. The Avian Biologist must develop a species-appropriate buffer zone to work and provide further information on noise levels which may not be exceeded within an appropriate distance to the nest taking into account the species of bird and the area surrounding the nest. Scope and identify the buffer zone in such as a way as it is visible with the use of a fence or colored tape so that the construction crew and the construction supervisor at the site can see it and respect this buffer zone. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered during the work, stop any disruptive activity in the nesting area until the establishment of a buffer zone by an experienced Avian Biologist. This is based on a range of appropriate protection to the species and circumstances and must be maintained until the chicks have naturally left permanently the areas near the nest or that the work is completed. If a buffer zone cannot be established, identify the species of breeding birds and contact Environment Canada to discuss the way forward. · Proponents and Contractors must ensure that food scraps and garbage are not left at the project site. · If work is planned during timeframes when SAR birds (see section C.3) may be present, follow up SAR surveys during the timing windows that are appropriate for the specific specie is required. · Contractors and workers should be familiar with potential SAR if conducting work when they may be present and should contact ECCC SAR biologist if encountered in work Site for advice on how to proceed. · The Contractor must prevent hydrocarbon product releases in and around the project area. Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).

Magnitude	Reversibility	Geographic Extent	Duration	Frequency
Small	Reversible	Immediate	Short-term	Once

Residual Effects:	Insignificant
Monitoring:	None required

Comments: The potential exists for the disturbance of migratory birds due to an increase in noise and dust around the project site, and the loss of bird habitat due to vegetation clearing of debris removal and soil remediation areas. Such effects are likely to be of short duration and confined to the project site and can be avoided through the application of effective mitigation measures.

<table>
<tr><td colspan="6">Table 2.5 Valued Ecosystem Component – Water</td></tr>
<tr><td colspan="6">Potential Effect: Groundwater and surface water contamination</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="4">Mitigation</td></tr>
<tr><td colspan="2">Contamination of groundwater or surface water from temporarily stored equipment and material during debris removal and soil remediation activities.</td><td colspan="4">· A high-density polyethylene (HDPE) liner is required to be placed at any temporary storage site prior to placement of debris and/or contaminated soil.
·Temporary drainage and pumping are to be used, as appropriate, to keep excavations and site free from water.
· Measures for managing water flowing onto the Site, as well as water being pumped/diverted from the Site are to be used, such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.

· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).</td></tr>
<tr><td>Magnitude</td><td colspan="2">Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency
Significance</td></tr>
<tr><td>Small</td><td colspan="2">Reversible</td><td>Immediate</td><td>Short-term</td><td>Once</td></tr>
<tr><td colspan="2">Residual Effects:</td><td colspan="4">Insignificant</td></tr>
<tr><td colspan="2">Monitoring:</td><td colspan="4">Inspection and maintenance of control measures and structures during the course of construction.</td></tr>
<tr><td colspan="6">Comments: The placement of debris and contaminated soil on land could impact groundwater. The HDPE liner eliminates the pathway to any groundwater source.</td></tr>
</table>

Table 2.6 Valued Ecosystem Component – Birds / Wildlife / Plant Species				
Potential Effect: Disturbance to wildlife and loss of bird habitat.				
Potential Interaction	**Mitigation**			
Project activities may result in disturbance to wildlife / birds. Impacts on wildlife / birds habitat due to potential vegetation clearing for equipment to gain access to waste areas. Potential for disturbance to arctic-alpine plant species.	· Nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is required if activities occur within the core migratory bird season. · Equipment will be confined to access roads and project areas to minimize impacts to potential wildlife / bird habitat. · Proponents and Contractors must ensure that food scraps and garbage are not left at the project site. · Disturbances to all birds and wildlife in and near the project area must be minimized. Wildlife sweeps should be conducted each day by a qualified individual prior to work commencing. · The Contractor and workers must be familiar with proper protocols for protecting wildlife during construction. · The Contractor and workers must be familiar with the arctic-alpine plant species known to be present on the Slate Islands. · The Contractor must prevent hydrocarbon product releases in and around the project area.			
Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	Reversible	Immediate	Short-term	Once
Residual Effects:	Insignificant			
Monitoring:	None required			
Comments: The potential exists for the disturbance of wildlife and birds due to an increase in noise and dust around the project site. Such effects are likely to be of short duration and confined to the project site and can be avoided through the application of effective mitigation measures.				

<table>
<tr><td colspan="5">Table 2.7 Valued Ecosystem Component – Air</td></tr>
<tr><td colspan="5">Potential Effect: Air Pollution/Air Emissions</td></tr>
<tr><td colspan="2">Potential Interaction</td><td colspan="3">Mitigation</td></tr>
<tr><td colspan="2">Project activities (i.e. soil remediation) may result in fugitive dust emissions.</td><td colspan="3">· A site specific air pollutant environmental management plan that identifies the objectives to be achieved (e.g. visual inspection, neighbor complaints, quantified maximum concentrations around the site), the methods to be applied, the people responsible for managing and implementing the plan, and the records to be maintained in order to demonstrate adoption of best management practices (and compliance with regulatory requirements) should be developed and implemented. The document Best Practices for the Reduction of Air Emissions from Construction and During Demolition Activities (prepared for Environment and Climate Change Canada by Cheminfo Services, 2005), should be consulted in the development of the plan.

· Properly shape and cover stockpiled soils to reduce wind erosion and control fugitive dust emissions. If any use of backfill is required, ensure proper scheduling for delivery of backfill materials to minimize storage time on site and reduce potential for fugitive dust emissions.

· Misting of disturbed or travelled areas should be undertaken, as well as installing localized wind fencing/barriers particularly during dry, dusty conditions to avoid generating airborne or surface dust and particulates.

· Machinery and equipment must be maintained in good condition, must be equipped with emission controls as applicable, and operate within regulatory requirements, including meeting local authority’s emission requirements.

· Operators must comply with operating specifications for equipment and machinery.

· Vehicles should not be left idling when not in use.

· Minimize vehicle traffic on exposed soils and stabilize high traffic areas with clean gravel surface layer or other suitable cover material.

· Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.</td></tr>
<tr><td>Magnitude</td><td>Reversibility</td><td>Geographic Extent</td><td>Duration</td><td>Frequency</td></tr>
<tr><td>Small</td><td>Reversible</td><td>Immediate</td><td>Short-term</td><td>Once</td></tr>
<tr><td colspan="2">Residual Effects:</td><td colspan="3">Insignificant</td></tr>
<tr><td colspan="2">Monitoring:</td><td colspan="3">None required</td></tr>
<tr><td colspan="5">Comments: The potential exists for the disturbance of wildlife and birds due to an increase in noise and dust around the project site. Such effects are likely to be of short duration and confined to the project site and can be avoided through the application of effective mitigation measures.</td></tr>
</table>

Table 2.8 Valued Ecosystem Component – Soil (Surface and Subsurface) Quality				
Potential Effect: Erosion and contamination of soils				
Potential Interaction	**Mitigation**			
Disturbance to soil from equipment use during project activities. If soil remediation moves forward, contamination of soil from temporarily stored material during soil remediation activities.	· Contaminated soil that is in excess must be stored on site for the shortest time possible, covered, and be disposed of at an approved facility. · All contaminated soil remaining in place on site must be capped with clean fill to ensure there is no access to contaminated soil. · Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized. · The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization. · Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633). · All hazardous materials and/or waste materials being removed or that is generated must be disposed of in a legal manner according to Regulations (i.e. O. Reg. 347- General - Waste Management, as amended)			
Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency**
Small	Reversible	Immediate	Short-term	Once
Residual Effects:	Insignificant			
Monitoring:	**Inspection and maintenance of sediment control measures and structures during the course of construction.**			
Comments: Construction activities could result in the mobilization of on-site soils, especially during precipitation events. Such runoff events are likely to be of short duration and confined to the project site. The implementation of effective mitigation measures can reduce such effects to insignificant levels.				

Table 2.9 Valued Ecosystem Component – Health and Socio Economic				
Potential Effect: Human exposure to hazards and hazardous materials				
Potential Interaction	**Mitigation**			
Contractors and workers maybe be exposed to designated substances and hazardous materials during the project activities.	· The Designated Substance and Hazardous Materials survey and associated specifications completed by DST (2016) must be consulted and adhered to during project activities. · Appropriate personal protective equipment (PPE) must be used during all project activities. · All hazardous materials must be labelled in accordance with WHMIS requirements and transported in accordance with provincial and federal regulations regarding the transportation of dangerous goods including: • Federal Transportation of Dangerous Goods Act, 1992 • Environmental Protection Act,1990 - Ontario Regulation 347- General – Waste Management - Ensure employees are trained on the identification and handling of designated substances. Undertake work on designated substances containing material and other hazardous materials and chemicals according to the Designated Substance and Hazardous Material Survey information and recommendations or the provincial and federal legislation. - In general, the Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA) should be followed, including: • Ontario Regulation 213/91, Construction Projects, and R.R.O. 1990, • Ontario Regulation 490/09 “Designated Substances”.			
Magnitude	**Reversibility**	**Geographic Extent**	**Duration**	**Frequency Significance**
Small	Reversible	Immediate	Short-term	Once
Residual Effects:	Insignificant			
Monitoring:	**None required.**			
Comments: Hazards can be avoided through the application of appropriate mitigations measures.				

PART D: COMMUNICATIONS

D.1 Consideration of Public Concerns

The potential for public concern is minimal because the neighboring property to the project Site is owned by the province and maintained by the MNRF. The MNRF has been consulted in this EEE process. Also, the Site is in a remote area, and not publicly accessed. Public consultation was not deemed necessary as part of this screening. A record of public participation determination is found in **Appendix B**.

Notice should be posted on the Terrace Bay and Rossport websites as well as the Terrace Beach/Marina to advice the neighboring park visitors about project activities.

D.2 Aboriginal Interest

PWGSC evaluated the Lead Abatement/Soil remediation project at the Slate Island Coast Guard Site to determine if the environmental effects will result in a significant adverse environmental effect upon aboriginal peoples. It was determined that communications with aboriginal peoples was not required because the project site is not on or near First Nations lands/reserves, and there are no anticipated off site impacts.

D.3 Government Co-ordination

Federal and provincial authorities likely to have an interest in the project were contacted by DST Consulting Engineers Inc. on behalf of Public Works and Government Services Canada, during the course of the environmental effects evaluation. A project description was distributed to these federal and provincial authorities in order to garner expert advice. These authorities included:

- Environment Canada and Climate Change (ECCC);
- Fisheries and Oceans Canada (DFO);
- Lake Superior National Marine Conservation Area of Canada (LSNMCA);
- Ministry of Natural Resources and Forestry (MNRF);
- Township of Terrace Bay;
- Ontario Parks;
- Indigenous and Northern Affairs Canada (INAC; no response to date); and
- Pic River First Nation (no response to date).

As a result of this consultation, EC, DFO, LSNMCA, MNRF, and the Township of Terrace Bay provided expert advice that was considered and incorporated in the environmental effects evaluation.

The Pic River First Nation and INAC have been contacted, however a response has not yet been received. Should the response materially affect the conclusions of this report, an addendum will be issued.

PART E: ENVIRONMENTAL EFFECTS EVALUATION CONCLUSION

Potential impacts of this project are associated with the lead abatement, debris removal and soil remediation phases. It is reasonable to conclude that with appropriate mitigations as listed in Section C, Tables 2.1-2.7 in place and good work practices, environmental effects will be of short duration and the potential zone of influence will be confined to the immediate vicinity of the Site.

PART F: ACCURACY AND COMPLIANCE MONITORING

Site monitoring and compliance monitoring for this project should be completed. The Project Manager and/or designate and Contractor should ensure the mitigation measures are in place and are in proper working order, and should consist of daily or weekly evaluations of mitigation measures in place at the Site.

PART G: DETERMINATION

The federal authority is required to provide a determination of the significance of environmental effects as a result of this project. The decision outlined below is based on the interpretation of environmental effects and mitigation measures described in Part D of this report.

Project Name:	Environmental Program
PWGSC Project #:	R.083149.001 & .004
Location:	Slate Island Coast Guard Site, Patterson Island, Lake Superior, Ontario

The Federal Authority has evaluated the project for significant adverse environmental effects as required under Section 67 of *Canadian Environmental Assessment Act (CEAA), 2012*. On the basis of this evaluation, the department has determined that the decision opposite the "X" applies to the proposed project.

___ Project not likely to cause significant adverse environmental effects - proceed.

___ Project not likely to cause significant adverse environmental effects with mitigation - proceed using mitigative measures as determined.

___ Inadequate information available - further study and assessment is required.

___ Project likely to cause significant adverse environmental effects that cannot be justified in the circumstances - project will not proceed.

___ Project likely to cause significant adverse environmental effects that may be justified in the circumstances - refer to the Governor in Council for decision.

PART H: SIGNATURE

This document summarizes the results of an environmental effects evaluation related to the above project that has been performed and completed by the Federal Authority in accordance with the *Canadian Environmental Assessment Act, 2012.*

Environmental Specialist: ________________________________ Date: _________________________
(Title, Directorate)

The above has completed this environmental effects evaluation (EEE) report to the best of their ability and knowledge, and ensures that it meets the requirement of the Canadian Environmental Assessment Act, 2012.

Project Manager: ______________________________________ Date: _________________________
(Title, Directorate)

The above has read and understood this environmental effects evaluation (EEE) report and acknowledges responsibility for ensuring the implementation of mitigation measures and for ensuring the design and implementation of 'accuracy and compliance monitoring', if any, identified in this report.

PART I: REFERENCES

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APPENDIX A
FIGURES AND PHOTOGRAPHS

DST consulting engineers

885 REGENT STREET, SUITE 3-1B
SUDBURY, ONTARIO, P3E 5M4
TEL (705) 523-6680 FAX (705) 523-6690
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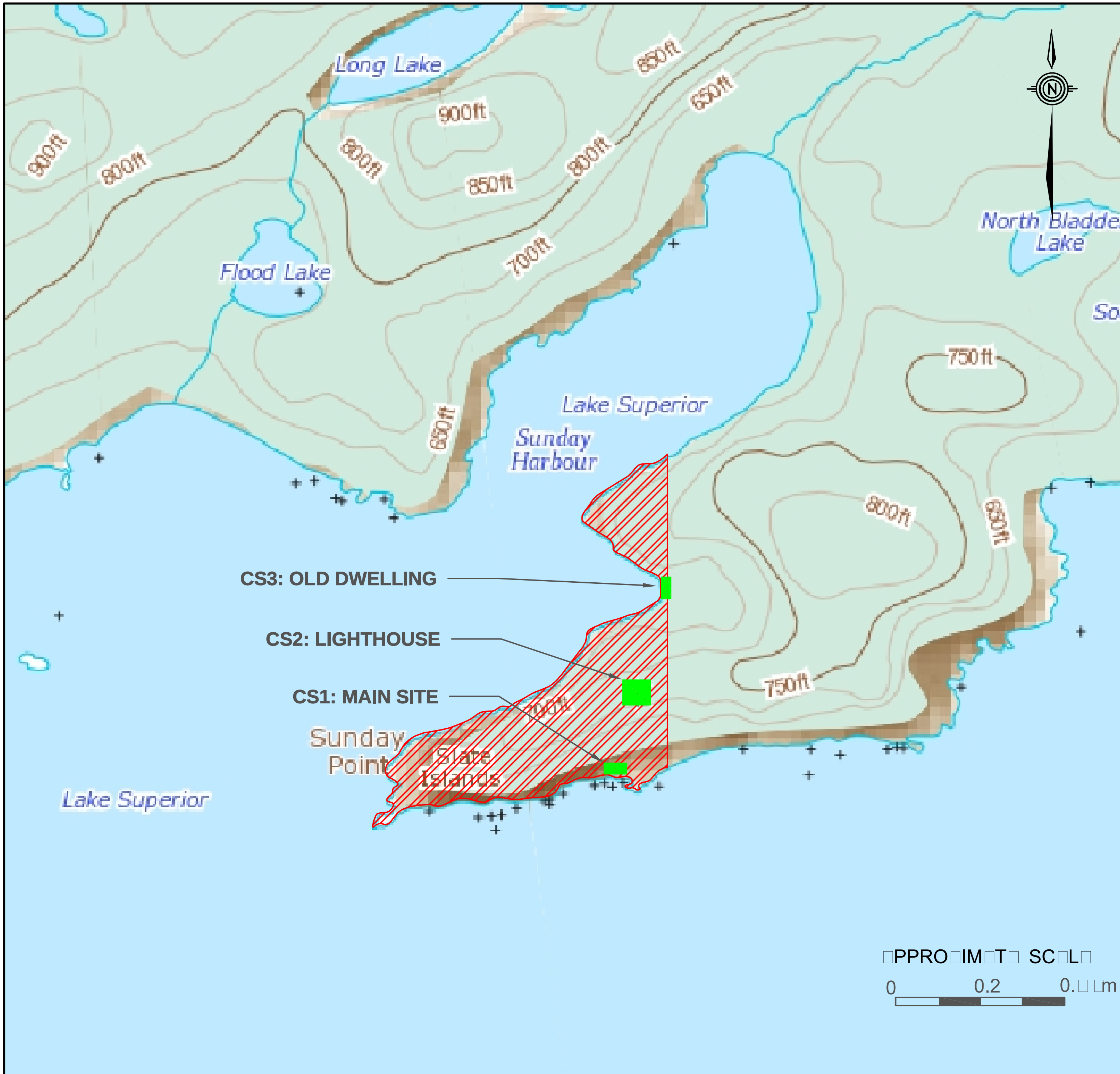

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SUDBURY, ONTARIO, P3E 5M4
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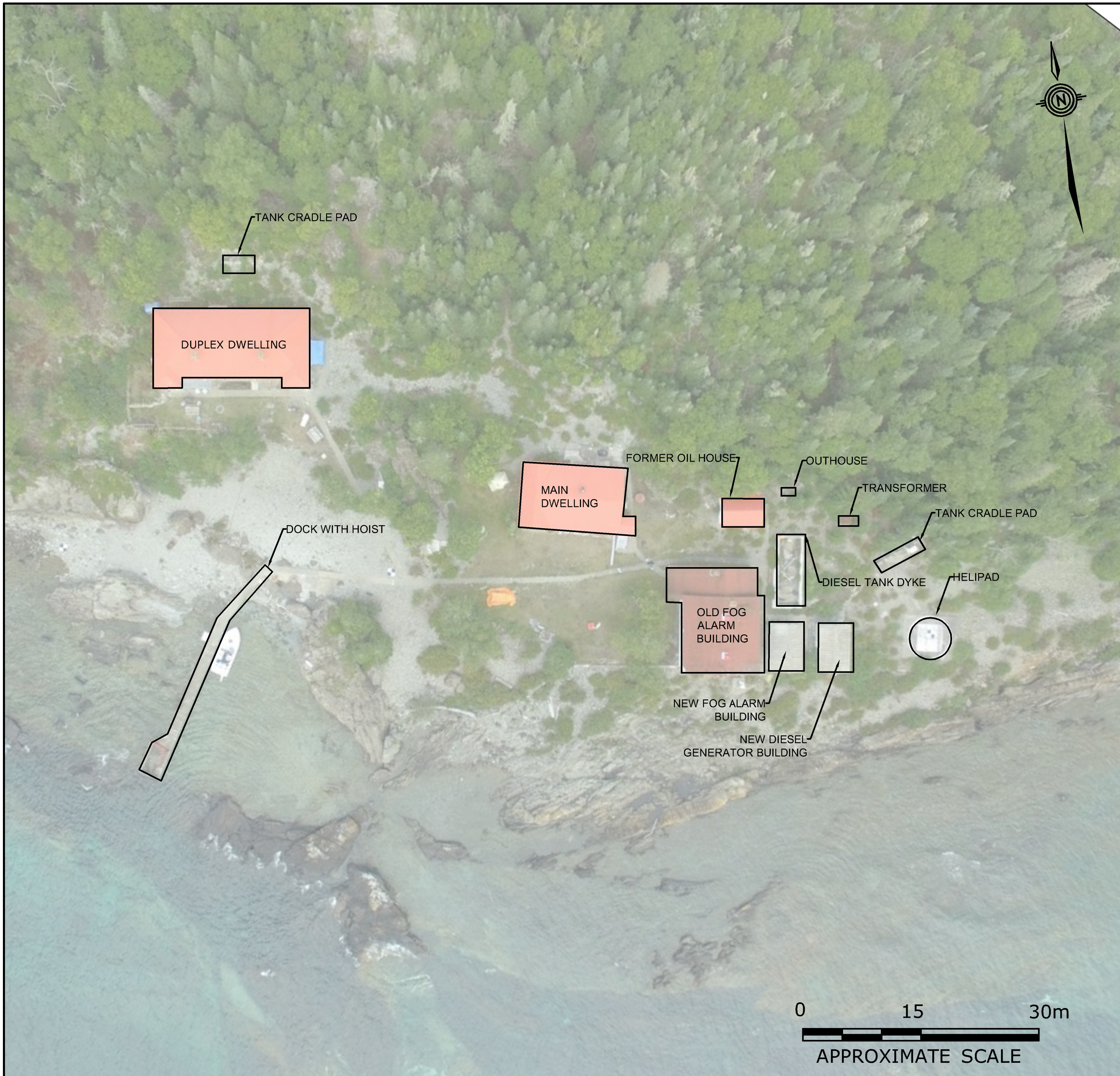

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LEGEND:

NOTES:

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1	08/02/17	FINAL	CS
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REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

ENVIRONMENTAL EFFECTS EVALUATION - SLATE ISLANDS COAST GUARD SITE PATTERSON ISLAND, LAKE SUPERIOR, ON

DRAWING TITLE:

MAIN SITE (CS-1) - SITE PLAN

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: FEB 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE A3

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REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

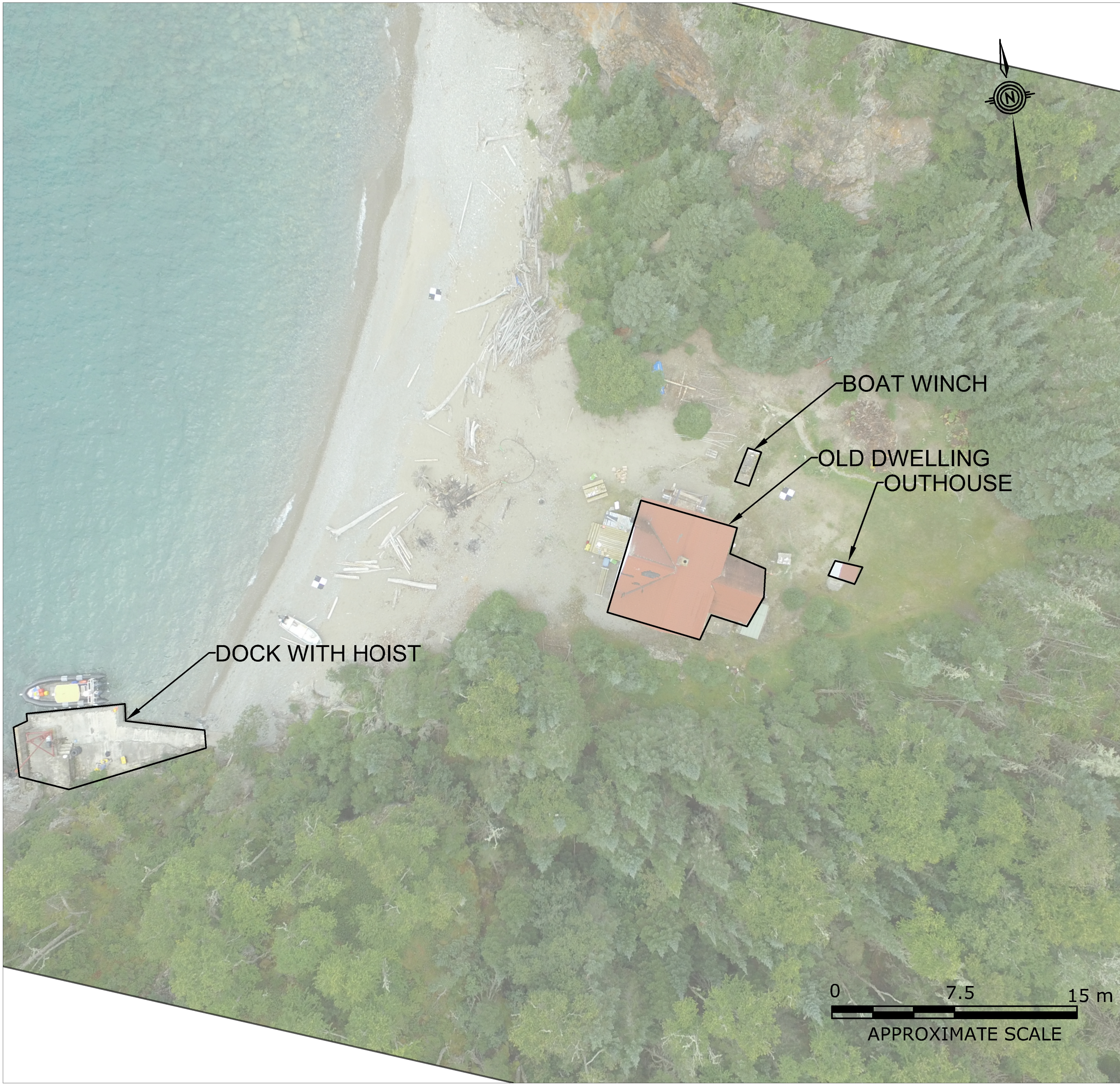
ENVIRONMENTAL EFFECTS EVALUATION - SLATE ISLANDS COAST GUARD SITE PATTERSON ISLAND, LAKE SUPERIOR, ON

DRAWING TITLE:

LIGHTHOUSE AREA (CS-2) SITE PLAN

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: FEB 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE A4



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LEGEND:

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1	08/02/17	FINAL	CS
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REV	DATE	ISSUE	APPROVAL

PROJECT TITLE:

ENVIRONMENTAL EFFECTS EVALUATION - SLATE ISLANDS COAST GUARD SITE PATTERSON ISLAND, LAKE SUPERIOR, ON

DRAWING TITLE:

OLD DWELLING SITE (CS-3) SITE PLAN

DESIGNED BY: JW	SCALE: AS SHOWN
DRAWN BY: JR	DATE: FEB 2017
APPROVED BY: CS	PROJECT NO: GV-TB-027105

FIGURE A5

Photograph 1: View of main dwelling and lighthouse in background, facing north.

Photograph 2: View of main site shoreline, facing northeast.

Photograph [illegible]: View of duplex dwelling and surrounding area, facing northwest.

Photograph [illegible]: View of fog alarm building, facing east.

Photograph 5□Vie□ of old d□elling□facing north.

Photograph □□Vie□ of shore area of Site and helipad□facing east.

Photograph □□Vie□ of shore area□facing south.

Photograph □□Overvie□ of Main Site□loo□ing from the lighthouse area□facing south.

Photograph □□Vie□ of lighthouse□facing north□est.

Photograph □0□Vie□ of trail leading to lighthouse□facing north.

Photograph □□□Vie□ of dump area located north□est of the Main Site□facing east.

Photograph □2□Vie□ of Main Site and Lighthouse□facing north.

Photograph □□□Vie□ of old d□elling and surrounding area□facing south.

APPENDIX B

RECORD OF PUBLIC PARTICIPATION DETERMINATION

Record of Public Participation Determination

Stage of work plan: Early planning phase of screening (pre-scoping)

Is there an indication that…	Describe potential indication and issues	Consider public participation?	
there is an existing or likely public interest in the type, location or potential effects of the project?		□ Yes	X No
There are members of the public with a history of being involved in past proposed projects in the area?		□ Yes	X No
the project has the potential to generate conflict between environmental and social or economic values of concern to the public?		☐ Yes	X No
the project may be perceived as having the potential for significant adverse environmental effects? [1]		☐ Yes	X No
there is potential to learn from community ecological? knowledge or Aboriginal traditional knowledge?		□ Yes	X No
there is uncertainty about potential direct and indirect environmental effects or the significance of identified effects?		☐ Yes	X No
the project has been or will be subject to other public participation processes that would meet the objectives of the Ministerial Guideline http://www.ceaa.gc.ca/013/006/ministerial_guideline_e.htm		□ Yes	X No
there is any other reason why public participation is or is not appropriate?		□ Yes	X No

As a result of the scan above, is public participation under CEAA appropriate in the circumstances?

□ Yes X No

Additional comments to support determination:

The project is on federally owned property, and neighbouring properties are owned by the province. There are no private owners in the vicinity of the Site. Several studies have been completed on the Site to date that have provided ecological knowledge of the area. The project is anticipated to improve the quality of the Site, and no adverse environmental effects are anticipated as long as mitigation measures are adhered to.

[1] *Environmental Effect as per the definition in CEAA (2012) is*
- *Changes to the environment to components of the environment that are within the legislative authority of Parliament (fish as defined by the Fisheries Act, aquatic species under the Species at Risk Act, and migratory birds as defined in the Migratory Birds Convention Act (1994)*
- *Changes to the environment that occur on federal lands, or inter-provincially or outside of Canada.*
- *The effect of any change on health and socio-economic condition, physical and cultural heritage, use of resources for traditional purposes and structures of historical significance are limited with respect to Aboriginal peoples.*

APPENDIX C
DEFINITIONS AND METHODOLOGIES

Environment (defined in *S.2(1)*) – the components of the Earth, and includes land, water and air, including all layers of the atmosphere; and all organic and inorganic matter and living organisms (and the interacting natural systems of those).

Environmental Effects (defined in *S.5(1)* – 5.(1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are

(a) a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:

(i) fish as defined in section 2 of the Fisheries Act and fish habitat as defined in subsection 34(1) of that Act,
(ii) aquatic species as defined in subsection 2(1) of the Species at Risk Act,
(iii) migratory birds as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994, and
(iv) any other component of the environment that is set out in Schedule 2;

(b) a change that may be caused to the environment that would occur:
(i) on federal lands,
(ii) in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or
(iii) outside Canada; and
(c) with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on
(i) health and socio-economic conditions,
(ii) physical and cultural heritage,
(iii) the current use of lands and resources for traditional purposes, or
(iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

(2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:
(a) a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment and that is directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and
(b) an effect, other than those referred to in paragraph (1)(c), of any change referred to in paragraph (a) on
(i) health and socio-economic conditions,
(ii) physical and cultural heritage, or
(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Schedule 2 (3) The Governor in Council may, by order, amend Schedule 2 to add or remove a component of the environment.

Federal Authority (defined in *S.2(1)*) – a Minister of the Crown in right of Canada; an agency of the Government of Canada or a parent Crown corporation, as defined in subsection 83(1) of the *Financial Administration Act (FAA);* or any department or departmental corporation that is set out in Schedule I or II to the FAA.

Federal lands (defined in *S.2(1)*) – defined as follows:

- lands that belong to Her Majesty in right of Canada, or that Canada has power to dispose of, and all waters on and airspace above those lands, other than lands under the administration and control of the Commissioner of Yukon, the Northwest Territories or Nunavut;
- the internal waters of Canada, in any area of the sea not within a province;
- the territorial sea of Canada in any area of the sea not within a province;
- the exclusive economic zone of Canada, and the continental shelf of Canada; and
- reserves, surrendered lands and any other lands that are set apart for the use and benefit of a band and that are subject to the *Indian Act*, and all waters on and airspace above those reserves or lands.

Mitigation measures (defined in *S. 2(1)*) – measures for the elimination, reduction or control of the adverse environmental effects of a designated project, and includes restitution for any damage to the environment cause by those effects through replacement, restoration, compensation or any other means.

Project (defined in *S. 66*) – a physical activity that is carried out in relation to a physical work and is not a designated project.

Valued Ecosystem Component (defined on Agency - www.ceaa.gc.ca/default.asp?lang=En&n=B7CA71391&offset=3#v) - The environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.

The value of an ecosystem component may be determined on the basis of cultural ideals or scientific concern. Valued ecosystem components that have the potential to interact with project components should be included in the assessment of environmental effects.

Methodology

The environmental effects evaluation methodology used in this report focuses the evaluation on those environmental components of greatest concern. The Valued Ecological Components (VECs) most likely to be affected by the project as described are indicated in **Table 1.** VECs were selected based on ecological importance to the existing environment (above), the relative sensitivity of environmental components to project influences and their relative social, cultural or economic importance. The potential impacts resulting from these interactions are described below.

Evaluation of Environmental Effects

The VECs selected in Table 1 are addressed in Tables 2.1 through 2.7* in the EEE. The residual effects of the project on the environment are defined. Similarly, the physical works/activities and required mitigation measures are detailed and the significance of residual (post-mitigation) effects is estimated.

The following ratings are based on:

- **information provided by the proponent;**
- **a review of project related activities;**
- **an appraisal of the environmental setting, and identification of resources at risk;**
- **the identification of potential impacts within the temporal and spatial bounds; and**
- **personal knowledge and professional judgment of the assessor.**

The significance of project related impacts was determined in consideration of their frequency, the duration and geographical extent of the effects, magnitude relative to natural or background levels, and whether the effects are reversible or are positive or negative in nature. These criteria are indicated in Table 2.

Table 3. Assessment Criteria for Determination of Significance.

Magnitude	Magnitude, in general terms, may vary among Issues, but is a factor that accounts for size, intensity, concentration, importance, volume and social or monetary value. It is rated as compared with background conditions, protective standards or normal variability.	
	Small	Relative to natural or background levels
	Moderate	Relative to natural or background levels
	Large	Relative to natural or background levels
Reversibility	Reversible	Effect can be reversed
	Irreversible	Effects are permanent
Geographic Extent	Immediate	Confined to project site
	Local	Effects beyond immediate project site but not regional in scale
	Regional	Effects on a wide scale
Duration	Short Term	Between 0 and 6 months in duration
	Medium Term	Between 6 months and 2 years
	Long Term	Beyond 2 years
Frequency	Once	Occurs only once
	Intermittent	Occurs occasionally at irregular intervals
	Continuous	Occurs on a regular basis and regular intervals

APPENDIX D
MITIGATION TABLE

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
Adjacent waters and fish/fish habitat	DST	· No work should be undertaken below the water line.	Pre-Construction Phase, Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
	Environment and Climate Change Canada	A Sediment and Erosion Control Plan must be developed and implemented.	Lead Abatement, Debris Removal, Soil Remediation	
		Erosion control structures (silt fences/curtains, sediment traps and or check dams) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the project activities. These structures are to be installed prior to the commencement of project activities, and are left in place until vegetation is re-established and/or all exposed soils are stabilized.		
	DST	Polyethylene sheeting is to be used, as appropriate, to prevent surface water contamination from gel applications during lead abatement activities.		
		Selection of a non-toxic, environmentally friendly paint removal product, if available, for lead abatement activities.		
		· Ensure loading/unloading of machinery/equipment/materials does not impact the banks and cause erosion into the water.		
		· Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.		
	Cheminfo Services Inc.	· The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.		
	DST	Work must be scheduled to avoid periods of heavy precipitation, when possible, to avoid paint removal product runoff during lead abatement, and to avoid sediment erosion during debris and soil removal.		
	EPA, 1990., O. Reg. 347 General-Waste Management	All paint debris and contaminated soils must be disposed of in a provincially approved manner so as to mitigate potential effects generated by leachate entering the adjacent waters.		
	EPA, 1990., O. Reg. 347 General-	· If any construction debris/material (e.g., plastic, food scraps, etc.) enter the aquatic environments they must be removed immediately and disposed in a provincially approved manner.		

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
	Waste Management			
	Environment and Climate Change Canada	Implement a Spill Prevention and Spill Response Plan for the project activities. Ensure that appropriate inspection personnel and certified inspection personnel are employed through all stages of the project life cycle.		
		· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633). Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.		
	MNRF	· An Overall Benefit Permit may be required under Endangered Species Act. A thorough review of sensitive areas needs to be undertaken to determine whether significant impacts to the woodland caribou sensitive areas is anticipated, and warrant a permit. The process to obtain access to sensitive data is underway.		
SAR fish and SAR fish habitat	DST	· No work should be undertaken below the water line.	Pre-Construction Phase, Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
	Environment and Climate Change Canada	A Sediment and Erosion Control Plan must be developed and implemented.	Lead Abatement, Debris Removal, Soil Remediation	
		Erosion control structures (silt fences/curtains, sediment traps and or check dams) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the project activities. These structures are to be installed prior to the commencement of project activities, and are left in place until vegetation is re-established and/or all exposed soils are stabilized.		
	DST	Polyethylene sheeting is to be used, as appropriate, to prevent surface water contamination from gel applications during lead abatement activities.		
		Selection of a non-toxic, environmentally friendly paint removal product, if available, for lead abatement activities.		
		· Ensure loading/unloading of machinery/equipment/materials does not impact the banks and cause erosion into the water.		
		· Designated travel routes must be established and maintained for machinery and		

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
		transportation of materials, preferably along existing pathways.		
	Cheminfo Services Inc.	· The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.		
	DST	Work must be scheduled to avoid periods of heavy precipitation, when possible, to avoid paint removal product runoff during lead abatement, and to avoid sediment erosion during debris and soil removal.		
	EPA, 1990., O. Reg. 347 General-Waste Management	All paint debris and contaminated soils must be disposed of in a provincially approved manner so as to mitigate potential effects generated by leachate entering the adjacent waters.		
	EPA, 1990., O. Reg. 347 General-Waste Management	· If any construction debris/material (e.g., plastic, food scraps, etc.) enter the aquatic environments they must be removed immediately and disposed in a provincially approved manner.		
	Environment and Climate Change Canada	Implement a Spill Prevention and Spill Response Plan for the project activities. Ensure that appropriate inspection personnel and certified inspection personnel are employed through all stages of the project life cycle.		
		· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633). Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.		
	MNRF	· An Overall Benefit Permit may be required under Endangered Species Act. A thorough review of sensitive areas needs to be undertaken to determine whether significant impacts to the woodland caribou sensitive areas is anticipated, and warrant a permit. The process to obtain access to sensitive data is underway.		

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
Terrestrial SAR habitat	MNRF, Environment and Climate Change Canada, DFO	· Project activities that produce significant noise should be avoided, if possible, during woodland caribou sensitive periods when reproduction and rearing, winter aggregation and foraging, and seasonal dispersal is occurring: • Nursery Areas (May 1 to July 14 very low tolerance, July 15 to September 15 low tolerance) • Winter Use areas (December 1 to March 31) • Travel Corridors (April and/or November)	Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
		· Once project specific details are finalized, consultation with ECCC and MNRF must occur to discuss and develop project specific mitigation measures that can be implemented for this unique population of caribou and circumstance.		
		· Proponents, contractors and workers must be advised of the potential presence of SAR, and be familiar with the SAR species during the undertaking.		
		· SAR sweeps should be conducted prior to work commencing each day by a qualified individual. SAR sweeps should include wolf dens. If a SAR is encountered, work must stop, the immediate area shall be avoided, and an experienced Biologist must be consulted and/or contact Environment Canada to discuss the way forward.		
		Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to habitat		
		· Ensure all exhaust systems have mufflers installed properly and that all machinery is operating as per specifications, and avoid idling to minimize noise disturbance to woodland caribou.		
		· If/where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to OMNR (2011) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical		
		Project activities and vegetation clearing must not take place during the bird breeding season of April 15th to August 15th, and/or until fledglings have left parental territories.		
		· No migratory birds, nests or eggs can be disturbed or destroyed per the Migratory Birds Convention Act of 1994. If project activities are unavoidable during the core migratory bird breeding season of April 15th to August 15th, nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is		

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
Migratory bird/bird habitat	Environment and Climate Change Canada Correctional Services Canada	required. · Low impact machinery or low impact removal procedures must be used as part of debris removal phase of construction. · Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to potential bird habitat.. · Proponents and contractors must complete a nesting sweep prior to commencing work. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered prior to the work, work must stop, the immediate area shall be avoided, and an experienced Avian Biologist must be consulted for the way forward. The Avian Biologist must develop a species-appropriate buffer zone to work and provide further information on noise levels which may not be exceeded within an appropriate distance to the nest taking into account the species of bird and the area surrounding the nest. Scope and identify the buffer zone in such as a way as it is visible with the use of a fence or colored tape so that the construction crew and the construction supervisor at the site can see it and respect this buffer zone. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered during the work, stop any disruptive activity in the nesting area until the establishment of a buffer zone by an experienced Avian Biologist. This is based on a range of appropriate protection to the species and circumstances and must be maintained until the chicks have naturally left permanently the areas near the nest or that the work is completed. If a buffer zone cannot be established, identify the species of breeding birds and contact Environment Canada to discuss the way forward. · Proponents and Contractors must complete a nesting sweep prior to commencing work to minimize loss of bird habitat. · Proponents and Contractors must ensure that food scraps and garbage are not left at the project site. · If work is planned during timeframes when SAR birds (see section C.3) may be present, follow up SAR surveys during the timing windows that are appropriate for the specific specie is required. · Contractors and workers should be familiar with potential SAR if conducting work when they may be present and should contact ECCC SAR biologist if encountered in work Site for advice on how to proceed. · The Contractor must prevent hydrocarbon product releases in and around the project area. · Machinery must be checked for leakage of lubricants or fuel and must be in good	Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
		working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).		
		· A high-density polyethylene (HDPE) liner is required to be placed at any temporary storage site prior to placement of debris and/or contaminated soil.		
		·Temporary drainage and pumping are to be used, as appropriate, to keep excavations and site free from water.		
Groundwater	Correctional Services Canada Environment and Climate Change Canada	· A high-density polyethylene (HDPE) liner is required to be placed at any temporary storage site prior to placement of debris and/or contaminated soil.	Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
		·Temporary drainage and pumping are to be used, as appropriate, to keep excavations and site free from water.		
		· Measures for managing water flowing onto the Site, as well as water being pumped/diverted from the Site are to be used, such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.		
		Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).		
Wildlife/Birds and wildlife/ bird habitat and Plant Species	MNRF and Environment and Climate Change Canada	· Nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is required, if activities occur within the core migratory bird season..	Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
		· Equipment will be confined to access roads and project areas to minimize impacts to potential wildlife / bird habitat.		
		Proponents and Contractors must ensure that food scraps and garbage are not left at the project site.		
		· Disturbances to all birds and wildlife in and near the project area must be minimized. Wildlife sweeps should be conducted each day by a qualified individual prior to work commencing.		
		The Contractor and workers must be familiar with proper protocols for protecting wildlife during construction.		
		· The Contractor and workers must be familiar with the arctic-alpine plant species known to be present on the Slate Islands		
		· The Contractor must prevent hydrocarbon product releases in and around the project area.		

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
Air Emissions	Environment and Climate Change Canada, Cheminfo Services Inc.	· A site specific air pollutant environmental management plan that identifies the objectives to be achieved (e.g. visual inspection, neighbor complaints, quantified maximum concentrations around the site), the methods to be applied, the people responsible for managing and implementing the plan, and the records to be maintained in order to demonstrate adoption of best management practices (and compliance with regulatory requirements) should be developed and implemented. The document *Best Practices for the Reduction of Air Emissions from Construction and During Demolition Activities* (prepared for Environment and Climate Change Canada by Cheminfo Services, 2005), should be consulted in the development of the plan.	Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
		· Properly shape and cover stockpiled soils to reduce wind erosion and control fugitive dust emissions. If any use of backfill is required, ensure proper scheduling for delivery of backfill materials to minimize storage time on site and reduce potential for fugitive dust emissions.		
		· Misting of disturbed or travelled areas should be undertaken, as well as installing localized wind fencing/barriers particularly during dry, dusty conditions to avoid generating airborne or surface dust and particulates.		
		· Machinery and equipment must be maintained in good condition, must be equipped with emission controls as applicable, and operate within regulatory requirements, including meeting local authority's emission requirements.		
		· Operators must comply with operating specifications for equipment and machinery.		
		· Vehicles should not be left idling when not in use.		
		· Minimize vehicle traffic on exposed soils and stabilize high traffic areas with clean gravel surface layer or other suitable cover material.		
		· Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.		
Soil Quality	Cheminfo Services Inc.	· Contaminated soil that is in excess must be stored on site for the shortest time possible, covered, and be disposed of at an approved facility.		
		· All contaminated soil remaining in place on site must be capped with clean fill to ensure there is no access to contaminated soil.		
	Cheminfo	· Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the	Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
	Services Inc. Environment and Climate Change Canada	construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized.		guidance and authority of PWGSC
		· The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.		
	Environment and Climate Change Canada	· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).		
	EPA, 1990., O. Reg. 347 General- Waste Management	· All hazardous materials and/or waste materials being removed or that is generated must be disposed of in a legal manner according to Regulations (i.e. O. Reg. 347- General - Waste Management, as amended)		
Human Health		· The Designated Substance and Hazardous Materials survey and associated specifications completed by DST (2016) must be consulted and adhered to during project activities.	Pre-Construction Phase, Lead Abatement, Debris Removal, Soil Remediation	General Contractor under the guidance and authority of PWGSC
		· Appropriate personal protective equipment (PPE) must be used during all project activities.		
		· All hazardous materials must be labelled in accordance with WHMIS requirements and transported in accordance with provincial and federal regulations regarding the transportation of dangerous goods including: • Federal Transportation of Dangerous Goods Act, 1992 • Environmental Protection Act,1990 - Ontario Regulation 347- General – Waste Management		
		- Ensure employees are trained on the identification and handling of designated substances. Undertake work on designated substances containing material and other hazardous materials and chemicals according to the Designated Substance and Hazardous Material Survey information and recommendations or the provincial and federal legislation.		
		- In general, the Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA) should be followed, including: • Ontario Regulation 213/91, Construction Projects, and R.R.O. 1990,		

Environmental Component	Reference	Mitigation Measures	Phase	Responsibility
		Ontario Regulation 490/09 “Designated Substances”.		

Mitigation Table – to be forwarded to proponent

It is reasonable to conclude that with appropriate mitigation in place and good work practices, significant adverse environmental effects will be of short duration and the potential zone of influence will be confined to the immediate vicinity if the work.

Mitigation

· No work should be undertaken below the water line.

· A Sediment and Erosion Control Plan must be developed and implemented.

· Erosion control structures (silt fences/curtains, sediment traps and or check dams) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the project activities. These structures are to be installed prior to the commencement of project activities, and are left in place until vegetation is re-established and/or all exposed soils are stabilized.

· Polyethylene sheeting is to be used, as appropriate, to prevent surface water contamination from gel applications during lead abatement activities.

· Selection of a non-toxic, environmentally friendly paint removal product, if available, for lead abatement activities.

· Ensure loading/unloading of machinery/equipment/materials does not impact the banks and cause erosion into the water.

· Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.

· The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.

· Work must be scheduled to avoid periods of heavy precipitation, when possible to avoid paint removal product runoff during lead abatement, and to avoid sediment erosion during debris and soil removal.

· All paint debris and contaminated soils must be disposed of in a provincially approved manner so as to mitigate potential effects generated by leachate entering the adjacent waters.

· If any construction debris/material (e.g., plastic, food scraps, etc.) enter the aquatic environments they must be removed immediately and disposed in a provincially approved manner.

- Implement a Spill Prevention and Spill Response Plan for the project activities. Ensure that appropriate inspection personnel and certified inspection personnel are employed through all stages of the project life cycle. Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).

- Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.

· An Overall Benefit Permit may be required under Endangered Species Act. A thorough review of sensitive areas needs to be undertaken to determine whether significant impacts to the woodland caribou sensitive areas is anticipated, and warrant a permit. The process to obtain access to sensitive data is underway.

· Project activities that produce significant noise should be avoided, if possible, during woodland caribou sensitive periods when reproduction and rearing, winter aggregation and foraging, and seasonal dispersal is occurring:

- Nursery Areas (May 1 to July 14 very low tolerance, July 15 to September 15 low tolerance)
- Winter Use areas (December 1 to March 31)
- Travel Corridors (April and/or November)

· Proponents, contractors and workers must be advised of the potential presence of SAR, and be familiar with the SAR species during the undertaking.

· SAR sweeps should be conducted prior to work commencing each day by a qualified individual. SAR sweeps should include wolf dens. If a SAR is encountered, work must stop, the immediate area shall be avoided, and an experienced Biologist must be consulted and/or contact Environment Canada to discuss the way forward.

· Once project specific details are finalized, consultation with ECCC and MNRF must occur to discuss and develop project specific mitigation measures that can be implemented for this unique population of caribou and circumstance.

· Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to habitat

· Ensure all exhaust systems have mufflers installed properly and that all machinery is operating as per specifications, and avoid idling to minimize noise disturbance to woodland caribou.

· If/where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to OMNR (2011) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical..

· No migratory birds, nests or eggs can be disturbed or destroyed per the Migratory Birds Convention Act of 1994. If project activities are unavoidable during the core migratory bird breeding season of April 15th to August 15th, nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is required..

· Low impact machinery or low impact removal procedures must be used as part of debris removal phase of construction.

· Tree removal must be avoided during project activities.

· Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to potential bird habitat.

· Proponents and contractors must complete a nesting sweep prior to commencing work. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered prior to the work, work must stop, the immediate area shall be avoided, and an experienced Avian Biologist must be consulted for the way forward. The Avian Biologist must develop a species-appropriate buffer zone to work and provide further information on noise levels which may not be exceeded within an appropriate distance to the nest taking into account the species of bird and the area surrounding the nest. Scope and identify the buffer zone in such as a way as it is visible with the use of a fence or colored tape so that the construction crew and the construction supervisor at the site can see it and respect this buffer zone. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered during the work, stop any disruptive activity in the nesting area until the establishment of a buffer zone by an experienced Avian Biologist. This is based on a range of appropriate protection to the species and circumstances and must be maintained until the chicks have naturally left permanently the areas near the nest or that the work is completed. If a buffer zone cannot be established, identify the species of breeding birds and contact Environment Canada to discuss the way forward.

· Proponents and Contractors must ensure that food scraps and garbage are not left at the project site.

· If work is planned during timeframes when SAR birds (see section C.3) may be present, follow up SAR surveys during the timing windows that are appropriate for the specific specie is required.

· Contractors and workers should be familiar with potential SAR if conducting work when they may be present and should contact ECCC SAR biologist if encountered in work Site for advice on how to proceed.

· The Contractor must prevent hydrocarbon product releases in and around the project area.

· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).

· A high-density polyethylene (HDPE) liner is required to be placed at any temporary storage site prior to placement of debris and/or contaminated soil.

·Temporary drainage and pumping are to be used, as appropriate, to keep excavations and site free from water.

· Measures for managing water flowing onto the Site, as well as water being pumped/diverted from the Site are to be used, such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.

· Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).

· Nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is required if activities occur within the core migratory bird season..

· Equipment will be confined to access roads and project areas to minimize impacts to potential wildlife / bird habitat.

· Proponents and Contractors must ensure that food scraps and garbage are not left at the project site.

· Disturbances to all birds and wildlife in and near the project area must be minimized. Wildlife sweeps should be conducted each day by a qualified individual prior to work commencing.

· The Contractor and workers must be familiar with proper protocols for protecting wildlife during construction.

· The Contractor and workers must be familiar with the arctic-alpine plant species known to be present on the Slate Islands.

· The Contractor must prevent hydrocarbon product releases in and around the project area.

· A site specific air pollutant environmental management plan that identifies the objectives to be achieved (e.g. visual inspection, neighbor complaints, quantified maximum concentrations around the site), the methods to be applied, the people responsible for managing and implementing the plan, and the records to be maintained in order to demonstrate adoption of best management practices (and compliance with regulatory requirements) should be developed and implemented. The document *Best Practices for the Reduction of Air Emissions from Construction and During Demolition Activities* (prepared for Environment and Climate Change Canada by Cheminfo Services, 2005), should be consulted in the development of the plan.

· Properly shape and cover stockpiled soils to reduce wind erosion and control fugitive dust emissions. If any use of backfill is required, ensure proper scheduling for delivery of backfill materials to minimize storage time on site and reduce potential for fugitive dust emissions.

· Misting of disturbed or travelled areas should be undertaken, as well as installing localized wind fencing/barriers particularly during dry, dusty conditions to avoid generating airborne or surface dust and particulates.

· Machinery and equipment must be maintained in good condition, must be equipped with emission controls as applicable, and operate within regulatory requirements, including meeting local authority's emission requirements.

· Operators must comply with operating specifications for equipment and machinery.

· Vehicles should not be left idling when not in use.

· Minimize vehicle traffic on exposed soils and stabilize high traffic areas with clean gravel surface layer or other suitable cover material.

· Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.

· Contaminated soil that is in excess must be stored on site for the shortest time possible, covered, and be disposed of at an approved facility.

· All contaminated soil remaining in place on site must be capped with clean fill to ensure there is no access to contaminated soil.

· Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile

filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized. · The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization. · Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633). · All hazardous materials and/or waste materials being removed or that is generated must be disposed of in a legal manner according to Waste Management Regulations (i.e. O. Reg. 347- General - Waste Management, as amended). The Designated Substance and Hazardous Materials survey and associated specifications completed by DST (2016) must be consulted and adhered to during project activities. · Appropriate personal protective equipment (PPE) must be used during all project activities. · All hazardous materials must be labelled in accordance with WHMIS requirements and transported in accordance with provincial and federal regulations regarding the transportation of dangerous goods including: • Federal Transportation of Dangerous Goods Act, 1992 • Environmental Protection Act,1990 - Ontario Regulation 347- General – Waste Management - Ensure employees are trained on the identification and handling of designated substances. Undertake work on designated substances containing material and other hazardous materials and chemicals according to the Designated Substance and Hazardous Material Survey information and recommendations or the provincial and federal legislation. - In general, the Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA) should be followed, including: • Ontario Regulation 213/91, Construction Projects, and R.R.O. 1990, • Ontario Regulation 490/09 "Designated Substances". • Any and all stipulations of federal, provincial, or municipal authorities and/or their officers must be strictly followed. As a best practice the most stringent standards must be used where applicable. Any discrepancies must be successfully resolved before the pertinent work may begin.
Site monitoring (accuracy and compliance monitoring) may be conducted to verify whether required mitigation measures were implemented. The proponent must provide site access to Responsible Authority officials and/or its agents upon request

Appendix F

Structural Evaluation

Appendix G

Marine Assessment

Attachment 3

Checklist of Mitigation Measures from EEE

Environmental Component	Mitigation Measures	Completed (X)
Adjacent waters and fish/fish habitat including SAR fish and SAR fish habitat	No work should be undertaken below the water line.	
	A Sediment and Erosion Control Plan must be developed and implemented.	
	Erosion control structures (silt fences/curtains, sediment traps and or check dams) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the project activities. These structures are to be installed prior to the commencement of project activities, and are left in place until vegetation is re-established and/or all exposed soils are stabilized.	
	Polyethylene sheeting is to be used, as appropriate, to prevent surface water contamination from gel applications during lead abatement activities.	
	Selection of a non-toxic, environmentally friendly paint removal product, if available, for lead abatement activities.	
	Ensure loading/unloading of machinery/equipment/materials does not impact the banks and cause erosion into the water.	
	Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.	
	The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.	
	Work must be scheduled to avoid periods of heavy precipitation, when possible, to avoid paint removal product runoff during lead abatement, and to avoid sediment erosion during debris and soil removal.	
	All paint debris and contaminated soils must be disposed of in a provincially approved manner so as to mitigate potential effects generated by leachate entering the adjacent waters.	
	If any construction debris/material (e.g., plastic, food scraps, etc.) enter the aquatic environments they must be removed immediately and disposed in a provincially approved manner.	
	Implement a Spill Prevention and Spill Response Plan for the project activities. Ensure that appropriate inspection personnel and certified inspection personnel are employed through all stages of the project life cycle.	
	Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633). Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.	
Terrestrial SAR habitat	Project activities that produce significant noise should be avoided, if possible, during woodland caribou sensitive periods when reproduction and rearing, winter aggregation and foraging, and seasonal dispersal is occurring, if the Site is in close proximity to any of the following areas: • Nursery Areas (May 1 to July 14 very low tolerance, July 15 to September 15 low tolerance)	

Environmental Component	Mitigation Measures	Completed (X)
Terrestrial SAR habitat	• Winter Use areas (December 1 to March 31) • Travel Corridors (April and/or November)	
	Once project specific details are finalized, consultation with ECCC and MNRF must occur to discuss and develop project specific mitigation measures that can be implemented for this unique population of caribou.	
	Proponents, contractors and workers must be advised of the potential presence of SAR, and be familiar with the SAR species during the undertaking.	
	SAR sweeps should be conducted prior to work commencing each day by a qualified individual. SAR sweeps should include wolf dens. If a SAR is encountered, work must stop, the immediate area shall be avoided, and an experienced Biologist must be consulted and/or contact Environment Canada to discuss the way forward.	
	Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to habitat	
	Ensure all exhaust systems have mufflers installed properly and that all machinery is operating as per specifications, and avoid idling to minimize noise disturbance to woodland caribou.	
	If/where debris removal from historic dumps will include tree removal, or where tree removal may otherwise occur and have the potential to impact bat maternal roost colonies, surveys for bat maternity snags according to OMNRF guidelines (2011) should be undertaken by a qualified biologist. If no suitable maternal snags are identified, work may proceed. If suitable maternal snags are identified, these should be retained and debris removal in their vicinity should be done by hand where practical	
Migratory bird/bird habitat	No migratory birds, nests or eggs can be disturbed or destroyed per the Migratory Birds Convention Act of 1994. If project activities are unavoidable during the core migratory bird breeding season of April 15th to August 15th, nesting sweeps should be conducted by a qualified avian biologist if/where vegetation or tree clearing is required.	
	Low impact machinery or low impact removal procedures must be used as part of debris removal phase of construction.	
	Equipment will be confined to disturbed and regularly travelled portions (trails) of the Site to the extent practical to minimize impacts to potential bird habitat.	
	Proponents and contractors must complete a nesting sweep prior to commencing work. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered prior to the work, work must stop, the immediate area shall be avoided, and an experienced Avian Biologist must be consulted for the way forward. The Avian Biologist must develop a species-appropriate buffer zone to work and provide further information on noise levels which may not be exceeded within an appropriate distance to the nest taking into account the species of bird and the area surrounding the nest. Scope and identify the buffer zone in such as a way as it is visible with the use of a fence or colored tape so that the construction crew and the construction supervisor at the site can see it and respect this buffer zone. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered during the work, stop any disruptive activity in the nesting area until the establishment of a buffer zone by an experienced Avian Biologist. This is based on a range of appropriate protection to the species and circumstances and must be maintained until the chicks have naturally left the areas near the nest or that the work is completed. If a buffer zone cannot be established, identify the	

Environmental Component	Mitigation Measures	Completed (X)
Migratory bird/bird habitat	species of breeding birds and contact Environment Canada to discuss the way forward.	
	Proponents and Contractors must ensure that food scraps and garbage are not left at the project site.	
	If work is planned during timeframes when SAR birds may be present, follow up SAR surveys during the timing windows that are appropriate for the specific specie is required.	
	Contractors and workers should be familiar with potential SAR if conducting work when they may be present and should contact ECCC SAR biologist if encountered in work Site for advice on how to proceed.	
	The Contractor must prevent hydrocarbon product releases in and around the project area.	
	Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).	
	A high-density polyethylene (HDPE) liner is required to be placed at any temporary storage site prior to placement of debris and/or contaminated soil.	
	Temporary drainage and pumping are to be used, as appropriate, to keep excavations and site free from water.	
Groundwater	A high-density polyethylene (HDPE) liner is required to be placed at any temporary storage site prior to placement of debris and/or contaminated soil.	
	Temporary drainage and pumping are to be used, as appropriate, to keep excavations and site free from water.	
	Measures for managing water flowing onto the Site, as well as water being pumped/diverted from the Site are to be used, such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.	
	Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).	
Wildlife habitat and Plant Species		
	Equipment will be confined to access roads and project areas to minimize impacts to potential wildlife and plant habitat.	
	Proponents and Contractors must ensure that food scraps and garbage are not left at the project site.	
	Disturbances to all wildlife in and near the project area must be minimized. Wildlife sweeps should be conducted each day by a qualified individual prior to work commencing.	
	The Contractor and workers must be familiar with proper protocols for protecting wildlife during construction.	
	The Contractor and workers must be familiar with the arctic-alpine plant species known to be present on the Slate Islands	

Environmental Component	Mitigation Measures	Completed (X)
Air Emissions	The Contractor must prevent hydrocarbon product releases in and around the project area.	
	A site specific air pollutant environmental management plan that identifies the objectives to be achieved (e.g. visual inspection, neighbor complaints, quantified maximum concentrations around the site), the methods to be applied, the people responsible for managing and implementing the plan, and the records to be maintained in order to demonstrate adoption of best management practices (and compliance with regulatory requirements) should be developed and implemented. The document *Best Practices for the Reduction of Air Emissions from Construction and During Demolition Activities* (prepared for Environment and Climate Change Canada by Cheminfo Services, 2005), should be consulted in the development of the plan.	
	Properly shape and cover stockpiled soils to reduce wind erosion and control fugitive dust emissions. If any use of backfill is required, ensure proper scheduling for delivery of backfill materials to minimize storage time on Site and reduce potential for fugitive dust emissions.	
	Misting of disturbed or travelled areas should be undertaken, as well as installing localized wind fencing/barriers particularly during dry, dusty conditions to avoid generating airborne or surface dust and particulates.	
	Machinery and equipment must be maintained in good condition, must be equipped with emission controls as applicable, and operate within regulatory requirements, including meeting local authority's emission requirements.	
	Operators must comply with operating specifications for equipment and machinery.	
	Vehicles should not be left idling when not in use.	
	Minimize vehicle traffic on exposed soils and stabilize high traffic areas with clean gravel surface layer or other suitable cover material.	
	Designated travel routes must be established and maintained for machinery and transportation of materials, preferably along existing pathways.	
Soil Quality	If applicable, contaminated soil that is in excess must be stored on Site for the shortest time possible, covered, and be disposed of at an approved facility.	
	All contaminated soil remaining in place on site must be capped with clean fill to ensure there is no access to contaminated soil.	
	Work must be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediments and/or sediment laden water during the construction phase. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized.	
	The exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled soil must be covered and/or dyked to prevent erosion and release of sediment laden water. Wherever possible, exposed soil is to be replanted or sodded to ensure soil stabilization.	
	Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refueling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental	

Environmental Component	Mitigation Measures	Completed (X)
Soil Quality	emergencies reporting system (1-800-565-1633).	
	All hazardous materials and/or waste materials being removed or that is generated must be disposed of in a legal manner according to Regulations (i.e. Reg. 347- General - Waste Management, as amended)	
Human Health	The Designated Substance and Hazardous Materials survey and associated specifications completed by DST (2017) must be consulted and adhered to during project activities.	
	Appropriate personal protective equipment (PPE) must be used during all project activities.	
	All hazardous materials must be labelled in accordance with WHMIS requirements and transported in accordance with provincial and federal regulations regarding the transportation of dangerous goods including: • Federal Transportation of Dangerous Goods Act, 1992 • Environmental Protection Act,1990 - Regulation 347- General – Waste Management	
	Ensure employees are trained on the identification and handling of designated substances. Undertake work on designated substances containing material and other hazardous materials and chemicals according to the Designated Substance and Hazardous Material Survey information and recommendations or the provincial and federal legislation.	
	In general, the Occupational Health and Safety Act, R.S.O. 1990, c. O.1 (OHSA) should be followed, including: • Ontario Regulation 213/91, Construction Projects, and R.R.O. 1990, • Ontario Regulation 490/09 “Designated Substances”.	

Attachment 5

Marine Assessment Report

SLATE ISLANDS COAST GUARD SITE
PATTERSON ISLAND, LAKE SUPERIOR, ONTARIO
DFRP NO. 56027
PWGSC NO. R.083149.001 & .004

Marine Assessment

RIGGS ENGINEERING LTD.
□2□0 Commissioners Road □ est
Suite 205
London□Ontario
□ □□ □C□

□□ Februar□20□□

Table of Contents

1. Introduction

Public Works and Government Services Canada (PWGSC), on behalf of Fisheries and Oceans Canada (DFO), retained DST Consulting Engineers Inc. (DST) to conduct an environmental program on the Slate Islands Coast Guard Site (GC [illegible]), Lake Superior. The program is intended to identify the needs for any structural repairs or soil remediation at the site.

DST retained Riggs Engineering Ltd. (Riggs) to conduct a marine assessment as a component of its overall program. The objective of the marine assessment is to evaluate access options for the scope of the remedial works required at the Slate Islands Coast Guard Site.

PWGSC's requirements for the assessment are as follows:

- Conduct a review of available Canadian Hydrographic Survey (CHS) charts for the area;
- Evaluate methods of access to Patterson Island considering no current infrastructure (dock or wharf) is available, and provide a recommendation for the most feasible and cost effective option;
- Determine type(s) of vessel that could meet the needs of the project (excavation and disposal of contaminated soil and possibly building materials) including access to and from the site;
- A report detailing observations made on site, including recommendations and cost estimates for site access options during remediation.

Since survey equipment was necessary for the marine assessment DST requested that Riggs carry out a limited topographical survey of the site.

2. Site Description

The Slate Islands archipelago is located about□□ □m to the southeast of Terrace Ba□ in northern La□e Superior. Location of the archipelago is presented in Figure □.

The Coast Guard site is located at □□□ □□□2□" □ □□□□5□□□□" □ on Sunda□ Point□Patterson Island□the largest and most southerl□ in the Slate Islands group in La□e Superior□Ontario. The site currentl□ consists of the follo□ing buildings□

□. the□□ m tall octagonal lighthouse□solar facilit□ and upper heli□pad on the roc□□ summit of Sunda□ Point (□L 2□□ m)□
2. the old d□elling house and doc□ on Sunda□ Harbour to the north□and
□. the Main Site buildings (including the lo□er heli□pad□duple□ d□elling□main d□elling□ former oil house□old fog alarm building□and ne□ diesel generator buildings on the south shore belo□ the lighthouse summit.

The light station □as automated in □□□□.

The Slate Islands archipelago□Paterson Island□and Sunda□ Point are presented in Figures 2 and □.Ortho□rectified air photos of the Main Site□Old D□elling □rea and the Lighthouse □rea are presented in the Figures □□5□and □.

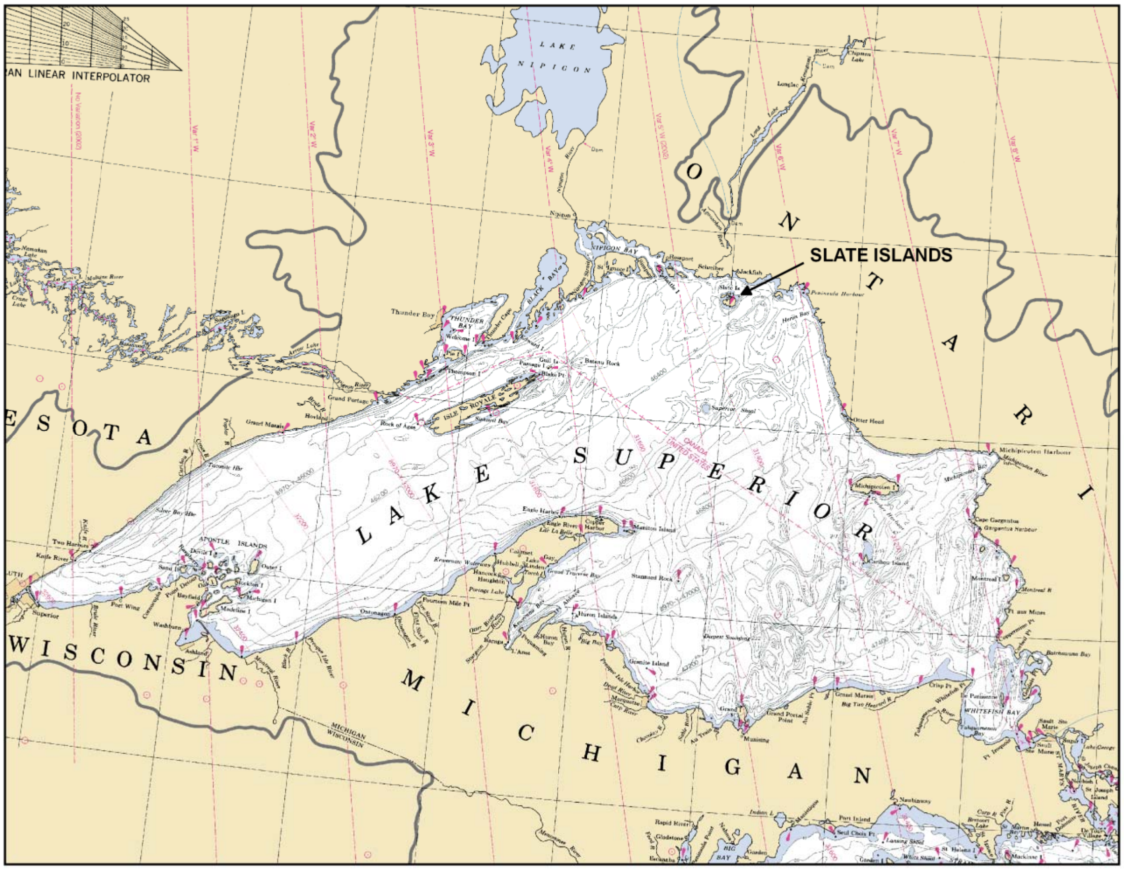


Figure 1: Slate Islands Location

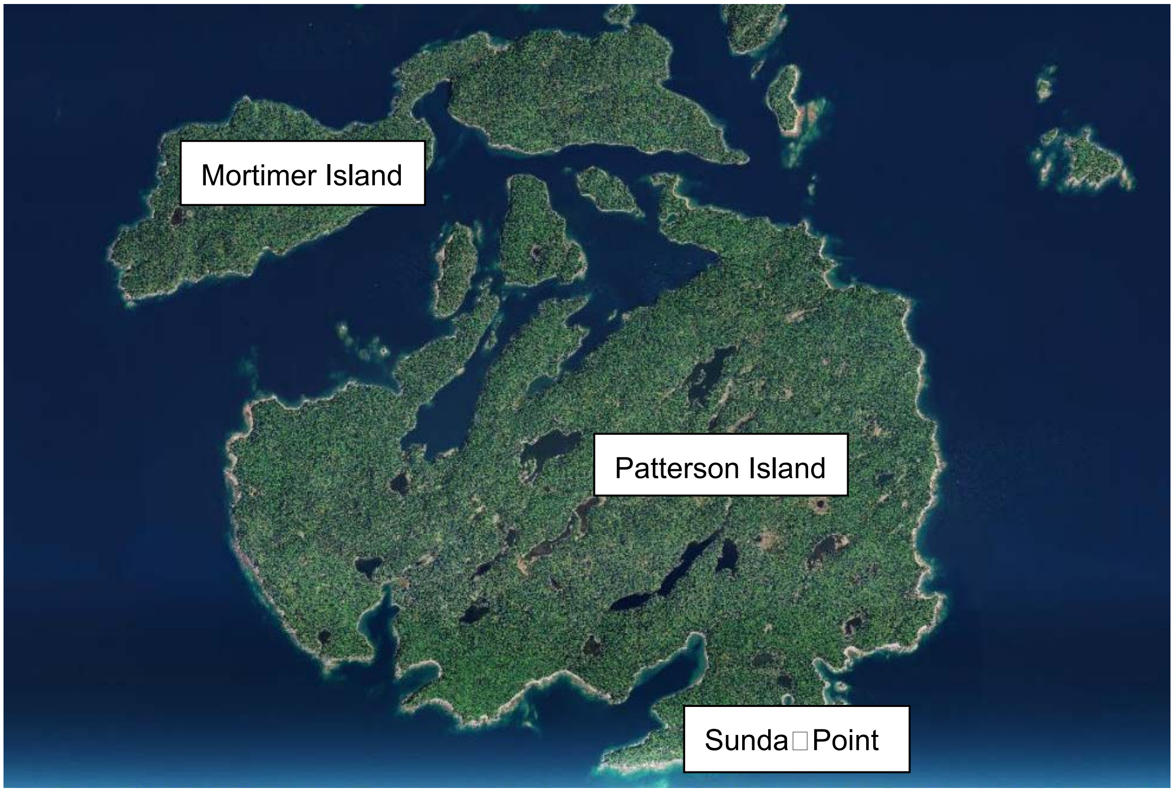


Figure 2: Slate Islands Archipelago

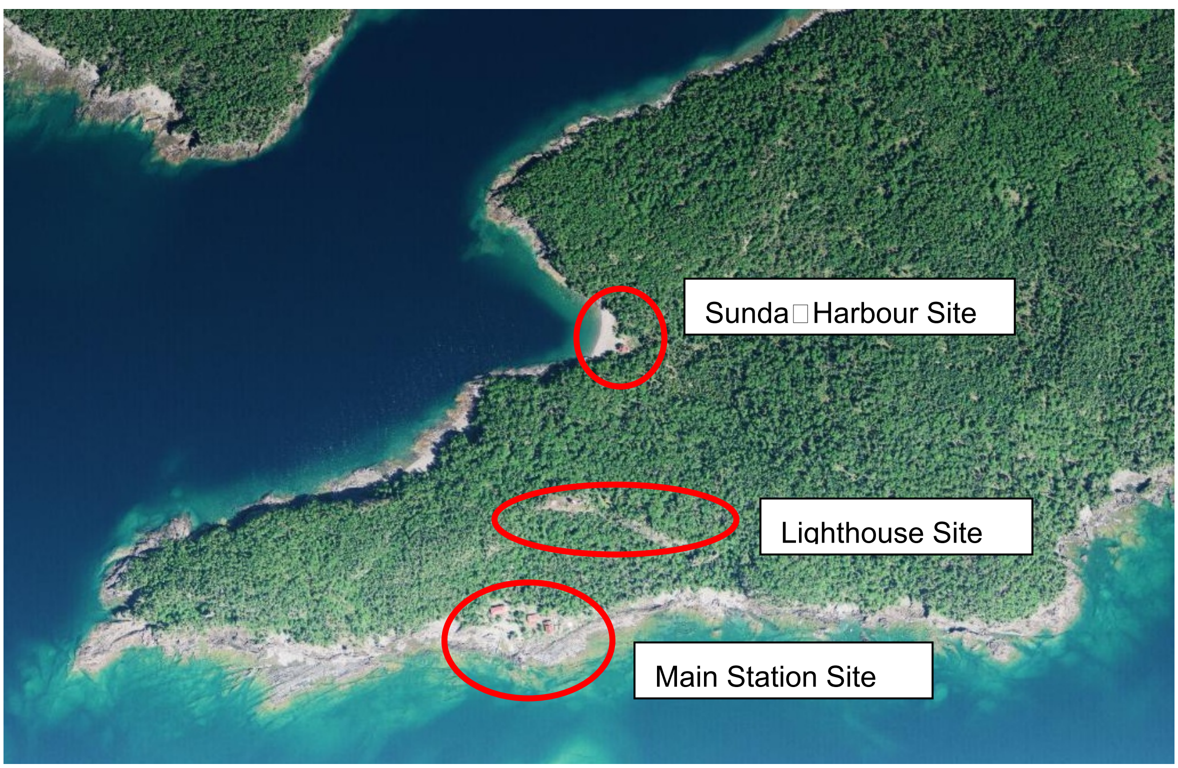


Figure 3: Sunday Point, Patterson Island

Figure 4: Main Site

Figure 5: Old Dwelling Site

Figure 6: Lighthouse Area

3. Methods

The Slate Island light station sites and nearshore areas were inspected, photographed and surveyed on [illegible] August 20[illegible]. Transport to from the site from Terrace Bay was by [illegible] m Zodiac Bombard vessel chartered by DST from Discovery Charters, Rossport.

Available CHS navigation charts for the area were reviewed.

The Old Dwelling Site, Main Site, the Lighthouse Area and the connecting trail were mapped in GPS to establish a topographic map for the Site.

A GPS base station was established on the heli-pad next to the lighthouse at the summit of Sunday Point and locations at Sunday Harbour and at the Main Site facing Lake Superior were located using a GPS rover assembly.

An aerial drone equipped with a digital camera took aerial images of about the three developed areas that were then compiled into a GPS referenced aerial image incorporating Old Dwelling Site, the Lighthouse Area and the Main Site.

The rover was also used to take spot depth soundings taken offshore along the Main Site from the chartered vessel. Depth soundings off Sunday Harbour beach were located and taken with a GPS equipped Furuno device on the chartered vessel.

In addition, the three Bryson brothers, long-time seasonal residents at the Site who have considerable knowledge of the immediate area, operation of the light station and historical activities there, and local marine conditions were interviewed to gain an understanding of what marine approaches are possible, based on their knowledge and experience at the Site.

4. Hydrographic Charts and CHS Field Sheets

Chart datum (datum) for La□e Superior is □L □□□.2 m□□□□5 IGLD. The closest CHS gauge to the Slate Islands is at Rossport (□□0220).

The Slate Islands are sho□n on CHS charts□5□□□□ and 2□0□Oiseau Ba□ to □ac□fish Ba□□La□e Superior (□□□□□□□□□). The charts provide ver□ coarse depth information for the la□e south of Sunda□Point in the vicinit□of the Main Site and for Sunda□Harbour to the north. The shallo□est contour on chart □5□□□□ is □□ m and on chart 2□0□ □ater depths less than 5 fathoms (□.□□ m) are tinted blue. Some spot depths less than □ m about Sunda□Point are indicated.

The CHS provided the follo□ing additional field sheet information□

□. □0□2-□ Soundings (SO□□DG) □□□□ □0□2 002.pdf□
2. □0□-□ Soundings (SO□□DG) □□□□ □0□-□.□pg□and
□. □0□-□ Soundings (SO□□DG)□□□□□□□0□00□.□pg

The above noted field sheets are dated (□□□□ and □□□□) and also do not provide critical depth information close in to either the Main Site or Sunda□Harbour doc□s.

Due to the need for landing and doc□ approach depths□spot depth soundings □ere ta□en and charted off the Main Site and in Sunda□Harbour. These are presented in Figure □ and Figure □.

5. Site Reconnaissance

5.1 General Inspection

The Site □as inspected on □ugust □□□20□□. Photographs of the Site inspection are presented in □ppendi□ □.

5.2 Upland Access between Site Facilities

The Sunda□ Point summit (□L 22□ m) separates the Old D□elling Site and the la□e□facing Main Site comple□. The elevation to Sunda□ Point summit from la□e level is about □5 m. □ narro□ trail over rough terrain connects the three facilities. Due to e□treme elevation differences along the trail that are negotiated □ith stairs at some locations the trail is limited to travel on foot. It is non□negotiable for motori□ed e□uipment such as □TV vehicles or trac□ed machines. This conclusion is bac□ed up □ith information from the Br□sons □ho said that construction materials and e□uipment to upgrade the lighthouse in past had to be delivered b□ helicopter.

5.3 Marine Access to the Main Site

The principal access to the Main Site is on the east side of an e□isting concrete covered crib doc□. The access channel is straight□in off the la□e. Berthing is not possible along the □est side of the doc□ due to the presence of roc□s and roc□ outcroppings there.

The Main Site doc□ and approach to it are susceptible to □inds and □aves from all directions □ith long open fetch save those from the north and east.

Depths relative to datum are presented in the attached dra□ings. The entrance to the Main Site doc□ east side slip is narro□ at about □ m at the end of the pier and a roc□ outcropping to the east. Depths along the pier range from □.□ m belo□ datum at the doc□ end to less than □ m depth close to the beach at the inshore end. Depths for the approach to the pier from the la□e range from □□.□ m belo□ datum in the la□e to □.□ m belo□ datum □ust off the end of the pier. Spot soundings are presented in Figure □.

The Main Site doc□ is a concrete covered crib about 2□.5 m long and □.5 m □ide along the berthing length. The doc□ □idth reduces to □ m at shore end □here it □oins concrete □al□□a□s of the same □idth to various Site buildings. The doc□ is outfitted □ith a boom crane assembl□ at the offshore end and the doc□ □idens to 2.□5 m at that location.

The three Br□son brothers □ho gre□ up at the Site □ith their father□the last lighthouse □eeper□ and □ho are currentl□ seasonal residents at the light station□sa□ that a shallo□ draft □0 ft b□ □2 ft (□2.2 m □ □.□ m) motori□ed barge brought to the Site b□ the Canadian Coast Guard suppl□ ship CG2□□0 Samuel Risle□ (□□.□ m □ □□.□ m □□□□ GT) □ould bring in large goods and bul□ fuel for the station generators. Suppl□ season □as late spring (late Ma□ and □une) □hen la□e conditions □ere generall□ most favorable to access to the Site. The barge operator □ould drive the shallo□ draft vessel loaded □ith fuel and supplies into the Main Site doc□ slip and run it aground at the head of the slip. Supplies □ould then be off loaded and the fuel for the station generators pumped to onsite tan□s. □ ith offloading complete the operator □ould then reverse the barge scre□ and throttle the engine to refloat the grounded vessel in the slip and return it to the Samuel Risle□ □here it □as lifted bac□aboard and sto□ed.

□n alternate potential approach is to the □5 m □ide cobble beach □est of the Main Site doc□. Barge landing at this location □ill be ver□challenging due to the presence of large roc□s in the nearshore □one and the presence of a bedroc□ridge further offshore. Depths over this ridge are uncertain. □s at the Main Site doc□this location is e□posed to La□e Superior and susceptible to severe □ind and □ave conditions.

Landings along other Main Site frontage locations are confounded b□offshore and inshore roc□ ridges□outcroppings and large stone boulders.

5.4 Marine Access to Sunday Harbour

Sunda□ Harbour has good depths and no obstructions leading to a □□.5 m □ide pebble and sand beach. Depths for the approach to the doc□and beach from out in Sunda□Harbour range from 2□.□m belo□ datum offshore to □.□m belo□ datum close to shore.

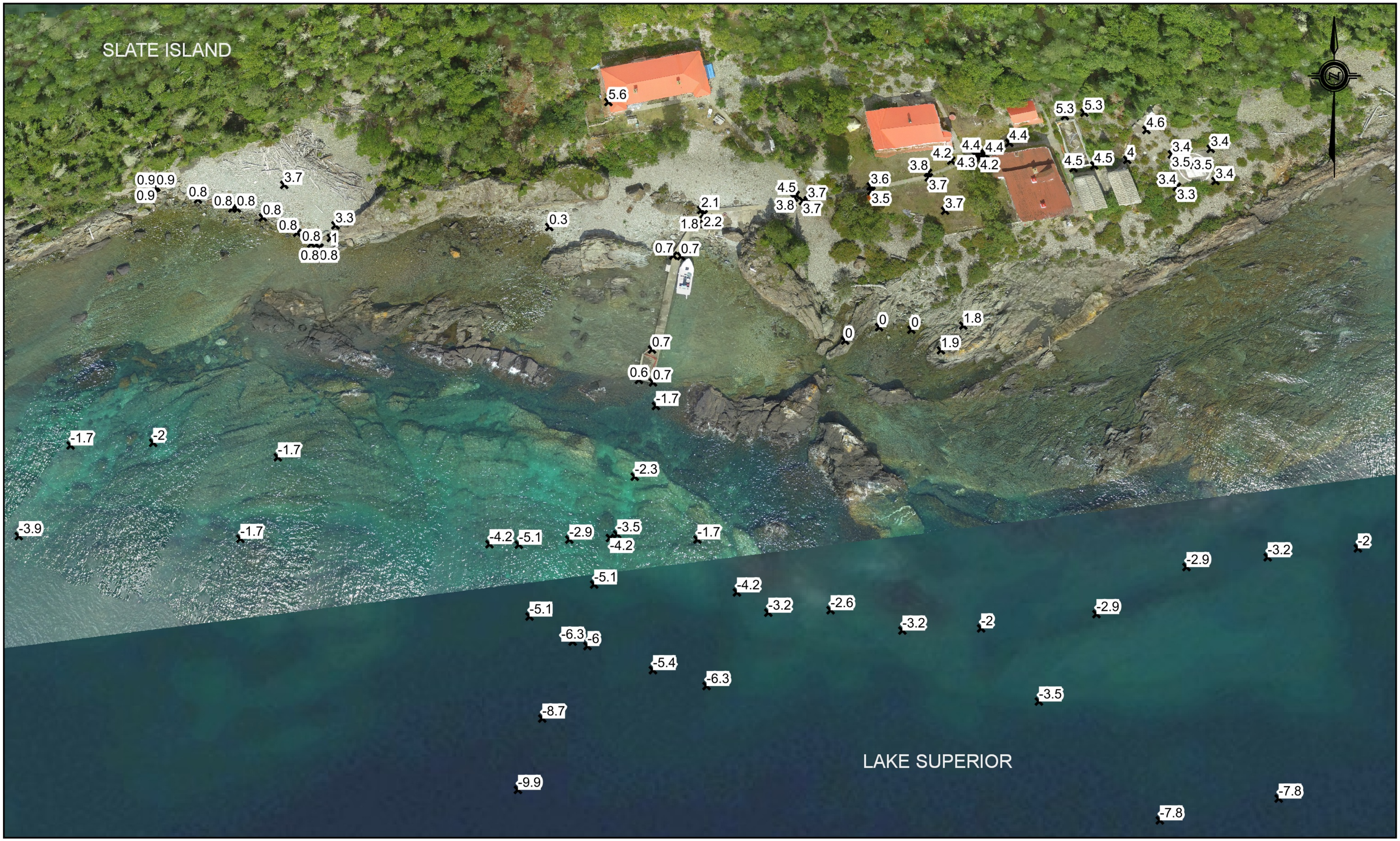
There are no in□□ater obstructions to hinder vessel access to the beach and an ad□acent concrete doc□. Spot soundings are presented in Figure □. The harbour is sheltered from □inds and □aves e□cept those coming directl□out of the north□est.

The Sunda□Harbour doc□is a concrete covered crib on the south shore e□tending out from the beach. It has a vessel landing area that is □.□ m long and is outfitted □ith a boom crane assembl□. The doc□ □ith at the vessel landing is □.□m □ide. The □al□□a□from the doc□to the beach is narro□ at □.2 m.

Vessel access to the doc□ is open and unobstructed and it is sheltered from □inds from all directions e□cept the north□est. The beach at Sunda□Harbour can also provide eas□landings for several t□pes of vessels.

5.5 Topographic Survey and Spot Soundings

□levations for Site features such as □aterline□beaches □ones□doc□s□upland features and buildings at the Main Site and Old D□elling Site and spot soundings relative to datum for approaches to the doc□s and possible landing areas are presented on georectified aerial images in Figures □and Figure □□belo□. La□e Superior chart datum is □L □□□.2 m.



Legend

× 2016 ELEVATIONS RELATIVE TO CHART DATUM (m)

Figure 7

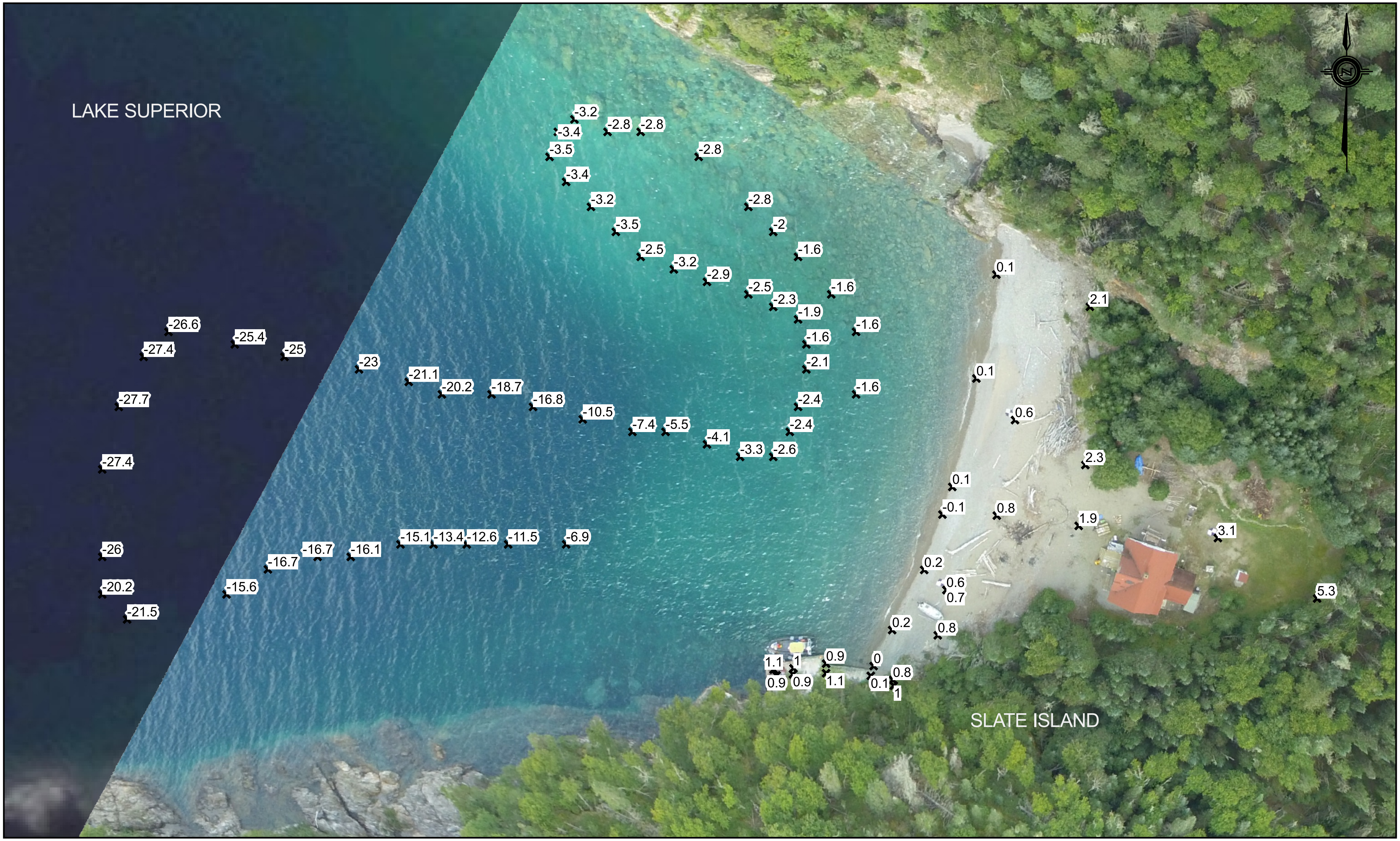
MAIN ACCESS SITE PLAN

Client

DST CONSULTING

Scale

1:1000



Legend

× 2016 ELEVATIONS RELATIVE TO CHART DATUM (m)

Figure 8

SUNDAY HARBOUR ACCESS SITE

RIGGS ENGINEERING

Client

DST CONSULTING

Scale

1:800

6. Sites Servicing

6.1 Servicing Constraints

6.1.1 Access from the Mainland

The routes from mainland ports to the light station Site is across considerable distances of open La□e Superior and sub□ect to prevailing la□e conditions. The closest mainland port is Terrace Ba□□2□ □m from the Site. La□e conditions driven b□ □eather are can be highl□ variable in duration and magnitude. Relativel□ calm conditions lasting for e□tended periods are fe□. □□tended periods of calm can occur from late□Ma□ and through □une according to local navigators □ho □no□ the area. Vessels should be si□ed to accommodate open la□e conditions from mainland to the Site.

6.1.2 Access to the Main Site

The entr□channel at the Main Site doc□is ver□narro□ at □m. □ hile depth at the end of the doc□ is □.□m belo□ datum□depths along the slip become ver□shallo□. The head of the slip ends in a narro□ roc□□beach bac□ed b□ large stones and an abrupt rise in elevation to flat grounds in front of Main Site buildings. The narro□ entr□ to the slip □ill allo□ safe entr□ onl□ for narro□ beam□shallo□ draft vessels such as the small (□.□5 m □ □2.2 m) motori□ed barges used b□the Canadian Coast Guard to service the station □hen it □as manned. The load capacit□of vessels capable of accessing the Main Site doc□ □ill be limited□li□el□less than □2 tonnes. This □ill allo□ for the transportation of relativel□ small mobile e□uipment (e.g. bac□hoe□s□id steer□etc.)□ supplies and □aste during the proposed □or□though man□trips □ill be re□uired to service the duration of the pro□ect (i.e. mobili□ation□site □or□□□aste removal and demobili□ation). This smaller barge □ould need to ma□e trips to and from a larger cargo vessel that can be stationed in nearb□deeper □ater. The Main Site doc□is □.5 m □ide and its load capacit□is uncertain but li□el□ver□limited.

□ □5 m □ide steep cobble beach □est of the Main Site doc□ ma□ offer an alternate landing location. The beach has some limited □ave protection provided b□the offshore bedroc□ridges that emerge out of the □ater bet□een the beach and the Main Site doc□. There are no insurmountable ph□sical obstructions or roc□outcroppings through the □ooded area at the top of beach and access to the greater Main Site locations can be cut through the trees. Large roc□s in the nearshore ma□ have to be moved to allo□ close inshore access b□a shallo□ draft barge. Depth over the bedroc□ ridge located further offshore has not been assessed. Should barge access at this landing be possible□larger capacit□barges or landing craft t□pe vessel might be sited close to□or onto the cobble beach to off load a contactor□s mobile e□uipment (s□id steers□ mini e□cavators□stone mill□etc.) and bul□building materials for use at the Site. The barge □ould then reload the mobile e□uipment upon completion of the upland □or□and containeri□ed □aste can be loaded for transfer to a mainland port either continuousl□ as it is generated or in one loading from a stoc□pile amassed on the cobble beach.

Access to the Main Site from locations elsewhere along the Main Site shore will be confounded by bedrock ridges in the nearshore zone and upland.

The Main Site is fully exposed to conditions on Lake Superior. The time of year with extended periods of relative calm to permit safe entry and exit of vessels at the dock and/or beach landing is late May through June according to local navigators. Vessels using this approach will have to make provision safe anchorage elsewhere in times of unsafe lake conditions. The closest safe harbour is Sunday Harbour.

Access to the Main Site from the Sunday Harbour by mobile machinery is not possible due to the rugged nature of the terrain, narrowness of the trail and steepness of elevation in some locations. Some locations along the trail are served by stairs.

The Lighthouse Area on the Sunday Point summit also cannot be reached by mobile machinery from either the Main Site or Sunday Harbour due to the same trail constraints. Waste from this area will likely be consolidated at the Main Site.

6.1.3 Access to Sunday Harbour

Access to Sunday Harbour is wide, deep and unobstructed to both the existing dock on the south side and the □□.5 m wide gravel and sand beach. Sunday Harbour provides protected anchorage under most wind and wave conditions on Lake Superior, save that out of northwest that can blow directly into the bay. Large and small vessels will be afforded generally safe anchorage in Sunday Harbour. There will be no vessel size restrictions in Sunday Harbour.

6.2 Servicing Scenarios

Marine servicing will have two phases, delivery of mobile equipment, supplies and building materials to the Main Site and Old Dwelling Site and recovery of the mobile equipment and containerized waste from both sites for delivery to a mainland port. Waste from the Lighthouse Area will likely be accumulated at the Main Site for transfer offsite. The transportation of supplies, equipment and waste from the Lighthouse Area to the Main Site will likely be via helicopter.

6.2.1 Main Site Scenarios

The Main Site dock approach will necessitate use of narrow beam (□□ m), shallow draft barges with limited capacity of □0 to □2 tonnes maximum. These vessels will require support of a larger "mother" vessel, likely a large tug that will be able to move the smaller craft to safe anchorage when lake conditions become unsafe. The larger vessel will carry mobile equipment and supplies and finally transport the containerized waste load to a mainland port for transfer to trucks for upland disposal. Considering the volumes of waste estimated to be generated as part of this project and the types of equipment and supplies anticipated, using the Main Site dock alone to service the site and get containerized waste to the "mother" ship could incur □0 barge trips (or more) to the "mother" vessel.

The West cobble beach approach, if accessible, would involve siting of a large barge close to shore or landing it. Mobile equipment and supplies would be offloaded or lifted to shore and be reloaded at the end of the upland work along with containerized waste from the Site. These vessels will require support of a larger vessel, likely a large tug that will be able to move the barge to safe anchorage when lake conditions become unsafe. Waste loading under this scenario can take place as waste is containerized over the onsite work period or be accumulated at the shore and loaded in one session at the end of the work.

6.2.2 Sunday Harbour Scenario

Large capacity vessels and/or barges can be sited in the safe anchorage in Sunday Harbour to accept containerized solid waste and drummed paint waste from the Old Dwelling Area.

6.3 Mainland Supply Ports

6.3.1 Terrace Bay

The Town-owned Terrace Bay floating docks (□□□□□□□"□ □□□□0□□0□"□) are about 2□ km north of the light station on a beach at the mouth of the Aguasabon River. This is the closest mainland marine facility to the Site. The facilities are intended to serve pleasure craft-sized vessels. There is no concrete launch ramp at Terrace Bay. Trailer mounted water craft are launched and retrieved from the sand beach at the floating docks. The facilities are unsuited to berth and load large vessels with deep draft. The beach next to the floating docks could provide landing for shallow draft barges with a drop down landing craft type bow. Road access from the landing to H□□ □□ is through Town. The route to the light station from Terrace Bay is direct and entirely across deep but open water. Vessels making the journey will be fully exposed to prevailing wind and lake conditions.

6.3.2 Rossport

Rossport harbour (□□□□□5□"□ □□□□□□□□□"□) is located on the north shore of Lake Superior at the west end of the Schreiber Channel about □□ km northwest of the Site. The municipal marina at the end of Dock St. has a concrete launching ramp and timber crib pier that serves recreational small craft and sailing vessels. Diesel and gasoline is available at the site. The dock is not accessible by land vehicles. A timber crib dock serving commercial fishing vessels is located further west at the end of Superior St. While the docks can berth deep draft vessels there are no lifting facilities available for the loading and offloading of heavy goods and equipment. There is road access from the dock to Highway □□. The route to the light station sites from Rossport is generally direct and for the most part across deep but open water. Vessels traversing this distance will be openly exposed to prevailing lake conditions for the majority of the trip.

6.3.3 Redrock

Redrock Marina (□□□5□□□□"□ □□□□□5□□□"□) is located on the north shore of Nipigon Bay near the outfall of the Nipigon River about □□ km northwest of the Site. The marina is sheltered within a breakwater. It has a concrete launching ramp and timber crib piers that serve recreational small craft and commercial fishing vessels. Diesel and gasoline is available and the approach is

□ m deep. The doc□s are not accessible to land vehicles. □hile the doc□s are suitable for deeper draft vessels there are no lifting facilities available for the loading and offloading of heav□ goods and e□uipment. There is road access from the doc□ to High□a□ □□.The route from Redroc□ to the light station at Sunda□ Point on Patterson Island is generall□ direct and for the most part across deep but unprotected La□e Superior □ater. Vessels traversing this distance □ill be openl□ e□posed to prevailing la□e conditions for the ma□orit□ of the trip.

6.3.4 Marathon

Peninsula Harbour at Marathon (□□□ □□□0□"□ □□□□□2□□2□"□) is located on the northeast shore of La□e Superior about □□ □m east of the Site. The deep □ater industrial doc□ once served the Marathon paper mill that is no□ closed. The doc□ is also closed and there are no off loading facilities there. There is good road access from the doc□ to High□a□ □□. Both facilities are currentl□ o□ned b□ Tembec Inc. Doc□ access can be arranged □ith Tembec Inc. according to To□n officials. Vessels traversing this distance □ill be openl□ e□posed to prevailing la□e conditions for the ma□orit□ of the trip.

6.3.5 Thunder Bay

The Port of Thunder Ba□ (□□□25□2□"□ □□□□□2□02"□) is located on the □est shore of La□e Superior about □□□ □m □est of the Site. It is a large scale industrial□commercial marine facilit□ providing complete marine and doc□age services □ith full intermodal transfer capabilities. The port is operated b□ the Thunder Ba□ Port □uthorit□ and commercial marine transport□salvage and tug services are available for hire here. The Thunder Ba□ Coast Guard Base that formerl□ served the Slate Island light station is no□ closed. The route to the light station from Thunder Ba□ to the light station sites at Sunda□ Point on Patterson Island is generall□ direct and for the most part across deep but unprotected La□e Superior □ater. There is good road access from the doc□ to High□a□ □□.Vessels traversing this distance □ill be openl□ e□posed to prevailing la□e conditions for a substantial length trip.

6.3.6 Sault Ste. Marie

Sault Ste. Marie (□□□ □□□00"□ □□□□□□□5□"□) is located east of La□e Superior on the St. Mar□s River. It is about □□5 □m southeast of the Site. The former Port of Sault Ste. Marie □as divested b□ the federal government in the □□□0s. Port facilities at Sault Ste. Marie no□ include a large scale industrial□commercial marine facilit□ located □est of the Sea□a□ loc□s that is privatel□ o□ned and operated b□ the □lgoma Port □uthorit□ (□ssar Corporation). The former port of Sault Ste. Marie □ith berthing□salvage tug services□lifting and intermodal capabilit□ is located east of the loc□s and is privatel□ o□ned and operated b□ a marine services contractor. The route to the light station sites is generall□ direct and for the most part across deep but unprotected La□e Superior □ater. There is good road access from the doc□ to High□a□ □□.Vessels traversing this distance □ill be openl□ e□posed to prevailing la□e conditions for the substantiall□ the entire trip.

7. Conclusions

Bidding contractors □ill need to inspect the potential marine access areas at the Site including soundings to determine landing locations and approaches□□hat vessels t□pes and combinations to use□and □hich mainland port to use in order to set a □or□able marine servicing plan and cost.

7.1 Marine Servicing the Main Site

The Main Site □ill re□uire marine servicing to get mobile e□uipment and supplies onto the Site and to retrieve the e□uipment and get the containeri□ed □aste offsite.

The Main Site is full□ e□posed to open La□e Superior and sub□ect to □ind and □aves from all directions e□cept north and north□est. Safe access to the Main Site landing □ill be limited to da□s □hen □inds and □aves are light. Locals sa□ that the best season providing calm conditions is in late spring□late□Ma□ through □une.

Landing at the Main Site doc□ can onl□ be achieved □ith narro□ beam□shallo□ draft□and maneuverable vessels. The flat□bottomed barges carried b□ Coast Guard suppl□ vessels to suppl□ the light station □hile it □as manned are an e□ample of vessel t□pes needed to service remediation activities from the Main Site doc□. The capacit□ of this si□e of vessel □ill be less than □2 tonnes. Mobili□ing and demobili□ing mobile e□uipment and removing containeri□ed □aste from the Site to a larger support vessel □ill involve □0 trips or more for a vessel of this si□e. □dditional trips □ill be re□uired should soil remediation activities be added to the □or□ scope.

It is assumed that □aste from the Lighthouse □rea □ill be consolidated and containeri□ed along □ith Main Site □aste for removal offsite. Transportation of e□uipment□materials and □aste to and from the Lighthouse □rea □ill li□el□ be via helicopter.

□ potential alternate Main Site landing area is the cobble beach to the □est of the Main Site doc□. Depths over the approach are uncertain and large stones in the nearshore □one □ill have to be moved to permit close access to the beach for a large barge □ith capacit□ to transfer mobile e□uipment and supplies and remove the containeri□ed □aste from the Site. The area □ill have to be assessed b□ potential contactors to be sure that it can be used.

The Main Site cannot be accessed b□ mobile e□uipment overland from the Old D□elling Site.

7.2 Marine Servicing the Old Dwelling Site

The Old D□elling Site is not as e□posed to open la□e conditions as is the Main Site location. The Sunda□ Harbour doc□ is accessible under □ind and □ave conditions from all directions e□cept those from the north□est. Safe access to the doc□ during north□est □ind and □aves □ill be limited to da□s □hen □inds are light. The approach is deep and the sand beach can provide alternate landing. There are no vessel restrictions at Sunda□ Harbour.

7.3 Mainland Ports

The closest mainland landing area to the Site is Terrace Ba□□2□ □m to the north. The marine facilities there are limited and suited for pleasure craft and light vessels onl□. The ad□acent beach is protected and could provide a landing for front loading□landing□craft t□pe vessels. The landing has road access through To□n to High□a□ □□.

Other small mainland ports include Rossport and Redroc□. These too are small scale facilities serving pleasure craft and light commercial fishing vessels□onl□.

The closest industrial si□ed mainland port is at Peninsula Harbour at Marathon□□□ □m east of the Site. This deep □ater harbour that served the Marathon paper mill is currentl□ closed but contractors can negotiate its use □ith the o□ner□Tembec Inc.

Other large mainland ports include Thunder Ba□□□□□ □m □est of the Site and Sault Ste. Marie□ □□5 □m east of the Site. These are active industrial□commercial ports having a □ide range of marine services that could provide suitable vessels and manpo□er and other marine support to service the proposed □or□.

Appendix A: Sites Photolog

Photo □□Slate Island Light Station.

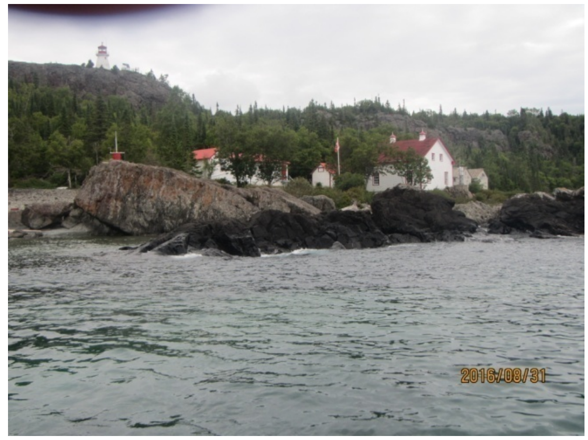


Photo □2□Main Station comple□and lighthouse.

Photo □□□Main Station doc□from la□e.

Photo □□□Cobble beach east of Main Station

Photo □5□Vie□ of Main Station doc□from east beach.

Photo □□□Vie□ of Main Station doc□from upland.

Photo 7: Entry channel to Main Station dock.

Photo 8: Lift at end of Main Station dock.

Photo 9: Sunday Harbour light keeper's house.

Photo 10: Sunday Harbour beach.

Photo 11: Dock at Sunday Harbour with lift.

Photo 12: View across Sunday Harbour from dock.

Attachment 4

Structural Evaluation Report

STRUCTURAL EVALUATION REPORT

SLATE ISLAND COAST GUARD SITE

FOR

DST CONSULTING ENGINEERS

JML Engineering

Ref. No. JML2016070 **February 2017**

SEALS PAGE

PROJECT TITLE:	Structural Evaluation Slate Island Coast Guard Site
PROJECT LOCATION:	Slate Island
PROJECT NUMBER:	JML2016070
DATE:	February 2017

STRUCTURAL ENGINEER

Michael Edmonds, P.Eng.
Project Engineer
JML Engineering Ltd.

LICENSED PROFESSIONAL ENGINEER
M. EDMONDS
100193576
Feb 7, 2017
PROVINCE OF ONTARIO

STRUCTURAL ENGINEER

John M. Lorenowich, P.Eng.
Senior Project Engineer
JML Engineering Ltd.

LICENSED PROFESSIONAL ENGINEER
J. M. LORENOWICH
FEB 7 2017
PROVINCE OF ONTARIO

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APPENDICES

EXECUTIVE SUMMARY

1 General

A Level II Building Condition Inspection of the Slate Island Coast Guard Site located on Sunday Point, Patterson Island (part of the Slate Islands), on Lake Superior was carried out on September 1, 2016.

The inspection team consisted of Michael Edmonds, P.Eng, and Bill Warren, Senior Inspector, both of JML Engineering Ltd.

2 Mandate

- To identify and describe existing building and site systems, assess their current condition and provide commentary on the need for a maintenance and repair/replacement program. Commentary will include related costs and priorities. It is not intended to 'upgrade' or 'modernize' the building to a higher level to match the standards found in a newer facility.

- Provide recommendations to ensure that the structure and its systems will reach their maximum life expectancy and maintain the required levels of health and safety.

- Recommend further engineering studies where the cause, extent and/or remediation method required for identified deficiencies cannot be determined visually.

- Identify areas where the building does not comply with current code requirements. Some of these items are a result of continuing changes to the codes since the original design/construction of the building.

3 Facility Description

The Slate Island Coast Guard Site is located on Sunday Point, Patterson Island (part of the Slate Islands), on Lake Superior approximately 18.5 km south of Terrace Bay, Ontario. The facility consists of 20 various structures, three located at the northern shore of Sunday Point on Sunday Harbour, three located on the summit of Sunday Point, and 14 located on the southern shore of Sunday Point.

The facility consists of a lighthouse and various other structures such as dwellings, helicopter pads, docks, generator buildings, and diesel tank pads. The lighthouse was constructed in 1903 and operated as an attended light station for approximately 75 years. The station currently operates as an unattended navigation light.

No.	Name	Construction Date	Condition
1	Lighthouse	1903	Poor
2	Solar Building	2000’s	Good
3	Upper Helicopter Pad	Unknown	Good
4	Main Dwelling	1959	Fair
5	Duplex Dwelling	1965	Fair
6	Old Fog Alarm/Generator Building	Early 1900’s	Poor
7	New Fog Alarm/Electronics Building	1975	Good
8	New Diesel Generator Building	1975	Good
9	Former Oil House	1920’s	Good
10	Furnace Oil Tank Pad	Unknown	Good
11	Diesel Tank Pad	1958	Good
12	Diesel Tank Dyke	Unknown	Good
13	Transformer	Unknown	Fair
14	Lower Helicopter Pad	Unknown	Good
15	Lighthouse Dock	1960’s	Fair
16	Log Retaining Wall	1990’s	Poor
17	Sidewalks	Unknown	Good
18	Old Dwelling	1894	Fair
19	Winch Pad	Unknown	Good
20	Sunday Harbour Dock	1981	Good

The Slate Islands Lighthouse was reviewed by the Federal Heritage Buildings Review Office in 1990, and was not recommended for designation as a heritage building.

4 Recommended Expenditures

The total estimated Short Term Expenditures (1 to 5 years) cost for this facility is $310,000.00, as outlined below:

Lighthouse	$ 66,000.00
Solar Building	$ 0.00
Upper Helicopter Pad	$ 0.00
Main Dwelling	$ 28,500.00
Duplex Dwelling	$ 16,500.00
Old Fog Alarm/Generator Building	$ 79,500.00
New Fog Alarm/Electronics Building	$ 4,500.00
New Diesel Generator Building	$ 5,500.00
Former Oil House	$ 2,000.00
Furnace Oil Tank Pad	$ 0.00
Diesel Tank Pad	$ 0.00
Diesel Tank Dyke	$ 0.00
Transformer	$ 5,000.00
Lower Helicopter Pad	$ 0.00
Lighthouse Dock	$ 5,000.00
Log Retaining Wall	$ 20,000.00
Sidewalks	$ 2,000.00
Old Dwelling	$ 71,500.00
Winch Pad	$ 2,000.00
Sunday Harbour Dock	$ 2,000.00
Total Short Term Expenditures	**$ 310,000.00 + HST**

The total estimated Long Term Expenditures (6 to 25 years) cost for this facility is $293,000.00, as outlined below:

Lighthouse	$	78,000.00
Solar Building	$	1,000.00
Upper Helicopter Pad	$	0.00
Main Dwelling	$	53,000.00
Duplex Dwelling	$	80,000.00
Old Fog Alarm/Generator Building	$	21,000.00
New Fog Alarm/Electronics Building	$	5,000.00
New Diesel Generator Building	$	5,000.00
Former Oil House	$	18,000.00
Furnace Oil Tank Pad	$	0.00
Diesel Tank Pad	$	0.00
Diesel Tank Dyke	$	0.00
Transformer	$	2,000.00
Lower Helicopter Pad	$	0.00
Lighthouse Dock	$	12,000.00
Log Retaining Wall	$	0.00
Sidewalks	$	0.00
Old Dwelling	$	18,000.00
Winch Pad	$	0.00
Sunday Harbour Dock	$	0.00
Total Long Term Expenditures	**$**	**293,000.00 + HST**

5 Abatement

Each structure identified within this report can withstand the recommended abatement activities. In addition, the structures currently have no health and safety concerns with respect to contractors accessing the structures.

6 Assessment Summaries

The following tables summarize the condition, recent repairs/modifications, deficiencies, effective life remaining, recommendations, short term costs, and long term costs for each structure.

Slate Island Coast Guard Site Assessment Summary - Lighthouse

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
1.1	Foundation	Poor	None	• Spalling • Cracking • Vegetative Growth	20+ Years	• Remove Vegetation • Concrete Repairs	$ 2,000	$ 20,000
1.2	Superstructure	Good	None	• Mildew	20+ Years	• Minor Repairs	-	$ 4,000
1.3	Exterior Walls	Fair	Paint	• Peeling and Cracking Paint	20+ Years	• Clean, Prepare, and Paint	$ 20,000	$ 20,000
1.4	Exterior Doors	Poor	None	• Peeling Paint • Corroded Hinges • No Weather Stripping • Out of Plumb • Large Gap Below Timber Sill	None	• Replace	$ 5,000	$ 1,000
1.5	Windows	Fair	None	• Peeling Paint • No Sealant • Cracked Window	20+ Years	• Provide Caulking • Prepare and Paint • Replace Cracked Window	$ 3,500	$ 1,000
1.6	Steel Lantern	Fair	None	• Peeling Paint • Corrosion	20+ Years	• Clean, Prepare, and Paint	$ 30,000	$ 30,000
1.7	Floors	Fair	None	• Water Damaged • Rotten	20+ Years	• Replace Flooring	$ 2,000	-

Slate Island Coast Guard Site Assessment Summary – Lighthouse (continued)

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
1.8	Ceilings and Walls	Poor	None	• Mildew • Mould	20+ Years	• Clean, Prepare and Paint	$ 2,000	$ 1,000
1.9	Stairs	Interior - Good Exterior - Poor	None	• Interior - Peeling Paint • Exterior - Failed Connection, Rotten Bearing Timber, Absence of Handrail	Interior - 20+ Years Exterior - None	• Interior – Clean, Prepare, and Paint • Exterior - Replace	$ 1,500	$ 1,000
Total Lighthouse							**$ 66,000**	**$ 78,000**

Slate Island Coast Guard Site Assessment Summary - Solar Building

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
2.1	Foundation	Excellent	None	None	50 Years	None	-	-
2.2	Exterior Walls	Excellent	None	None	50 Years	• Recaulking	-	$ 1,000
Total Solar Building							-	**$ 1,000**

Slate Island Coast Guard Site Assessment Summary - Upper Helicopter Pad

Report Section No.	System Description	Condition	Recent Repair	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
3.1	Foundation	Good	None	• Tree Roots	20+ Years	• Remove Vegetation	-	-
3.2	Concrete Slab	Good	None	None	20+ Years	None	-	-
Total Upper Helicopter Pad							-	-

Slate Island Coast Guard Site Assessment Summary - Main Dwelling

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
4.1	Foundation	Fair	None	• Cracks • Leaks	20+ Years	• Inject Epoxy, • Polyurethane Foam	$ 15,000	$ 10,000
4.2	Superstructure	Good	None	None	20+ Years	• Minor Repairs	-	$ 2,000
4.3	Exterior Walls	Good	Paint	• Mildew • Peeling Paint • Crack in Siding	20+ Years	• Clean and Remove Mildew • Prepare and Paint • Seal Cracks	$ 5,500	$ 5,000
4.4	Exterior Doors	Poor	Paint	• Peeling Paint • Wearing • Missing Caulking	None	• Replace	$ 4,000	$ 1,000
4.5	Windows	Fair	Paint	• Failed Sealants • Peeling Paint	20+ Years	• Caulking • Prepare and Paint Window Frames	$ 1,000	$ 1,000
4.6	Roofing	Good	Metal Roof	None	20 Years	• New Sealants • Replacement of Fasteners • New Roof	-	$ 31,000
4.7	Floors	Fair	None	• Water Damaged Subfloor • Cracks	20+ Years	• Replace Subfloor and Vinyl Flooring at South Entrance	$ 1,000	-

Slate Island Coast Guard Site Assessment Summary – Main Dwelling (continued)

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
4.8	Ceilings and Walls	Good	None	• Cracks in Ceiling • Separation of Tiling at Tub Surround	20+ Years	• Prepare and Paint Ceilings and Walls • Replace Tub Surround	$ 1,500	-
4.9	Stairs	Good	None	• Peeling Paint	20+ Years	• Prepare and Paint Exterior Staircase	$ 500	-
4.10	Chimney	Good	None	None	20+ Years	None	-	-
4.11	Fixed Furnishings	Good	None	• Failed Caulking	20+ Years	• Replace Bathtub Caulking	-	$ 1,000
Total Main Dwelling							**$ 28,500**	**$ 51,000**

Slate Island Coast Guard Site Assessment Summary - Duplex Dwelling

Report Section No.	**System Description**	**Condition**	**Recent Repairs**	**Deficiencies**	**Effective Life Remaining**	**Recommendations**	**Short Term Costs**	**Long Term Costs**
5.1	Foundation	Fair	None	• Cracks	20+ Years	• Retool Mortar Joints • Inject Polyurethane Foam in Block Crack	$ 10,000	$ 10,000
5.2	Superstructure	Good	None	None	20+ Years	• Minor Repairs	-	$ 4,000
5.3	Exterior Walls	Good	Paint 2016	• Peeling Paint	20+ Years	• Prepare and Paint	-	$ 5,000
5.4	Exterior Doors	Good	Replaced	• Cracked Sealant	10-15 Years	• Door Replacement	-	$ 8,000
5.5	Windows	Fair	Paint	• Failed Sealants	20+ Years	• New Caulking • Paint	$ 1,000	$ 1,000
5.6	Roofing	Good	Metal Roof	None	20 Years	• New Sealants • Fastener Replacement • New Roof	-	$ 51,000
5.7	Floors	Good	None	None	20+ Years	None	-	-
5.8	Ceilings and Walls	Good	None	None	20+ Years	None	-	-

Slate Island Coast Guard Site Assessment Summary - Duplex Dwelling (continued)

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
5.9	Stairs	Good	Southeast Set Replaced	• Peeling Paint	20+ Years	• Prepare and Paint Exterior Staircase	$ 500	-
5.10	Chimney	Good	Temporary Strapping to Hold Bricks in Place	• Cracks	10+ Years	• Retool Mortar Joints	$ 5,000	-
5.11	Fixed Furnishings	Good	None	• Failed Caulking	20+ Years	• Replace Caulking at Bathtub	-	$ 1,000
Total Duplex Dwelling							**$ 16,500**	**$ 80,000**

Slate Island Coast Guard Site Assessment Summary - Old Fog Alarm/Generator Building

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
6.1	Foundation	Fair	None	• Cracks in Concrete Slab	20+ Years	• Inject Cracks with Epoxy	$ 5,000	$ 10,000
6.2	Superstructure	Good	None	None	20+ Years	• Minor Repairs	-	$ 4,000
6.3	Exterior Walls	Good	Paint	None	20+ Years	• Prepare and Paint	-	$ 5,000
6.4	Exterior Doors	Fair	Paint	• Peeling and Weathered Paint • Missing Weather Stripping • Missing Timber Sill	None	• Replace Doors	$ 2,000	$ 1,000
6.5	Windows	Fair	Paint	• Failed Window Sealants • Peeling and Weathered Paint	20+ Years	• New Caulking • Prepare and Paint Window Frames	$ 1,000	$ 1,000
6.6	Roofing	Poor	None	• Fishmouthing and Curling of Shingles	None	• Replace Shingles with Metal Roof • Replace Eavesthoughs and Downspouts	$ 55,000	-
6.7	Floors	Good	None	None	20+ Years	None	-	-

Slate Island Coast Guard Site Assessment Summary - Old Fog Alarm/Generator Building (continued)

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
6.8	Ceilings and Walls	Poor	None	• Water Damage • Holes	Paneling – None	• Replace Areas with Damage	$ 5,000	-
6.9	Stairs	Fair	None	• No Handrails • Narrow Ladder	Ladder – None Stairs – 20+ Years	• Provide Handrail at Stairs • Replace Ladder	$ 1,500	-
6.10	Chimney	Fair	None	• Crack at Mortar Joints • Missing and Broken Bricks • Poor Flashing	10+ Years	• Repair Mortar Joints • Missing Brick • Broken Brick	$ 10,000	-
6.11	Fixed Items	Good	None	None	20+ Years	None	-	-
Total Old Fog Alarm/Generator Building							**$ 79,500**	**$ 21,000**

Slate Island Coast Guard Site Assessment Summary - New Fog Alarm/Electronics Building

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
7.1	Foundation	Good	None	None	20+ Years	• Minor Repairs	-	$ 2,000
7.2	Exterior Walls	Fair	None	• Failed/Missing Sealants • Corrosion at Fasteners	20+ Years	• Replace Sealants Between Wall and Roof and Wall and Foundation • Replace Corroded Fasteners	$ 1,000	$ 1,000
7.3	Exterior Doors	Fair	None	• Cracked Sealants • Ineffective Weather Stripping • Peeling Paint	10-15 Years	• Replace Sealants and Weather Stripping • Clean and Paint Door Frames	$ 2,000	$ 1,000
7.4	Roofing	Fair	None	• Failed Closer Strip	20+ Years	• Replace Closer Strip	$ 1,000	$ 1,000
7.5	Ceilings and Walls	Good	None	• Cracked Sealants	20+ Years	• Replace Sealants	$ 500	-
7.6	Fixed Items	-	-	-	-	-	-	-
Total New Fog Alarm/Electronics Building							**$ 4,500**	**$ 5,000**

Slate Island Coast Guard Site Assessment Summary - New Diesel Generator Building

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
8.1	Foundation	Fair	None	• Exterior Crack	20+ Years	• Inject Crack with Epoxy	$ 1,000	$ 2,000
8.2	Exterior Walls	Fair	None	• Failed/Missing Sealants	20+ Years	• Replace Sealant Between Walls and Roof and Walls and Foundation • Drill and Seal Transite Panel Cracks	$ 1,000	$ 1,000
8.3	Exterior Doors	Fair	None	• Cracked Sealant • Ineffective Weather Stripping • Peeling Paint	10-15 Years	• Replace Sealants and Weather Stripping • Clean and Paint Door Frames	$ 2,000	$ 1,000
8.4	Roofing	Fair	None	• Failed Closer Strip	20+ Years	• Replace Closer Strip	$ 1,000	$ 1,000
8.5	Ceiling and Walls	Good	None	• Cracked Sealants	20+ Years	• Replace Sealants	$ 500	-
Total New Diesel Generator Building							**$ 5,500**	**$ 5,000**

Slate Island Coast Guard Site Assessment Summary - Former Oil House

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
9.1	Superstructure	Good	None	None	20+ Years	• Minor Repairs	-	$ 4,000
9.2	Exterior Walls	Fair	Paint	• Peeling Paint	20+ Years	• Prepare and Paint	$ 1,000	$ 1,000
9.3	Exterior Doors	Fair	Paint	• Peeling Paint	10-15 Years	• Prepare and Paint Door	$ 1,000	$ 2,000
9.4	Roofing	Good	Metal Roof	None	20 Years	• New Sealants at Penetrations • Replacement of Fasteners • New Roof	-	$ 11,000
Total Former Oil House							**$ 2,000**	**$ 18,000**

Slate Island Coast Guard Site Assessment Summary - Furnace Oil Tank Pad

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
10.1	Concrete Slab	Fair	None	• Scaling • Erosion	20+ Years	None - Abandoned Pad	-	-
10.2	Concrete Cradles	Fair	None	• Scaling • Cracks	20+ Years	None - Abandoned Pad	-	-
Total Furnace Oil Tank Pad							-	-

Slate Island Coast Guard Site Assessment Summary - Diesel Tank Pad

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
11.1	Concrete Slab	Fair	None	• Scaling • Erosion	20+ Years	None – Abandoned Pad	-	-
11.2	Concrete Cradles	Fair	None	• Scaling	20+ Years	None – Abandoned Pad	-	-
Total Diesel Tank Pad							-	-

Slate Island Coast Guard Site Assessment Summary - Diesel Tank Dyke

Report Section No.	**System Description**	**Condition**	**Recent Repairs**	**Deficiencies**	**Effective Life Remaining**	**Recommendations**	**Short Term Costs**	**Long Term Costs**
12.1	Concrete Walls	Good	None	• Scaling	20+ Years	None - Abandoned	-	-
12.2	Concrete Slab	Fair	None	• Vegetation	20+ Years	None - Abandoned	-	-
Total Diesel Tank Dyke							-	-

Slate Island Coast Guard Site Assessment Summary - Transformer

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
13.1	Concrete Slab	Fair	None	• Scaling	20+ Years	None	-	-
13.2	Steel Box	Fair	None	• Corrosion	20+ Years	• Prepare and Paint	$ 5,000	$ 2,000
Total Transformer							**$ 5,000**	**$ 2,000**

Slate Island Coast Guard Site Assessment Summary - Lower Helicopter Pad

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
14.1	Concrete Slab	Fair	None	• Scaling • Erosion	20+ Years	None	-	-
Total Lower Helicopter Pad							-	-

Slate Island Coast Guard Site Assessment Summary - Lighthouse Dock

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
15.1	Concrete Deck	Fair	None	• Scaling • Wide Cracks	20+ Years	• Inject Cracks with Epoxy	$ 5,000	-
15.2	Concrete Walls	Poor	None	• Scaling • Spalling • Wide Cracks	20+ Years	None	-	$ 10,000
15.3	Steel Hoist	Good	Paint	None	20+ Years	• Prepare and Paint • Load Rate	-	$ 2,000
Total Lighthouse Dock							**$ 5,000**	**$ 12,000**

Slate Island Coast Guard Site Assessment Summary - Log Retaining Wall

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
16	Log Retaining Wall	Poor	New Logs West End	• Rotten Logs	None	• Construct Permanent Retaining Wall	$ 20,000	-
Total Log Retaining Wall							**$ 20,000**	**-**

Slate Island Coast Guard Site Assessment Summary - Sidewalks

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
17	Sidewalks	Good	None	• Cracks	20+ Years	• Replace Broken Sidewalk Panel	$ 2,000	-
Total Sidewalks							**$ 2,000**	**-**

Slate Island Coast Guard Site Assessment Summary - Old Dwelling

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
18.1	Foundation	Fair	Concrete Repair	• Failed Mortar Joints and Voids	20+ Years	• Repair Mortar Joints • Repair Foundation Voids	$ 7,000	$ 10,000
18.2	Exterior Walls	Good	Paint	None	20+ Years	• Prepare and Paint	-	$ 5,000
18.3	Exterior Doors	Good	None	• Missing Sealants	10-15 Years	• Sealant • Minor Repairs	$ 500	$ 1,000
18.4	Windows	Fair	Paint	• Failed Window Sealants	20+ Years	• New Caulking for Windows • Minor Repairs	$ 500	$ 1,000
18.5	Roofing	Poor	None	• Fishmouthing and Curling of Shingles	None	• Replace Shingles with Metal Roofing • Replace Eavestroughs and Downspouts	$ 55,000	-
18.6	Floors	Good	None	None	20+ Years	None	-	-
18.7	Ceilings and Walls	Good	None	None	20+ Years	None	-	-
18.8	Stairs	Good	Exterior Stairs Newly	• Peeling Paint	20+ Years	Interior • Prepare and Paint • Provide Handrail	$ 1,000	-

Slate Island Coast Guard Site Assessment Summary - Old Dwelling (continued)

			Constructed					
18.9	Chimney	Fair	None	Cracks in Mortar Joints	10+ Years	• Retool Cracked Mortar Joints • Replace Chimney Flashing	$ 7,500	-
18.10	Fixed Furnishings	Good	None	None	20+ Years	• Minor Repairs	-	$ 1,000
Total Old Dwelling							**$ 71,500**	**$ 18,000**

Slate Island Coast Guard Site Assessment Summary - Winch Pad

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
19.1	Concrete Slab	Fair	None	• Scaling	20+ Years	None - Abandoned Pad	-	-
19.2	Concrete Cradle	Fair	None	• Scaling	20+ years	None - Abandoned Pad	-	-
19.3	Steel Winch	Fair	None	• Corrosion	20+ Years	• Prepare and Paint	$ 2,000	-
Total Winch Pad							**$ 2,000**	-

Slate Island Coast Guard Site Assessment Summary - Sunday Harbour Dock

Report Section No.	System Description	Condition	Recent Repairs	Deficiencies	Effective Life Remaining	Recommendations	Short Term Costs	Long Term Costs
20.1	Concrete Deck	Good	None	• Narrow Cracks	30+ Years	None	-	-
20.2	Concrete Wall	Good	None	None	30+ Years	None	-	-
20.3	Steel Hoist	Good	None	• Peeling Paint	30+ Years	• Prepare and Paint • Load Rate	$ 2,000	-
Total Sunday Harbour Dock							**$ 2,000**	-

INTRODUCTION

1 Background

In response to a request received from DST Project Manager, Kris Tuuttila, JML Engineering Ltd. has conducted a Level II Building Condition Inspection in order to evaluate the condition of the Slate Island Coast Guard Site with commentary on the need for a repair/replacement program, with related costs and priorities. The site is located on Sunday Point, Patterson Island (part of the Slate Islands), on Lake Superior approximately 18.5 km south of Terrace Bay, Ontario.

2 Scope

JML Engineering Ltd. has reviewed all exiting data and completed a structural inspection of all components for the various structures at the site. During the site visit, field measurements of various components were taken and representative photos were captured. While on site information was gathered from the tenants.

3 Cost Estimates

Costs indicated are Class “D” (preliminary) estimates, expressed in year 2016 constant dollars (escalation factors not included) and provide an indication (rough order of magnitude) of the project construction. Cost estimates in this report are based on information found within published estimating manuals, historical cost data for similar work in the geographic area, general cost information from material/equipment manufacturers and contractors, and past experiences involving similar work. These costs do not include any project related costs, such as design, construction supervision, and commissioning and project management. All Class “D” estimates provided in this report should be verified prior to project implementation.

4 Priority of Work

The Priority of Work is time related with consideration given to the life cycle of the component.

<u>MANDATORY (Man.)</u>

Mandatory items should typically be done on an urgent basis or within a year, or with consideration given to the life cycle of the component (e.g., to meet life safety regulations, building codes or other applicable standards).

<u>CYCLICAL (Cycl.)</u>

Cyclical items should typically be done within 1 to 5 years, again with consideration given to the life cycle of the component (e.g., component or system replacement) in order to extend the useful life of the building.

OPTIONAL (Opt.)

Optional items should typically be done within 5 years or more, but again with consideration given to the life cycle of the component (e.g., component or system updating) in order to upgrade and add capital value to the building and/or to enhance or maintain design standard/market value.

The replacement time frames normally do not have a direct effect on the operation of the building.

5 Project Priority System

As per the Project Priority System, priority ratings are explained below:

PRIORITY A

Emergency: A deficiency or condition which has already occurred and has already or will shortly result in the shutdown of a building/support system.

Examples:

1) Labour or Building Code requirements not being met.
2) Critical building system has become imperative.

PRIORITY B

Priority B projects are Priority A emergencies that have not yet occurred but could at any time.

B1 – Health and Safety – A deficiency that poses an imminent risk to health and/or safety if left uncorrected.

B2 – Operational Efficiency – A condition which threatens operational objectives and results in for Real Property's tenants incurring productivity losses which outweigh the cost of the project.

B3 – System Integrity – A condition which will result in the shutdown of a critical support system of a building, if left uncorrected this fiscal year.

PRIORITY C

C1 – Health and Safety – A deficiency which poses a potential threat to health and safety if left uncorrected.

C2 – Operational Efficiency – A deficiency which hampers operational efficiency if left uncorrected.

C3 – System Integrity – A condition which will result in increasing costs if left uncorrected.

PRIORITY D

A deficiency which requires repair or replacement but does not threaten building systems, operations or health and safety. Action should be taken where funding can be made available.

D1 – Asset Maintenance

D2 – Appearance/Image

D3 – Other

PRIORITY X

This priority is for projects for which the key factor is a significant financial benefit to Real Property.

X1 – Return within one year

X2 – Return within two years

X3 – Return within three years or more

6 Definitions

The following is an interpretation of common terms used in the report and the Summary of Recommended Expenditures:

Repair/Maintenance (RM)

An estimated dollar value applied to a building element or building system to perform normal regular scheduled superficial maintenance practices and repairs. The intent is to provide a minimum level of maintenance in order for the building or building system to operate and perform suitably through a typical effective life cycle.

Capital Cost (CC)

An estimated dollar value is applied as an investment into a building or portion of the building system for upgrade, refit and/or replacement to extend the life of the facility or to increase tenant comfort.

Engineering Study (ES)

An estimated dollar value for engaging the service of a consultant to conducting an engineering study/analysis of specific portion(s) for remedial actions, upgrades, refits and/or replacements to extend the life of the facility, or to increase tenant comfort.

The following applies to the Executive Summary overall building condition.

Poor

Where the condition of the building requires a substantial investment applied to the structure, building envelope and related electrical/mechanical systems in the immediate future (1-5 years), and to address Building Code requirements, replacement and/or upgrade of building systems to comply with current regulations, Health and Safety issues and deficiencies in the normal operations of the buildings to life cycle the existing building for an additional 20 years. Higher maintenance/repair expenses also reflect this condition.

Fair

Where the condition of the building requires a limited cost investment applied to the structure, building envelope and related electrical/mechanical systems to life cycle the existing building for an additional 20 years. Investment may be offset beyond the 5 year time period and applied to the 6-10 or the 11-15 year time periods. Lower maintenance/repairs expenses also reflect this condition.

Good

Where the condition of the building requires little or no investment required to the structure, building envelope and related electrical/mechanical systems to life cycle the existing building for 20 years. Most Building Code requirements and Health and Safety issues have been addressed. Very low maintenance/repair costs usually reflect this condition.

STRUCTURAL EVALUATION

The site structures consists of the Lighthouse, Solar Building, and Upper Helicopter Pad located on the rocky summit of Sunday Point, the Main Dwelling, Duplex Dwelling, Old Fog Alarm/Generator Building, New Fog Alarm/Electronics Building, New Diesel Generator Building, Former Oil House, Furnace Oil Tank Pad, Diesel Tank Pad, Diesel Tank Dyke, Transformer, Lower Helicopter Pad, Lighthouse Dock, Log Retaining Wall, and Sidewalks located on the southern shore of Sunday Point, and the Old Dwelling, Winch Pad, and Sunday Harbour Dock located on the northern shore of Sunday Point on Sunday Harbour. The location of the structures is shown on JML Engineering Drawing SK-1 titled "Site Plan" found in Appendix A. Photographs of each structure are presented in Appendix B.

A summary spreadsheet of recommended expenditures follows this section.

1 Lighthouse

The Lighthouse was constructed in 1903 and is located on the summit of Sunday Point. The Lighthouse is octagonal and is approximately 12 metres high surmounted by a steel and glass lantern and an external balcony. The Lighthouse contains three levels; ground level, second floor, and the lantern.

The Lighthouse replaced the original lighthouse that was constructed in the 1890's. The original lighthouse was razed by a fire.

1.1 Foundation

The Lighthouse foundation consists of cast-in-place concrete.

1. **Condition**

   The foundation appeared to be in poor condition.

   Severe spalling/disintegration was observed along the perimeter of the foundation.

   Several wide cracks were observed.

   Vegetative growth was observed within the spalled areas.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the foundation.

3. **Deficiencies**

   The spalled and cracked areas will allow the ingress of water, contributing to further deterioration.

The vegetative growth will hold water against the concrete, contributing to further deterioration.

4. Effective Life Remaining

The remaining effective life of the foundation with proper maintenance is approximately 20+ years.

5. Recommendations

Since the observed spalling and cracking of the concrete foundation does not raise structural concerns, rehabilitation is not required at this time. However, for the long term expenditures, an estimated cost of $20,000 should be allowed for concrete repairs in the 11th year.

The vegetative growth should be removed at an estimated cost of $2,000.

1.2 Superstructure

The superstructure for the Lighthouse generally consists of 2"x10" and 3"x10" timber joins supported by the 2"x4" timber walls.

1. Condition

Generally, the superstructure appeared to be in good condition.

The superstructure shows no obvious signs of cracking, settlement or movement.

Mildew was observed at a few locations.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the superstructure.

3. Deficiencies

Mildew will fill the Lighthouse with allergens, and may eventually lead to rot in the timbers.

4. Effective Life Remaining

With normal maintenance, the superstructure should continue to perform over the remaining life of the Lighthouse. The effective life remaining is approximately 20+ years.

5. Recommendations

Other than normal maintenance, no major repairs to any of the superstructures are anticipated over the next 5-10 years.

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 11th and 21st years.

1.3 Exterior Walls

The exterior walls consist of a wood shingle siding veneer. The walls are constructed of 2”x4” timbers at various spacing.

1. Condition

In general, the exterior walls are in fair condition.

The paint on the exterior walls has peeled and cracked.

2. Recent Repairs/Modifications

It appeared the exterior walls had been painted over a few times in the life of the Lighthouse. However, it has probably not been painted in at least 20+ years.

3. Deficiencies

The paint system protects the siding from the elements. Peeling and cracking paint will accelerate deterioration of the siding.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the lighthouse. The effective life remaining is approximately 20+ years.

5. Recommendations

The exterior siding should be thoroughly cleaned, prepared, and painted for an estimated cost of $20,000.

For the long term expenditures an estimated cost of $20,000 should be allowed for prep & paint of the siding in the 21st year.

1.4 Exterior Doors

There is one exterior door on the north side of the Lighthouse. It is a wood door in a wood frame on a wood sill.

1. Condition

The exterior door appears to be original to the structure, and is in poor condition.

The paint is peeling and is weathered. The hinges are corroded. The door is not operated by a handle, instead the user opens the door by pulling on the lock latch. There is no weather stripping. The door does not appear plumb. There is a large gap below the timber sill.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the door.

3. Deficiencies

Water entry around the perimeter of the door will lead to mould and rot of the frame.

Water entry below the sill will lead to rot.

4. Effective Life Remaining

The existing door has reached its life expectancy.

5. Recommendations

The exiting door/entry way should be replaced for an estimated cost of $5,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

1.5 Windows

There is one wooden frame, casement-type window at the Lighthouse wall, and 12 windows in the lantern.

1. Condition

In general, the Lighthouse wall window is in fair condition. The paint is peeling and cracked. The wood frame is weathered. There did not appear to be any sealant around the frame.

The lantern windows are in fair condition. One window is cracked.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the Lighthouse wall window.

The crack in the window in the lantern has been covered with duct tape.

3. Deficiencies

Peeling and weathered paint may lead to rot of the window frame. Unsealed joints around the window will allow the penetration of water.

The crack in the lantern window will eventually lengthen or the glass will break.

4. Effective Life Remaining

Since the structure is unoccupied during the winter months, replacement of the windows to achieve improved heat retention is unnecessary. Therefore, with proper maintenance, the existing windows may last the remainder of the expected life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

New caulking should be provided at the lantern wall window frame for an estimated cost of $500. Since the window is probably not operated, the perimeter of the window could also be sealed.

The lantern wall window frame should be prepared and painted for an estimated cost of $1,000.

The lantern window should be replaced for an estimated cost of $2,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

1.6 Steel Lantern

The Lighthouse is surmounted by a steel lantern.

1. Condition

The steel lantern appeared to be in fair condition.

Paint peeling and cracked was observed throughout the interior and exterior of the lantern. Light corrosion was observed throughout, especially on horizontal surfaces such as the window ledges and the steel handrail around the perimeter.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to steel lantern.

3. Deficiencies

Since the paint system has failed, the steel lantern will continue to corrode.

4. Effective Life Remaining

With proper maintenance, the steel lantern may last the remainder of the expected life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The steel lantern should be thoroughly cleaned, prepared, and painted for an estimated cost of $30,000.

For the long term expenditures an estimated cost of $30,000 should be allowed for prep & paint of the lantern in the 21st year.

1.7 Floors

The flooring within the Lighthouse is wood.

1. Condition

In general, the flooring appeared to be in fair condition.

The floors are worn, water damaged, and contain medium rot in a few locations.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the flooring.

3. Deficiencies

The water damaged and rotten flooring should be replaced to prevent further deterioration.

4. Effective Life Remaining

With proper maintenance, the flooring should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The flooring that contains water damage and rot should be replaced for an estimated cost of $2,000.

1.8 Ceilings and Walls

The existing ceilings and walls consist of wood panels.

1. Condition

The ceilings and walls generally appeared to be in poor condition.

Mould, mildew, and water damage was observed throughout the structure.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

Mildew and mould will hold moisture on the ceilings and walls and may cause eventual rot.

Mould and mildew will fill the lighthouse with allergens.

4. Effective Life Remaining

With proper maintenance, the existing ceilings and walls should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The ceilings and walls should be thoroughly cleaned to remove the mould and mildew, then prepared and painted, for an estimated cost of $2,000.

Ventilation can be considered to prevent mould and mildew.

For the long term expenditures an estimated cost of $1,000 should be allowed for prep & paint of the siding in the 11th year.

1.9 Stairs

There is one interior wooden staircase between the ground floor and second floor, and another between the second floor and lantern.

A set of exterior wooden stairs exist at the entrance.

1. Condition

The interior stairs are in good condition. Paint peeling was observed throughout.

The exterior stairs are in poor condition. Paint peeling was observed throughout. The bearing timber is rotten. The connection to the building has failed. The stairs are not level or plumb. There is no handrail.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to either set of stairs.

3. Deficiencies

Peeling paint leaves wood unprotected which will accelerate deterioration.

The failed connection, rotten bearing timber, absence of handrail, and out of plumbness at the exterior stairs compromises the safe use of the stairs.

4. Effective Life Remaining

With proper maintenance, the interior staircase should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

The exterior set of stairs have reached their service life.

5. Recommendations

The exterior staircase should be replaced for an estimated cost of $1,000.

The interior staircase should be cleaned, prepared, and painted for an estimated cost of $500.

For the long term expenditures an estimated cost of $1,000 should be allowed for prep & paint of the siding in the 11th year.

2 Solar Building

The Solar Building was constructed in the 2000's and is located on the summit of Sunday Point, just east of the Lighthouse. The building is approximately 6 ft. x 8 ft. and has six solar panels located on the roof.

2.1 Foundation

The Solar Building foundation consists of six - 18" diameter cast-in-place concrete columns that vary in height from approximately 8" to 18". The superstructure is fastened to the foundation through a WT section and 2-3/4" bolts at each column.

1. Condition

The foundation appeared to be in excellent condition.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

There were no deficiencies observed.

4. Effective Life Remaining

The remaining effective life of the foundation with proper maintenance is approximately 50 years.

5. Recommendations

There are no recommendations for the Solar Building foundation at this time.

2.2 Exterior Walls

The exterior walls consist of preformed metal siding. The construction of the walls was not confirmed.

1. Condition

The siding appeared to be in excellent condition.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the exterior walls.

3. Deficiencies

There were no deficiencies observed.

4. Effective Life Remaining

The remaining effective life of the exterior walls with proper maintenance is approximately 50 years.

5. Recommendations

For the long term expenditures an estimated cost of $1,000 should be allowed for recaulking of the siding in the 6th year.

3 Upper Helicopter Pad

The Upper Helicopter Pad is located on the summit of Sunday Point, just west of the Lighthouse. It is unknown when the pad was constructed. The pad is approximately 23 ft. x 23 ft. x 6 in. thick.

3.1 Foundation

The Upper Helicopter Pad foundation consists of six - 12” diameter cast-in-place concrete columns that vary in height from approximately 18” to 36”. The concrete slab bears upon three columns at the north end, three columns at the midspan, and bedrock at the south end.

1. **Condition**

   The foundation appeared to be in good condition.

   Trees and other vegetation have taken hold below the concrete slab around the foundation.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the foundation.

3. **Deficiencies**

   Tree roots could eventually cause damage to the concrete foundation, and may eventually grow into the slab causing damage.

4. **Effective Life Remaining**

   The remaining effective life of the foundation with little maintenance could be approximately 20+ years.

5. **Recommendations**

   The vegetation below the slab should be removed.

3.2 Concrete Slab

The Upper Helicopter Pad consists of a 23 ft. x 23 ft. x 6 in. thick cast-in-place concrete slab.

1. **Condition**

   The concrete slab appeared to be in good condition. Vegetative growth was observed throughout. One light spall was observed on the west edge.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

The observed vegetative growth and spall should not lead to further deterioration in the near future.

4. Effective Life Remaining

The remaining effective life of the concrete slab with little maintenance could be approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

4 Main Dwelling

The Main Dwelling was constructed circa 1959 and is located on the southern shore of Sunday Point. The building is single storey with a basement and an attic. The building is approximately 1,200 sq. ft. (not including the basement) and consists of three bedrooms, one bathroom, one kitchen, one living room, and a storage area.

4.1 Foundation

The foundation for the Main Dwelling consists of reinforced, cast-in-place concrete foundation walls and slab. Reinforced, cast-in-place concrete strip footings likely support the foundation walls.

1. Condition

The foundation appeared to be in fair physical and functional condition.

Four medium to wide vertical cracks were observed at the exterior of the foundation walls at the south and west faces of the building. The cracks typically originate at the windows located within the foundation walls. One wide crack was observed near the southeast corner of the building where a concrete parapet wall abuts the foundation.

Numerous narrow to wide vertical and horizontal cracks were observed at the interior of the foundation walls at the south, west, and north faces of the building. Most of the cracks originate at the windows located within the foundation walls, however, some cracks occur elsewhere. Some of the cracks show visible signs of leaking.

Water was observed on the floor at the north foundation wall. The joint between the north foundation wall and concrete slab is leaking.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

The cracks in the foundation walls will continue to lengthen/widen. The cracks will allow water to continue to penetrate into the basement, and will expose the reinforcing steel to oxygen causing corrosion, reducing the effective life of the element.

The joint along the north foundation wall will continue to allow seepage of water into the basement.

4. Effective Life Remaining

The remaining effective life of the foundation with proper maintenance is approximately 20+ years.

5. Recommendations

All cracks should be injected with epoxy from inside the building to provide a structural repair that is impervious to water and air. This repair should be done in the next 1-5 years for an estimated cost of $10,000.

The joint along the north foundation wall should be sealed with polyurethane foam to create a barrier against water. This repair should be done in the next 1-5 years for an estimated cost of $5,000.

For the long term expenditures, an estimated cost of $10,000 should be allowed for minor repairs in the 16th year.

4.2 Superstructure

The superstructure for the Main Dwelling generally consists of 2”x10” timber joints at 16” ctrs. supported by the foundation walls and an 8”x10” built-up timber beam on steel teleposts at the main floor, and 2”x4” and 2”x6” timber rafters at 24” ctrs. at the roof.

1. Condition

The superstructure shows no obvious signs of cracking, settlement or movement, and therefore is considered to be in good physical and functional condition.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the superstructure.

3. Deficiencies

There did not appear to be any deficiencies at the superstructure.

4. Effective Life Remaining

With normal maintenance, the superstructure should continue to perform over the remaining life of the building. The effective life remaining is approximately 20+ years.

5. Recommendations

Other than normal maintenance, no major repairs to any of the superstructures are anticipated over the next 5-10 years.

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 11th and 21st years.

4.3 Exterior Walls

The exterior walls consist of wood siding veneer and drywall on the interior. The construction of the walls was not confirmed.

1. Condition

In general, the exterior walls are in good condition.

Mildew was observed at the wood siding.

Paint peeling was observed at a few locations at the wood siding.

A few cracks were observed in the wood siding.

2. Recent Repairs/Modifications

It appeared the exterior walls had been painted sometime in the last 10 years.

3. Deficiencies

Mildew will hold moisture on the siding and may necessitate eventual replacement of the siding.

Peeling paint will allow water to penetrate to the base material.

Cracks in the siding will allow the ingress of water and may eventually lead to mould growth or rot.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

The exterior siding should be thoroughly cleaned to remove the mildew, then prepared and painted, for an estimated cost of $5,000.

The cracks in the siding should be sealed for an estimated cost of $500.

For the long term expenditures an estimated cost of $5,000 should be allowed for prep & paint of the siding in the 11th year.

4.4 Exterior Doors

There is one exterior door on the north side of the building. It is a wood door with a large window mounted in a wood frame and a wood sill.

There is an exterior door on the south side of the building that has been closed off with plywood.

1. Condition

The door on the north side of the building appeared to be in poor condition. Most of the paint on the door has peeled or is weathered. The paint at the timber sill is in poor condition. Caulking is missing. The door handle is discoloured. The door did not appear plumb, and the lower corner on the handle side of the door was worn.

The opening for the exterior door at the south side of the building has been closed off with plywood. The joints around the plywood are not sealed. The paint at the timber sill is in poor condition.

2. Recent Repairs/Modifications

The existing doors appear original to the building.

It did not appear any recent repairs or modifications had been made to the northern door, except the trim had been painted in the last 10 years.

The southern door was replaced with plywood to prevent snow from accumulating inside the door during winter months.

3. Deficiencies

Peeling and weathered paint at the timber door and timber sill may lead to eventual rot. Wearing of the door and missing caulking allows the ingress of water.

Water entry at the closed off southern door will lead to eventual rot.

4. Effective Life Remaining

The existing doors have reached their life expectancy.

5. Recommendations

The existing doors should be replaced for an estimated cost of $4,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

4.5 Windows

There are 12 wooden frame, hung windows at the exterior walls and four wooden frame windows at the foundation walls.

1. Condition

In general, the windows are in fair condition.

The sealants at all windows have failed.

The paint is peeling and weathered at all foundation windows.

2. Recent Repairs/Modifications

The existing windows appear original to the building.

It appeared the window frames at the exterior walls had been painted in the last 10 years.

3. Deficiencies

Failed window sealants will allow the ingress of water, leading to mould problems or rot.

Peeling and weathered paint may lead to the eventual rot of the window frame.

4. Effective Life Remaining

Since the structure is unoccupied during the winter months, replacement of the windows to achieve improved heat retention is unnecessary. Therefore, with proper maintenance, the existing windows may last the remainder of the expected life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

New caulking should be provided at all windows for an estimated cost of $500.

The window frames should be prepared and painted for an estimated cost of $500.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

4.6 Roofing

The roof of the Main Dwelling is cross-gabled and clad in preformed metal over asphalt shingles.

1. Condition

The preformed metal roof appeared to be in good condition.

2. Recent Repairs/Modifications

Photos within the XCG report titled "Enhanced Phase 1 Environmental Assessment Canadian Coast Guard Light Station L.L. 1111, Slate Islands, Lake Superior, Ontario" dated April 2, 2001 show the preformed metal roof. Therefore, the existing asphalt shingles had been re-covered sometime prior to 2001.

3. Deficiencies

There did not appear to be any deficiencies at the preformed metal roof.

4. Effective Life Remaining

Since the existing asphalt shingles were re-covered with preformed metal sometime prior to 2001, it can be assumed that the roofing material is roughly halfway through its 40 year design life.

5. Recommendations

Minor maintenance such as providing new sealants at penetrations and replacement of fasteners may be required in the next 6-10 years for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $30,000 should be allowed for roof replacement in the 21st year.

4.7 Floors

The flooring within the Main Dwelling is vinyl tiling.

1. Condition

In general, the flooring appeared to be in fair condition.

There are several cracks in the tiling in the living room.

Nine tiles have been removed at the southern entrance, exposing the water-damaged subfloor.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the flooring.

3. Deficiencies

The water damaged subfloor should be replaced to prevent further deterioration. The vinyl flooring should be replaced in this area to eliminate a potential tripping hazard.

4. Effective Life Remaining

With proper maintenance, the existing tiling should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The subfloor that contains water damage and the removed tiling should be replaced at the southern entrance for an estimated cost of $1,000.

4.8 Ceilings and Walls

The existing ceilings and walls consist of drywall.

1. Condition

The ceilings and walls generally appeared to be in good condition.

The paint has peeled at a few locations at the interior walls.

The ceiling has cracked at a few locations in the living room and kitchen.

The tiling at the tub surround is separating from the wall.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

The cracks in the ceiling may indicate leaks in the asphalt shingle roof system prior to the roof being re-covered with preformed metal.

Separation of the tiling at the tub surround will allow the ingress of water and may lead to mould or rot.

4. Effective Life Remaining

With proper maintenance, the existing ceilings and walls should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The existing ceilings and walls should be prepared and painted for an estimated cost of $500.

The tub surround should be replaced for an estimated cost of $1,000.

4.9 Stairs

There is one wooden staircase inside the building between the main floor and the basement.

A set of exterior wooden stairs exist at the southern entrance.

1. Condition

Both sets of stairs appear to be in good condition.

The paint is peeling at the exterior staircase.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to either set of stairs.

3. Deficiencies

Peeling paint leaves wood unprotected which will accelerate deterioration.

4. Effective Life Remaining

With proper maintenance, the staircases should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The exterior staircase should be prepared and painted for an estimated cost of $500.

4.10 Chimney

There is an existing brick chimney in the basement.

1. Condition

The chimney appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the chimney.

3. Deficiencies

There did not appear to be any deficiencies at the chimney.

4. Effective Life Remaining

The chimney should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

4.11 Fixed Furnishings

The fixed furnishings include a laminate counter, wood cupboards, a toilet, a bathtub, and a vanity.

1. Condition

The furnishing generally appeared to be in good condition.

The caulking at the bathtub has failed.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the fixed furnishings.

3. Deficiencies

Failed caulking will allow the ingress of water and lead to eventual mould or rot.

4. Effective Life Remaining

With proper maintenance, the fixed furnishings should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The caulking should be replaced at the bathtub.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 6th year.

5 Duplex Dwelling

The Duplex Dwelling was constructed circa 1965 and is located on the southern shore of Sunday Point. The building is two storeys with a walk-out basement as the first floor. The building is approximately 31 ft. x 64 ft. or 2,000 sq. ft. (not including the basement), and consists of two units comprising of three bedrooms, one bathroom, one kitchen, and one living room.

5.1 Foundation

The foundation for the Duplex Dwelling consists of masonry block foundation walls and a reinforced, cast-in-place concrete slab. Reinforced, cast-in-place concrete strip footings likely support the foundation walls. It is unknown if the masonry walls are reinforced or hollow.

1. Condition

The foundation appeared to be in fair physical and functional condition.

Six medium to wide step cracks (ie. cracks through the mortar joints) were observed at the exterior of the masonry foundation walls at the north and west faces of the building. The cracks typically originate at the windows located within the foundation walls. Two medium to wide splitting failure cracks (ie. vertical cracks through the masonry block and mortar joints) were observed at the exterior of the north masonry foundation wall.

One full width (ie. north/south) wide crack and a few associated narrow cracks were observed at the concrete slab at the east end of the west unit.

2. Recent Repairs/Modifications

Caulking had been used to seal the foundation wall cracks approximately 20 years ago. The caulking has failed.

3. Deficiencies

The cracks in the foundation walls appear stable. However, the cracks will allow water to continue to penetrate into the basement, and will expose any reinforcing steel to oxygen causing corrosion, reducing the effective life of the element.

The crack in the concrete slab appears stable, and should not deteriorate further.

4. Effective Life Remaining

The remaining effective life of the foundation with proper maintenance is approximately 20+ years.

5. Recommendations

The mortar joints that contain cracks should be retooled. Since the masonry blocks may be hollow, the crack in the block should be sealed with polyurethane foam. This repair should be done in the next 1-5 years for an estimated cost of $10,000.

For the long term expenditures, an estimated cost of $10,000 should be allowed for minor repairs in the 16th year.

5.2 Superstructure

The superstructure for the Duplex Dwelling generally consists of 2”x10” timber joins at 16” ctrs supported by the foundation walls and a 6”x10” built-up timber beam on steel teleposts at the second floor.

1. Condition

The superstructure shows no obvious signs of cracking, settlement or movement, and therefore is considered to be in good physical and functional condition.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the superstructure.

3. Deficiencies

There did not appear to be any deficiencies at the superstructure.

4. Effective Life Remaining

With normal maintenance, the superstructure should continue to perform over the remaining life of the building. The effective life remaining is approximately 20+ years.

5. Recommendations

Other than normal maintenance, no major repairs to any of the superstructures are anticipated over the next 5-10 years.

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 11th and 21st years.

5.3 Exterior Walls

The exterior walls consist of wood siding veneer and drywall on the interior. The construction of the walls was not confirmed.

1. Condition

In general, the exterior walls are in good condition.

Paint peeling was observed at a few locations at the wood siding at the east, west, and north faces.

Weathering was observed at the east, west, and north faces.

2. Recent Repairs/Modifications

It appeared the south wall had been painted sometime in the summer of 2016. The north wall was in the process of being painted at the time of inspection.

3. Deficiencies

Peeling paint will allow water to penetrate to the base material.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

For the long term expenditures an estimated cost of $5,000 should be allowed for prep & paint of the siding in the 11th year.

5.4 Exterior Doors

There are four exterior doors on the south side of the building: two at each corner. Two are at ground level, and two are at the second floor, accessed by timber stairs. All of the doors are wood with two windows. The door at the southwest corner at ground level also contains a dog door. Each door also includes a storm door.

1. Condition

All of the doors appeared to be in good condition.

Some of the sealant at the door trim is cracked.

2. Recent Repairs/Modifications

The doors do not appear original to the structure.

3. Deficiencies

Cracked sealant will allow water penetration.

4. Effective Life Remaining

With normal maintenance, the exterior doors should continue to perform for the next 10-15 years.

5. Recommendations

For the long term expenditures, an estimated cost of $8,000 should be allowed for door replacement in the 11th year.

5.5 Windows

There are 18 wooden frame, hung windows at the exterior walls on the second floor, and 10 wooden frame windows at the foundation walls.

1. Condition

In general, the windows are in fair condition.

The sealants at some windows have cracked and failed.

The paint is peeling and weathered at the foundation windows.

2. Recent Repairs/Modifications

The existing windows appear original to the building.

It appeared the window frames at the exterior walls had been painted recently.

3. Deficiencies

Failed window sealants will allow the ingress of water, leading to mould problems or rot.

Peeling and weathered paint may lead to the rot of the window frame.

4. Effective Life Remaining

Since the structure is unoccupied during the winter months, replacement of the windows to achieve improved heat retention is unnecessary. Therefore, with proper maintenance, the existing windows may last the remainder of the expected life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

New caulking should be provided at all windows for an estimated cost of $500.

The window frames should be prepared and painted for an estimated cost of $500.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

5.6 Roofing

The roof of the Duplex Dwelling is cross-hipped and clad in preformed metal over asphalt shingles.

1. Condition

The preformed metal roof appeared to be in good condition.

2. Recent Repairs/Modifications

Photos within the XCG report titled "Enhanced Phase 1 Environmental Assessment Canadian Coast Guard Light Station L.L. 1111, Slate Islands, Lake Superior, Ontario" dated April 2, 2001 show the preformed metal roof. Therefore, the existing asphalt shingles had been re-covered sometime prior to 2001.

3. Deficiencies

There did not appear to be any deficiencies at the preformed metal roof.

4. Effective Life Remaining

Since the existing asphalt shingles were re-covered with preformed metal sometime prior to 2001, it can be assumed that the roofing material is roughly halfway through its 40 year design life.

5. Recommendations

Minor maintenance such as providing new sealants at penetrations and replacement of fasteners may be required in the next 6-10 years for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $50,000 should be allowed for roof replacement in the 21st year.

5.7 Floors

The flooring within the Duplex Dwelling is vinyl tiling.

1. Condition

In general, the flooring appeared to be in good condition.

2. Recent Repairs/Modifications

The flooring appeared original to the structure.

It did not appear any repairs or modifications had been done to the flooring.

3. Deficiencies

No deficiencies were observed at the flooring.

4. Effective Life Remaining

With proper maintenance, the existing tiling should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

5.8 Ceilings and Walls

The existing ceilings and walls consist of drywall.

1. Condition

The ceilings and walls appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

There were no deficiencies observed.

4. Effective Life Remaining

With proper maintenance, the existing ceilings and walls should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

5.9 Stairs

There are two interior wooden staircases, one in each unit, between the main floor and the second floor.

There are two exterior wooden staircases, one for each unit, providing access to the second floor entrances on the south side of the building.

1. Condition

All staircases appeared to be in good condition.

Paint peeling was observed at the exterior southeast corner staircase.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to either interior set of stairs.

The stairs at the exterior southeast corner appear to be new construction.

The stairs at the exterior southwest corner appear to be original to the structure. The mid rail at the landing has been replaced.

3. Deficiencies

Peeling paint leaves wood unprotected which will accelerate deterioration.

4. Effective Life Remaining

With proper maintenance, the staircases should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The exterior staircase should be prepared and painted for an estimated cost of $500.

5.10 Chimney

There are two existing masonry block chimneys in the basement, one in each unit.

1. Condition

The east chimney appeared to be in good condition.

The west chimney appeared to be in fair condition. Bed joint cracks (ie. cracks through the horizontal mortar joints) were observed in the chimney above the roof line.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to either chimney.

Temporary strapping has been provided at the west chimney to hold bricks in place.

3. Deficiencies

The cracks in the mortar bed joints will allow water penetration.

4. Effective Life Remaining

The chimney should be effective through the remaining life of the structure with proper maintenance. The effective life remaining is approximately 10+ years.

5. Recommendations

The mortar joints that contain cracks should be retooled. This repair should be done for an estimated cost of $5,000.

5.11 Fixed Furnishings

The fixed furnishings include a laminate counter in each kitchen, wood cupboards in each kitchen, two toilets, two bathtubs, and two sinks.

1. Condition

The furnishing generally appeared to be in good condition.

The caulking at the bathtubs has failed.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the fixed furnishings.

3. Deficiencies

Failed caulking will allow the ingress of water and lead to mould or rot.

4. Effective Life Remaining

With proper maintenance, the fixed furnishings should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The caulking should be replaced at the bathtub.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 6th year.

6 Old Fog Alarm/Generator Building

The Old Fog Alarm/Generator Building was constructed in the early 1900's and is located on the southern shore of Sunday Point. The building is two storeys and does not have a basement. The building is approximately 44 ft. x 37 ft., or 1,600 sq. ft. (not including the second floor).

6.1 Foundation

The foundation for the Old Fog Alarm/Generator Building consists of a reinforced, cast-in-place concrete slab. Reinforced, cast-in-place concrete strip footings likely support the building's exterior walls.

1. Condition

The foundation appeared to be in fair physical and functional condition.

Numerous medium to wide random cracks were observed at the concrete slab around the existing generators.

Paint peeling and wear was observed throughout the concrete slab.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

The cracks in the concrete slab will continue to lengthen and widen over time. Water or spilled fuels can leach through the cracks. Water entry into the cracks will accelerate deterioration through the freeze/thaw cycle.

4. Effective Life Remaining

The remaining effective life of the foundation is approximately 20+ years.

5. Recommendations

All cracks should be injected with epoxy from inside the building to provide a structural repair that is impervious to water and air. This repair should be done in the next 1-5 years for an estimated cost of $5,000.

For the long term expenditures, an estimated cost of $10,000 should be allowed for minor repairs in the 16th year.

6.2 Superstructure

The roof construction consists of 2”x4” timber rafters @ 24” ctrs. and 2”x6” timber ceiling joists at 24” ctrs.

1. Condition

The superstructure shows no obvious signs of cracking, settlement or movement, and therefore is considered to be in good physical and functional condition.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the superstructure.

3. Deficiencies

There did not appear to be any deficiencies at the superstructure.

4. Effective Life Remaining

With normal maintenance, the superstructure should continue to perform over the remaining life of the building. The effective life remaining is approximately 20+ years.

5. Recommendations

Other than normal maintenance, no major repairs to any of the superstructures are anticipated over the next 5-10 years.

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 11th and 21st years.

6.3 Exterior Walls

The exterior walls consist of wood shingle siding veneer on rough sawn 2”x6” timbers at 24” ctrs.

1. Condition

In general, the exterior walls are in good condition.

2. Recent Repairs/Modifications

It appeared the exterior walls had been painted sometime in the last few years.

3. Deficiencies

No deficiencies were observed at the exterior walls.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

For the long term expenditures an estimated cost of $5,000 should be allowed for prep & paint of the siding in the 11th year.

6.4 Exterior Doors

There are two exterior doors, one at the east side of the building, and one at the west side of the building.

The east door is a double wide, wooden door mounted in a wood frame with a wood sill.

The west door is a single wooden door mounted to the structure at an opening in the wall. There is no frame or sill.

1. Condition

The east door appeared to be in fair condition. Some paint peeling was observed. The door, sill, and timber below the sill appeared weathered. The weather stripping at the door is ineffective.

The west door appeared to be in fair condition. There is no weather stripping at the door. Since there is no sill, rainwater may accumulate at this entrance.

2. Recent Repairs/Modifications

The doors appear original to the building. The exterior of the doors appear to have been painted in the last few years.

3. Deficiencies

Peeling and weathered paint at the timber door and timber sill may lead to rot.

Missing or ineffective weather stripping will allow the ingress of water.

The missing timber sill will allow water to run off the door into the building.

4. Effective Life Remaining

The existing doors have reached their design life.

5. Recommendations

The existing doors should be replaced to provide properly weather sealed entrances, for an estimated cost of $2,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

6.5 Windows

There are 13 wooden frame, hung windows, four wooden frame fixed (decorative) windows, and one wooden frame fixed (picture) window at the exterior walls.

1. Condition

In general, the windows are in fair condition.

The sealants at all windows have failed.

The paint is peeling and weathered at all windows.

2. Recent Repairs/Modifications

The existing windows appear original to the building.

It appeared the window frames at the exterior walls had been painted in the last 10 years.

3. Deficiencies

Failed window sealants will allow the ingress of water, leading to eventual mould problems or rot.

Peeling and weathered paint may lead to the eventual rot of the window frame.

4. Effective Life Remaining

Since the structure is unoccupied during the winter months, replacement of the windows to achieve improved heat retention is unnecessary. Therefore, with proper maintenance, the existing windows may last the remainder of the expected life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

New caulking should be provided at all windows for an estimated cost of $500.

The window frames should be prepared and painted for an estimated cost of $500.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

6.6 Roofing

The roof is gabled and clad in asphalt shingles.

1. Condition

The asphalt shingles appeared to be in poor condition.

Fishmouthing and curling of the asphalt shingles was observed in numerous locations. Moss growth was observed in numerous locations.

The eavestroughs are in poor condition, and no downspouts are provided.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the roofing.

3. Deficiencies

Fishmouthing and curling of the asphalt shingles allows the ingress of water into the building.

4. Effective Life Remaining

The existing asphalt shingles have reached their effective life.

The existing eavestroughs have reached their effective life.

5. Recommendations

The asphalt single roofing should be removed and replaced with preformed metal roofing, similar to the other buildings at the site, for an estimated cost of approximately $50,000. The existing roof structure can withstand this rehabilitation effort.

New eavestroughs and downspouts should be provided for an estimated cost of $5,000.

6.7 Floors

The flooring within the upper level consists of hardwood.

2. Condition

In general, the flooring appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the flooring.

3. Deficiencies

No deficiencies were observed at the flooring.

4. Effective Life Remaining

With proper maintenance, the existing hardwood flooring should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

6.8 Ceilings and Walls

The existing ceilings and walls consist of wood panels.

1. Condition

The ceilings and walls generally appeared to be in poor condition.

The paint has peeled at a many locations at the interior walls.

There is a hole in the ceiling within the main area at the ground floor.

Evidence of water damage was observed at several locations at the upper floor, especially near the chimneys.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

The water damage indicates that the roof is leaking.

4. Effective Life Remaining

The panelling has reached its design life.

5. Recommendations

The ceilings and walls that contain holes or water damage should be replaced at an estimated cost of $5,000.

6.9 Stairs

There is one wooden staircase and one wooden ladder inside the building between the main floor and the second floor.

1. Condition

Both sets of stairs appear to be in fair condition.

The stairs do not include a handrail.

The ladder was narrower than current standards. The rungs and siderails do not meet current standards. The ladder does not project into the opening above.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to either set of stairs.

3. Deficiencies

The lack of handrail and narrowness of the ladder creates unsafe climbing environments.

4. Effective Life Remaining

With proper maintenance, the staircase should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

The ladder has reached its effective life.

5. Recommendations

A handrail should be provided at the stairs for an estimated cost of $500.

The ladder should be replaced for an estimated cost of $1,000.

6.10 Chimney

There are two existing brick chimneys.

1. Condition

The chimneys appeared to be in fair condition.

Voids at the mortar joints were observed at a few locations.

One brick is missing and one brick is broken at the north chimney.

The flashing around each chimney is in poor condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the chimney.

3. Deficiencies

Crack at the mortar joints, missing/broken bricks, and poor flashing allow the ingress of water into the building.

4. Effective Life Remaining

The chimneys should be effective through the remaining life of the structure, with proper rehabilitation and maintenance. The effective life remaining is approximately 10+ years.

5. Recommendations

The voids at the mortar joints, the missing brick, and the broken brick should be repaired with a concrete repair mortar for an estimated cost of $5,000.

The flashing at the chimneys should be replaced in combination with the roof replacement, for an estimated cost of $5,000.

6.11 Fixed Items

The fixed furnishings include three generators, a control panel, and a steel boiler.

1. Condition

The furnishing generally appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the fixed furnishings.

3. Deficiencies

No deficiencies were observed.

4. Effective Life Remaining

With proper maintenance, the fixed items should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

7 New Fog Alarm/Electronics Building

The New Fog Alarm/Electronics Building was constructed circa 1975 and is located on the southern shore of Sunday Point. The building is one storey and does not have a basement. The building is approximately 20 ft. x 12 ft., or 240 sq. ft.

7.1 Foundation

The foundation for the Main Dwelling consists of a reinforced, cast-in-place concrete slab.

3. Condition

The foundation appeared to be in good physical and functional condition.

4. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

No deficiencies were observed at the foundation.

4. Effective Life Remaining

The remaining effective life of the foundation is approximately 20+ years.

5. Recommendations

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 16th year.

7.2 Exterior Walls

The exterior walls consist of transite (hard asbestos board).

1. Condition

In general, the exterior walls are in fair condition.

The sealant between the top of the walls and the roof has failed. There is no sealant between the bottom of the walls and the concrete foundation.

Light corrosion was observed at most of the fasteners.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modification had been made to the exterior walls.

3. Deficiencies

The failed/missing sealants will allow the penetration of water.

Corrosion will continue to progress at the fasteners.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

The sealant should be replaced between the walls and roof, and sealant should be provided between the walls and the foundation, at an estimated cost of $500.

The corroded fasteners should be replaced for an estimated cost of $500.

For the long term expenditures an estimated cost of $1,000 should be allowed for new sealant at the siding in the 11th year.

7.3 Exterior Doors

There are two exterior doors, one at the east side of the building, and one at the north side of the building.

Both doors are steel doors in wood frames.

1. Condition

The doors appeared to be in fair condition.

The sealants around the doors have cracked, and the weather stripping is ineffective.

Light corrosion was observed at the bottom of the doors.

Paint peeling was observed at the door frames.

2. Recent Repairs/Modifications

The doors appear original to the building. It did not appear any recent repairs or modifications have been made to the exterior doors.

3. Deficiencies

The cracked sealants and ineffective weather stripping allows the ingress of water.

Peeling paint allows corrosion of the element.

4. Effective Life Remaining

With proper maintenance, the exterior doors should last the remainder of the expected life of the structure. The effective life remaining is approximately 10-15 years.

5. Recommendations

The sealants and weather stripping around the doors should be replaced for an estimated cost of $1,000.

The door frames and door should be wire brush cleaned and painted for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

7.4 Roofing

The roof is gabled and clad in transite.

1. Condition

The transite roofing appeared to be in fair condition.

The closer strip beneath the roofing has failed.

Some moss growth was observed at the roof.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the roofing.

3. Deficiencies

The failed closer strip will allow the ingress of water.

4. Effective Life Remaining

The roofing should last the expected remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The closer strip should be replaced for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

7.5 Ceilings and Walls

The existing ceilings and walls consist of transite.

1. Condition

The ceilings and walls generally appeared to be in good condition.

The sealant at the joints between panels has cracked a few locations.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

The cracked sealants allow water entry into the building.

4. Effective Life Remaining

The transite panels should last the design life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The sealants should be replaced for an estimated cost of $500.

7.6 Fixed Items

There is an electrical panel within the building.

8 New Diesel Generator Building

The New Diesel Generator Building was constructed circa 1975 and is located on the southern shore of Sunday Point. The building is one storey and does not have a basement. The building is approximately 20 ft. x 12 ft., or 240 sq. ft.

8.1 Foundation

The foundation for the Main Dwelling consists of a reinforced, cast-in-place concrete slab.

1. Condition

The foundation appeared to be in fair physical and functional condition.

There are a few narrow cracks in the concrete slab inside the building.

There is one wide crack at the northwest corner of the foundation.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

The exterior crack will allow the penetration of water and allow deterioration to progress.

4. Effective Life Remaining

The remaining effective life of the foundation is approximately 20+ years.

5. Recommendations

The exterior crack should be injected with epoxy for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 16th year.

8.2 Exterior Walls

The exterior walls consist of transite (hard asbestos board).

1. Condition

In general, the exterior walls are in fair condition.

The sealant between the top of the walls and the roof has failed. There is no sealant between the bottom of the walls and the concrete foundation.

The transite is cracked at the door in three locations.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modification had been made to the exterior walls.

3. Deficiencies

The failed/missing sealants will allow the penetration of water.

The cracks will lengthen over time and allow the penetration of water.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

The sealant should be replaced between the walls and roof, and sealant should be provided between the walls and the foundation, at an estimated cost of $500.

The ends of the cracks in the transite panels should be drilled, and the cracks sealed for an estimated cost of $500.

For the long term expenditures an estimated cost of $1,000 should be allowed for new sealant at the siding in the 11th year.

8.3 Exterior Doors

There is one exterior door at the west side of the building.

The door is a steel door in a wood frame.

1. Condition

The door appeared to be in fair condition.

The sealant around the door has cracked, and the weather stripping is ineffective.

Light corrosion was observed at the top and bottom of the door.

Paint peeling was observed at the door and door frame.

2. Recent Repairs/Modifications

The door appears original to the building. It did not appear any recent repairs or modifications have been made to the exterior door.

3. Deficiencies

The cracked sealant and ineffective weather stripping allows the ingress of water.

Peeling paint allows corrosion of the element.

4. Effective Life Remaining

With proper maintenance, the exterior doors should last the remainder of the expected life of the structure. The effective life remaining is approximately 10-15 years.

5. Recommendations

The sealants and weather stripping around the doors should be replaced for an estimated cost of $1,000.

The door frames and door should be wire brush cleaned and painted for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

8.4 Roofing

The roof is gabled and clad in transite.

1. Condition

The transite roofing appeared to be in fair condition.

The closer strip beneath the roofing has failed.

Some moss growth was observed at the roof.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the roofing.

3. Deficiencies

The failed closer strip will allow the ingress of water.

4. Effective Life Remaining

The roofing should last the expected remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The closer strip should be replaced for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

8.5 Ceilings and Walls

The existing ceilings and walls consist of transite.

1. Condition

The ceilings and walls generally appeared to be in good condition.

The sealant at the joints between panels has cracked a few locations.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

The cracked sealants allow water entry into the building.

4. Effective Life Remaining

The transite panels should last the design life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The sealants should be replaced for an estimated cost of $500.

8.6 Fixed Items

There are three generators and several control panels inside the building.

9 Former Oil House

The former oil house was constructed in the 1920’s and is located on the southern shore of Sunday Point. The building is essentially a shed, is one storey, and does not have a basement or foundation. The building is approximately 16 ft. x 12 ft., or 192 sq. ft.

9.1 Superstructure

The superstructure for the former oil house generally consists of 2”x4” timber rafters at 24” ctrs supported by the exterior walls that consist of 2”x4” timbers at 24” ctrs.

1. Condition

The superstructure shows no obvious signs of cracking, settlement or movement, and therefore is considered to be in good physical and functional condition.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the superstructure.

3. Deficiencies

There did not appear to be any deficiencies at the superstructure.

4. Effective Life Remaining

With normal maintenance, the superstructure should continue to perform over the remaining life of the building. The effective life remaining is approximately 20+ years.

5. Recommendations

Other than normal maintenance, no major repairs to any of the superstructures are anticipated over the next 5-10 years.

For the long term expenditures, an estimated cost of $2,000 should be allowed for minor repairs in the 11th and 21st years.

9.2 Exterior Walls

The exterior walls consist of 2” x 6” timbers.

1. Condition

In general, the exterior walls are in fair condition.

Paint peeling was observed throughout

2. Recent Repairs/Modifications

The exterior walls have been painted at some point since original construction.

3. Deficiencies

Peeling paint removes the protective coating from the timber, allowing deterioration to progress.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

The exterior walls should be prepared and painted, for an estimated cost of $1,000.

For the long term expenditures an estimated cost of $1,000 should be allowed for preparation and painting in the 11th year.

9.3 Exterior Doors

There is one, double exterior door at the east side of the building.

The door is a wood door in a wood frame.

1. Condition

The door appeared to be in fair condition.

Paint peeling was observed at the door and door frame.

There is no weather stripping or sealant at the door.

2. Recent Repairs/Modifications

The door appears original to the building. The door has been painted at some point since original construction.

3. Deficiencies

Peeling paint removes the protective coating from the timber, allowing deterioration to progress.

4. Effective Life Remaining

The effective remaining life of the door is likely 10-15 years.

5. Recommendations

Sealants and weather stripping at the door will not extend the life of the door or the structure.

The door should be prepared and painted, for an estimated cost of $1,000.

For the long term expenditures an estimated cost of $2,000 should be allowed for a new door in the 11th year.

9.4 Roofing

The roof of the former oil house is gabled and clad in preformed metal over asphalt shingles.

1. Condition

The preformed metal roof appeared to be in good condition.

2. Recent Repairs/Modifications

Photos within the XCG report titled “Enhanced Phase 1 Environmental Assessment Canadian Coast Guard Light Station L.L. 1111, Slate Islands, Lake Superior, Ontario” dated April 2, 2001 show the preformed metal roof. Therefore, the existing asphalt shingles had been re-covered sometime prior to 2001.

3. Deficiencies

There did not appear to be any deficiencies at the preformed metal roof.

4. Effective Life Remaining

Since the existing asphalt shingles were re-covered with preformed metal sometime prior to 2001, it can be assumed that the roofing material is roughly halfway through its 40 year design life.

5. Recommendations

Minor maintenance such as providing new sealants at penetrations and replacement of fasteners may be required in the next 6-10 years for an estimated cost of $1,000.

For the long term expenditures, an estimated cost of $10,000 should be allowed for roof replacement in the 21st year.

10 Furnace Oil Tank Pad

The Furnace Oil Tank Pad is located on the southern shore of Sunday Point, just north of the Duplex Dwelling. It is unknown when the pad was constructed. The pad is approximately 9 ft. x 9 ft. x 6 in. thick and contains four concrete cradles.

10.1 Concrete Slab

The Furnace Oil Tank Pad consists of a six inch thick, reinforced, cast-in-place concrete pad.

1. **Condition**

   The concrete slab appeared to be in fair condition.

   Light to severe scaling was observed at the concrete slab.

   Erosion was observed below the slab.

   Trees and other vegetation have taken hold around the concrete slab.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the foundation.

3. **Deficiencies**

   Scaling will allow water to remain on the concrete surface, furthering deterioration.

   Erosion will eventually undermine the slab.

4. **Effective Life Remaining**

   The remaining effective life of the foundation with little maintenance could be approximately 20+ years.

5. **Recommendations**

   Since the pad is abandoned, there are no recommendations at this time.

10.2 Concrete Cradles

The pad contains four concrete cradles that were once used for diesel tanks.

1. Condition

The concrete cradles appeared to be in fair condition.

Light to medium scaling was observed at the cradles.

Narrow to medium cracks were observed.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Scaling will allow water to site on the concrete surface, furthering deterioration.

Cracks will allow the ingress of water, furthering deterioration.

4. Effective Life Remaining

The remaining effective life of the concrete cradles with little maintenance could be approximately 20+ years.

5. Recommendations

Since the pad is abandoned, there are no recommendations at this time.

11 Diesel Tank Pad

The Diesel Tank Pad is located on the southern shore of Sunday Point, northeast of the New Diesel Generator Building. It was constructed circa 1958. The pad is approximately 30 ft. x 15 ft. x 6 in. thick and contains six concrete cradles.

11.1 Concrete Slab

The Diesel Tank Pad consists of a six inch thick, reinforced, cast-in-place concrete pad.

1. Condition

The concrete slab appeared to be in fair condition.

Light scaling was observed throughout the concrete slab.

Erosion was observed below the slab.

Trees and other vegetation have taken hold around the concrete slab.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Scaling will allow water to remain on the concrete surface, furthering deterioration.

Erosion will eventually undermine the slab.

4. Effective Life Remaining

The remaining effective life of the foundation with little maintenance could be approximately 20+ years.

5. Recommendations

Since the pad is abandoned, there are no recommendations at this time.

11.2 Concrete Cradles

The pad contains six concrete cradles that were once used for diesel tanks.

1. Condition

The concrete cradles appeared to be in fair condition.

Light scaling was observed at the cradles.

Vegetation growth was observed at the cradles.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Scaling will allow water to site on the concrete surface, furthering deterioration.

4. Effective Life Remaining

The remaining effective life of the concrete cradles with little maintenance could be approximately 20+ years.

5. Recommendations

Since the pad is abandoned, there are no recommendations at this time.

12 Diesel Tank Dyke

The Diesel Tank Dyke is located on the southern shore of Sunday Point, north of the New Fog Alarm/Electronics Building. It was constructed circa 1970. The dyke is a concrete containment area and is approximately 30 ft. x 10.5 ft. x 3.5 ft. deep.

12.1 Concrete Walls

The Diesel Tank Dyke consists of four inch thick, reinforced, cast-in-place concrete walls.

1. **Condition**

   The concrete walls appeared to be in good condition.

   Light scaling was observed throughout the concrete walls.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the foundation.

3. **Deficiencies**

   Scaling will allow water to site on the concrete surface, furthering deterioration.

4. **Effective Life Remaining**

   The remaining effective life of the foundation with little maintenance could be approximately 20+ years.

5. **Recommendations**

   Since the dyke is abandoned, there are no recommendations at this time.

12.2 Concrete Slab

The base of the dyke consists of a reinforced, cast-in-place concrete slab.

1. **Condition**

   The concrete slab appeared to be in fair condition.

   Vegetation growth was observed at the slab.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Vegetation roots will cause further deterioration of the slab.

4. Effective Life Remaining

The remaining effective life of the concrete slab with little maintenance could be approximately 20+ years.

5. Recommendations

Since the dyke is abandoned, there are no recommendations at this time.

13 Transformer

The Transformer is located on the southern shore of Sunday Point, north of the New Fog Alarm/Electronics Building, construction date unknown. The Transformer is located inside a steel box on a 6 ft. x 6 ft. x 6 in. thick, reinforced, cast-in-place concrete foundation.

13.1 Concrete Slab

The concrete foundation for the Transformer is a reinforced, cast-in-place concrete slab.

1. **Condition**

The concrete slab appeared to be in fair condition.

Medium scaling was observed throughout the concrete slab.

Trees and other vegetation have taken hold around the concrete slab.

2. **Recent Repairs/Modifications**

It did not appear any recent repairs or modifications had been made to the foundation.

3. **Deficiencies**

Scaling will allow water to site on the concrete surface, furthering deterioration.

4. **Effective Life Remaining**

The remaining effective life of the foundation with little maintenance could be approximately 20+ years.

5. **Recommendations**

There are no recommendations at this time.

13.2 Steel Box

The Transformer is contained within a steel box.

1. **Condition**

The steel box appeared to be in fair condition.

Light corrosion and paint peeling was observed throughout the box.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Corrosion will continue at an accelerated rate unless remedial action is taken.

4. Effective Life Remaining

The remaining effective life of the steel box with little maintenance could be approximately 20+ years.

5. Recommendations

The steel box should be prepared and painted, at an estimated cost of $5,000.

For the long term expenditures, an estimated cost of $2,000 should be allowed for repainting in the 11th year.

14 Lower Helicopter Pad

The Lower Helicopter Pad is located on the southern shore of Sunday Point, just east of the New Diesel Generator Building. It is unknown when the pad was constructed. The pad is approximately 20 ft. x 24 ft. x 6 in. thick.

14.1 Concrete Slab

The Lower Helicopter Pad consists of a 20 ft. x 24 ft. x 6 in. thick cast-in-place concrete slab.

1. Condition

The concrete slab appeared to be in fair condition.

Light to medium scaling was observed throughout the concrete slab.

Erosion was observed below the slab.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Scaling will allow water to remain on the concrete surface, furthering deterioration.

Erosion will eventually undermine the slab.

4. Effective Life Remaining

The remaining effective life of the concrete slab with little maintenance could be approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

15 Lighthouse Dock

The Lighthouse Dock is located on the southern shore of Sunday Point. It was constructed in the 1960’s. The concrete dock extends approximately 110 ft. from the shore, is 5 ft. wide along most of its length, and at the outer end is 19 ft. wide. The outer end of the dock contains concrete walls on two sides, and contains a steel hoist.

15.1 Concrete Deck

The concrete deck is typically five feet wide, and consists of reinforced, cast-in-place concrete. The outer end is 19 ft. wide.

1. **Condition**

   The concrete deck appeared to be in fair condition.

   Light to medium scaling was observed throughout the concrete dock.

   Wide cracks were observed at a few locations.

   Light spalling was observed at the outer end. Ponding water was observed within the spalls.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the concrete deck.

3. **Deficiencies**

   Scaling and spalling will allow water to remain on the concrete surface, furthering deterioration.

   Wide cracks will allow the ingress of water, furthering deterioration.

4. **Effective Life Remaining**

   The remaining effective life of the concrete deck with little maintenance could be approximately 20+ years.

5. **Recommendations**

   To prevent the existing cracks from widening or lengthening, the cracks should be injected with epoxy for an estimated cost of $5,000.

15.2 Concrete Walls

The outer end of the dock is partially enclosed by concrete walls.

1. Condition

The concrete walls appeared to be in fair to poor condition.

Light to medium scaling was observed throughout the concrete dock.

Wide cracks were observed at a few locations.

Severe spalling was observed at several locations.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the concrete dock.

3. Deficiencies

Scaling and spalling will allow water to remain on the concrete surface, furthering deterioration.

Wide cracks will allow the ingress of water, furthering deterioration.

4. Effective Life Remaining

The remaining effective life of the concrete dock with little maintenance could be approximately 20+ years.

5. Recommendations

Since the concrete walls continue to perform as intended (as a wave break), and the existing deterioration does not pose an immediate risk to users or to the overall lifespan of the structure, no remedial action is recommended at this time.

For the long term expenditures, an estimated cost of $10,000 should be allowed for repairs to the walls in the 11th year.

15.3 Steel Hoist

There is a steel hoist at the end of the dock.

1. Condition

The hoist appeared to be in good condition.

2. Recent Repairs/Modifications

The hoist appeared to have been painted recently.

3. Deficiencies

No deficiencies were observed at the steel hoist.

4. Effective Life Remaining

The steel hoist should continue to remain effective through the expected service life of the dock. The effective life remaining is approximately 20+ years.

5. Recommendations

For the long term expenditures, an estimated cost of $2,000 should be allowed for preparation and painting in the 11th year.

The hoist should be load rated.

16 Log Retaining Wall

There is an existing retaining wall constructed of horizontal logs located just south of the Duplex Dwelling. The wall was constructed in the 1990's, and replaced the original masonry wall that had failed. The wall is approximately 60 ft. long x 3 ft. high.

1. Condition

The retaining wall appeared to be in fair to poor condition.

The logs were observed to contain medium to severe rot.

2. Recent Repairs/Modifications

It appeared that new logs were installed vertically at the west end of the wall to provide additional stability.

3. Deficiencies

The logs will continue to rot over time.

4. Effective Life Remaining

The log retaining wall has reached its design life.

5. Recommendations

A more permanent retaining wall should be constructed, A concrete retaining wall solution should be provided at an estimated cost of $20,000.

17 Sidewalks

There are two concrete sidewalks at the site. One sidewalk leads from the Lighthouse Dock to the Main Dwelling and Old Fog Alarm/Generator Building. The second sidewalks leads from the first sidewalk to the Duplex Dwelling.

1. Condition

The sidewalks appeared to be in good condition.

The sidewalk is cracked and broken at one location.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the sidewalks

3. Deficiencies

The cracked and broken sidewalk panel will not affect its performance.

4. Effective Life Remaining

The remaining effective life of the concrete sidewalks with little maintenance could be approximately 20+ years.

5. Recommendations

The broken sidewalk panel should be replaced at an estimated construction cost of $2000.

18 Old Dwelling

The Old Dwelling was constructed circa 1894 and is located on the northern shore of Sunday Point on Sunday Harbour. The building is two storeys with a basement and an attic. The building is approximately 1,000 sq. ft. (not including the basement) and consists of five bedrooms, one bathroom, one kitchen, one living room, and a storage area.

18.1 Foundation

The foundation for the Old Dwelling consists of stone and mortar foundation walls.

1. Condition

The foundation appeared to be in fair physical and functional condition.

The mortar joints appeared to have failed a few locations.

A stone was missing in the foundation wall at one location.

A large void in the west wall was covered over by timber.

2. Recent Repairs/Modifications

It appeared that concrete had been used in the past to repair voids in the wall.

3. Deficiencies

Failed mortar joints and voids within the wall will allow the ingress of water and contribute to further deterioration of the foundation.

4. Effective Life Remaining

The remaining effective life of the foundation with proper maintenance is approximately 20+ years.

5. Recommendations

The failed mortar joints should be repaired with a cementitious repair mortar for an estimated cost of $2,000.

The voids in the foundation wall should be repaired with concrete for an estimated cost of $5,000.

For the long term expenditures, an estimated cost of $10,000 should be allowed for minor repairs in the 16th year.

18.2 Exterior Walls

The exterior walls consist of wood shingle siding veneer. The construction of the walls was not confirmed.

1. Condition

In general, the exterior walls are in good condition.

2. Recent Repairs/Modifications

It appeared the exterior walls had been painted sometime in the last few years.

3. Deficiencies

No deficiencies were observed at the exterior walls.

4. Effective Life Remaining

With normal maintenance, the exterior walls should continue to perform over the remaining life of the buildings. The effective life remaining is approximately 20+ years.

5. Recommendations

For the long term expenditures an estimated cost of $5,000 should be allowed for prep & paint of the siding in the 11^{th} year.

18.3 Exterior Doors

There is one exterior door on the west side of the building. It is a wood door with a large window mounted in a wood frame and a wood sill. There is also a storm door at the west entrance.

There is an exterior door on the south side of the building that has been closed off with plywood.

1. Condition

Both doors appeared to be in good condition.

Sealant was missing at both doors.

2. Recent Repairs/Modifications

The existing doors appear original to the building.

The door appeared to have been painted sometime in the last 10 years.

3. Deficiencies

Missing sealants allow the ingress of water.

4. Effective Life Remaining

The doors should continue to perform for the remaining life of the structure. The effective life remaining is approximately 10-15 years.

5. Recommendations

Sealant should be provided at the doors for an estimated cost of $500.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11th year.

18.4 Windows

There are 11 wooden frame, hung windows and two wooden frame, fixed (decorative) windows at the exterior walls.

1. Condition

In general, the windows are in fair condition.

The sealants at all windows have failed.

2. Recent Repairs/Modifications

The existing windows appear original to the building.

It appeared the window frames at the exterior walls had been painted in the last 10 years.

3. Deficiencies

Failed window sealants will allow the ingress of water, leading to mould problems or rot.

4. Effective Life Remaining

Since the structure is unoccupied during the winter months, replacement of the windows to achieve improved heat retention is unnecessary. Therefore, with proper maintenance, the existing windows may last the remainder of the expected life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

New caulking should be provided at all windows for an estimated cost of $500.

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 11^{th} year.

18.5 Roofing

The roof of the Old Dwelling is cross-gabled and clad in asphalt shingles.

1. Condition

The asphalt shingles appeared to be in poor condition.

Fishmouthing and curling of the asphalt shingles was observed in numerous locations. Moss growth was observed in a few locations.

There were no eavestroughs or downspouts.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the roofing.

3. Deficiencies

Fishmouthing and curling of the asphalt shingles allows the ingress of water into the building.

4. Effective Life Remaining

The existing asphalt shingles have reached their effective life.

5. Recommendations

The asphalt single roofing should be removed and replaced with preformed metal roofing, similar to the other buildings at the site, for an estimated cost of approximately $50,000.

New eavestroughs and downspouts should be provided for an estimated cost of $5,000.

18.6 Floors

The flooring within the Old Dwelling includes vinyl tiling and hardwood at the main floor, and sawn timber at the upper floor.

1. Condition

In general, the flooring appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the flooring.

3. Deficiencies

There were no deficiencies observed at the flooring.

4. Effective Life Remaining

With proper maintenance, the existing flooring should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

18.7 Ceilings and Walls

The existing ceilings and walls consist of drywall at the main floor and wood panelling at the upper floor.

1. Condition

The ceilings and walls generally appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the ceilings or walls.

3. Deficiencies

There were no deficiencies observed at the ceilings and walls.

4. Effective Life Remaining

With proper maintenance, the existing ceilings and walls should continue to perform adequately for the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

There are no recommendations at this time.

18.8 Stairs

There is one wooden staircase inside the building between the main floor and the upper floor.

A set of exterior wooden stairs exist at the west entrance.

1. Condition

Both sets of stairs appear to be in good condition.

The paint is peeling at the interior staircase. There is no handrail.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the interior set of stairs.

The exterior stairs appear newly constructed.

3. Deficiencies

Peeling paint leaves wood unprotected which will accelerate deterioration.

4. Effective Life Remaining

With proper maintenance, the staircases should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

The interior staircase should be prepared and painted for an estimated cost of $500.

A handrail should be provided at the interior staircase for an estimated cost of $500.

18.9 Chimney

There is one existing brick chimney.

1. Condition

The chimney appeared to be in fair condition.

A few of the mortar joints appeared cracked.

The flashing around the chimney is in poor condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the chimney.

3. Deficiencies

The cracks in the mortar joints and deteriorated flashing will allow the ingress of water.

4. Effective Life Remaining

With proper maintenance, the chimney should be effective through the remaining life of the structure. The effective life remaining is approximately 10+ years.

5. Recommendations

The cracked mortar joints should be retooled for an estimated cost of $5,000.

The flashing at the chimney should be replaced in combination with the roof replacement, for an estimated cost of $2,500.

18.10 Fixed Furnishings

The fixed furnishings include a laminate counter, wood cupboards, a toilet, a bathtub, and a vanity.

1. Condition

The furnishing generally appeared to be in good condition.

2. Recent Repairs/Modifications

It did not appear any repairs or modifications had been done to the fixed furnishings.

3. Deficiencies

There were no deficiencies observed.

4. Effective Life Remaining

With proper maintenance, the fixed furnishings should be effective through the remaining life of the structure. The effective life remaining is approximately 20+ years.

5. Recommendations

For the long term expenditures, an estimated cost of $1,000 should be allowed for minor repairs in the 6th year.

19 Winch Pad

The Winch Pad is located on the northern shore of Sunday Point on Sunday Harbour, just north of the Old Dwelling. It is unknown when the pad was constructed. The pad is approximately 4 ft. x 10 ft. x 6 in. thick and contains one concrete cradle and one steel winch.

19.1 Concrete Slab

The Winch Pad consists of a six inch thick, reinforced, cast-in-place concrete pad.

1. **Condition**

   The concrete slab appeared to be in fair condition.

   Light to medium scaling was observed at the concrete slab.

   Vegetative growth was observed at the concrete slab.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the foundation.

3. **Deficiencies**

   Scaling will allow water to remain on the concrete surface, furthering deterioration.

4. **Effective Life Remaining**

   The remaining effective life of the foundation with little maintenance could be approximately 20+ years.

5. **Recommendations**

   Since the pad is abandoned, there are no recommendations at this time.

19.2 Concrete Cradle

The pad contains one concrete cradle that was once used for an oil tank.

1. **Condition**

   The concrete cradles appeared to be in fair condition.

   Light to medium scaling was observed at the cradles.

Vegetative growth was observed at the concrete cradle.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Scaling will allow water to site on the concrete surface, furthering deterioration.

4. Effective Life Remaining

The remaining effective life of the concrete cradles with little maintenance could be approximately 20+ years.

5. Recommendations

Since the pad is abandoned, there are no recommendations at this time.

19.3 Steel Winch

The pad contains one steel winch that is used for bring boats onto the beach.

1. Condition

The steel winch appeared to be in fair condition.

Light corrosion was observed throughout the winch.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the foundation.

3. Deficiencies

Without a protection system, the steel will continue to corrode.

4. Effective Life Remaining

The remaining effective life of the winch with little maintenance could be approximately 20+ years.

5. Recommendations

The steel winch should be prepared and painted for an estimated cost of $2,000.

20 Sunday Harbour Dock

The Sunday Harbour Dock is located on the northern shore of Sunday Point on Sunday Harbour. It was constructed in 1981. The concrete dock extends approximately 60 ft. from the shore. The outer end of the dock contains a concrete wall, a set of concrete stairs, and a steel hoist.

20.1 Concrete Deck

The width of the concrete deck varies along it length, and consists of reinforced, cast-in-place concrete.

1. **Condition**

   The concrete deck appeared to be in good condition.

   A few narrow cracks with efflorescence were observed.

2. **Recent Repairs/Modifications**

   It did not appear any recent repairs or modifications had been made to the concrete deck.

3. **Deficiencies**

   Narrow cracks will allow the penetration of water.

4. **Effective Life Remaining**

   The remaining effective life of the concrete deck with little maintenance could be approximately 30+ years.

5. **Recommendations**

   There are no recommendations at this time.

20.2 Concrete Wall

The outer end of the dock is enclosed by a concrete wall.

1. **Condition**

   The concrete wall appeared to be in good condition.

   Vegetative growth was observed.

2. Recent Repairs/Modifications

It did not appear any recent repairs or modifications had been made to the concrete wall.

3. Deficiencies

There were no deficiencies observed.

4. Effective Life Remaining

The remaining effective life of the concrete wall with little maintenance could be approximately 30+ years.

5. Recommendations

There are no recommendations at this time.

20.3 Steel Hoist

There is a steel hoist at the end of the dock.

1. Condition

The hoist appeared to be in good condition.

Paint peeling was observed.

2. Recent Repairs/Modifications

There did not appear to be any repairs or modifications made to the steel hoist.

3. Deficiencies

The paint will continue to peel eventually leading to corrosion of the steel.

4. Effective Life Remaining

The steel hoist should continue to remain effective through the expected service life of the dock. The effective life remaining is approximately 30+ years.

5. Recommendations

The steel hoist should be prepared and painted for an estimated cost of $2,000.

The hoist should be load rated.

Slate Island Coast Guard Site

<u>Summary of Recommended Expenditures</u>

Level II Building Condition Report

Sep-16

Structural and Architectural

Report Section No.	Systems Description	Type of Expendi-tures	Short Term Expenditures					Long Term Expenditures				Priority of Work	Project Priority System
			Year					Years					
			1	2	3	4	5	6-10	11-15	16-20	21-25		
1	**Lighthouse**												
1.1	Foundation	RM					$2,000		$20,000			Opt.	C3
1.2	Superstructure	RM							$2,000		$2,000	Opt.	D1
1.3	Exterior Walls	RM		$20,000							$20,000	Cycl.	D2
1.4	Exterior Doors	RM	$5,000						$1,000			Man.	C1
1.5	Windows	RM	$2,500	$1,000					$1,000			Man.	C3
1.6	Steel Lantern	RM					$30,000				$30,000	Opt.	D2
1.7	Floors	RM			$2,000							Cycl.	C1
1.8	Ceilings and Walls	RM	$2,000						$1,000			Man.	B1
1.9	Stairs	RM		$1,500					$1,000			Cycl.	C1
		Lighthouse Period Totals	$9,500	$22,500	$2,000	$0	$32,000	$0	$26,000	$0	$52,000		
		Lighthouse Total Expenditures				Total Short Term Expenditures	$66,000			Total Long Term Expenditures	$78,000		
2	**Solar Building**												
2.1	Foundation												
2.2	Exterior Walls	RM						$1,000				Opt.	D1
		Solar Building Period Totals	$0	$0	$0	$0	$0	$1,000	$0	$0	$0		
		Solar Building Total Expenditures				Total Short Term Expenditures	$0			Total Long Term Expenditures	$1,000		
3	**Upper Helicopter Pad**												
3.1	Foundation												
3.2	Concrete Slab												
		Upper Helicopter Pad Period Totals	$0	$0	$0	$0	$0	$0	$0	$0	$0		
		Upper Helicopter Pad Total Expenditures				Total Short Term Expenditures	$0			Total Long Term Expenditures	$0		
4	**Main Dwelling**												
4.1	Foundation	RM			$15,000					$10,000		Cycl.	C3
4.2	Superstructure	RM							$2,000		$2,000	Opt.	D1
4.3	Exterior Walls	RM					$5,500		$5,000			Cycl.	D2
4.4	Exterior Doors	RM	$4,000						$1,000			Man.	C3
4.5	Windows	RM	$500			$500			$1,000			Man.	C3
4.6	Roofing	CC						$1,000			$30,000	Opt.	D1
4.7	Floors	RM		$1,000								Cycl.	D2
4.8	Ceilings and Walls	RM		$1,000			$500					Cycl.	D2
4.9	Stairs	RM					$500					Opt.	D2
4.10	Chimney	RM											

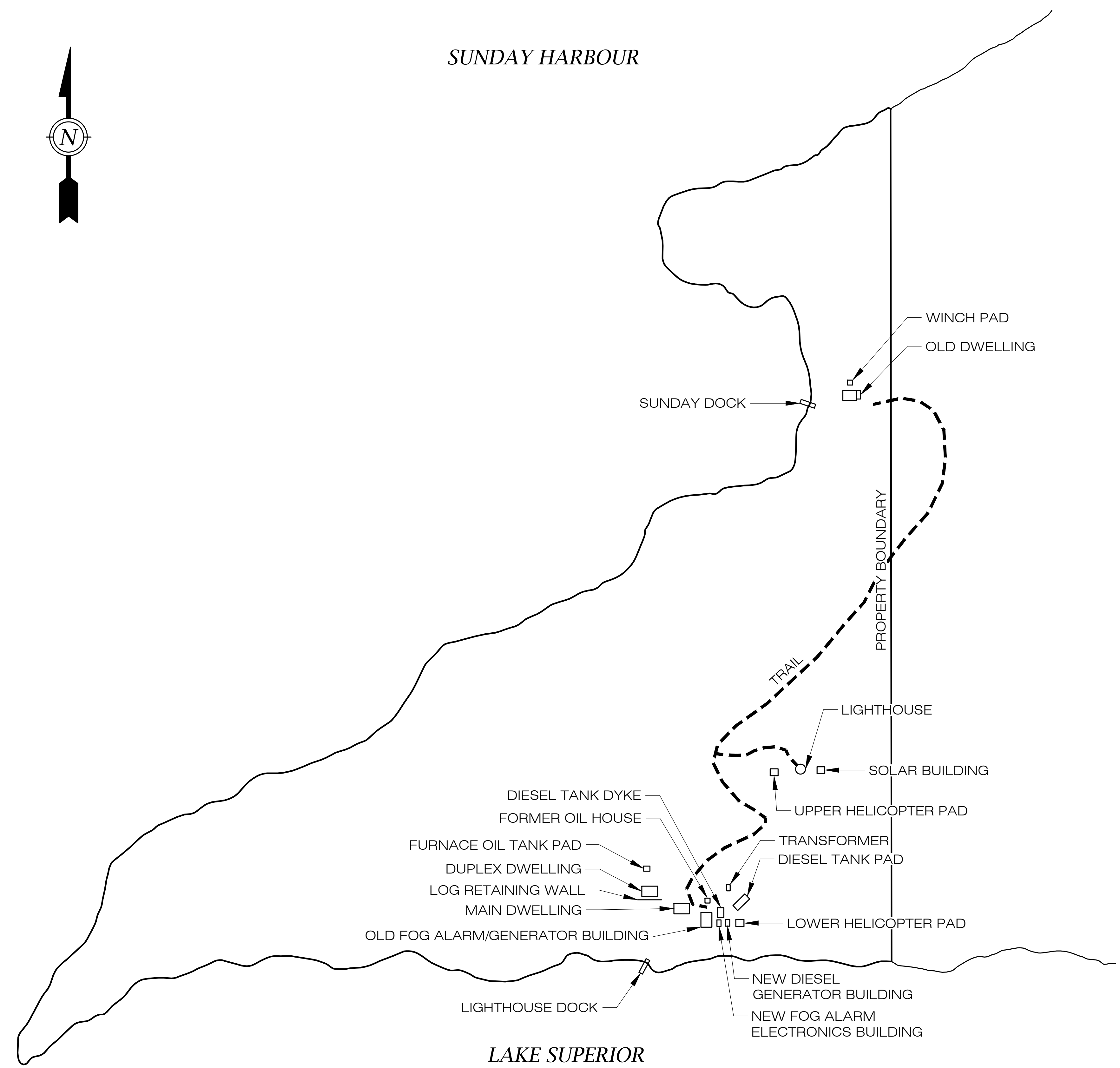
4.11	Fixed Furnishings	RM						$1,000				Opt.	D2
Main Dwelling Period Totals			$4,500	$2,000	$15,000	$500	$6,500	$2,000	$9,000	$10,000	$32,000		
Main Dwelling Total Expenditures			Total Short Term Expenditures				$28,500	Total Long Term Expenditures			$53,000		
5	**Duplex Dwelling**												
5.1	Foundation	RM			$10,000					$10,000		Cycl.	C3
5.2	Superstructure	RM							$2,000		$2,000	Opt.	D1
5.3	Exterior Walls	RM						$5,000				Opt.	D2
5.4	Exterior Doors	CC						$8,000				Opt.	D2
5.5	Windows	RM	$500			$500			$1,000			Man.	C3
5.6	Roofing	CC						$1,000			$50,000	Opt.	D1
5.7	Floors	RM											
5.8	Ceilings and Walls	RM											
5.9	Stairs	RM				$500						Cycl.	D2
5.10	Chimney	RM	$5,000									Man.	C3
5.11	Fixed Furnishings	RM						$1,000				Opt.	
Duplex Dwelling Period Totals			$5,500	$0	$10,000	$1,000	$0	$15,000	$3,000	$10,000	$52,000		
Duplex Dwelling Total Expenditures			Total Short Term Expenditures				$16,500	Total Long Term Expenditures			$80,000		
6	**Old Fog Alarm/Generator Building**												
6.1	Foundation	RM			$5,000					$10,000		Cycl.	D1
6.2	Superstructure	RM							$2,000		$2,000	Opt.	D1
6.3	Exterior Walls	RM							$5,000			Opt.	D2
6.4	Exterior Doors	CC		$2,000					$1,000			Opt.	D2
6.5	Windows	RM	$500			$500			$1,000			Man.	C3
6.6	Roofing	CC	$55,000									Man.	C3
6.7	Floors	RM											
6.8	Ceilings and Walls	RM		$5,000								Cycl.	D2
6.9	Stairs	RM	$1,500									Man.	C1
6.10	Chimney	RM	$10,000									Man.	C3
6.11	Fixed Items												
Old Fog Alarm/Generator Building Period Totals			$67,000	$7,000	$5,000	$500	$0	$0	$9,000	$10,000	$2,000		
Old Fog Alarm/Generator Building Total Expenditures			Total Short Term Expenditures				$79,500	Total Long Term Expenditures			$21,000		
7	**New Fog Alarm/Electronics Building**												
7.1	Foundation	RM								$2,000		Opt.	D1
7.2	Exterior Walls	RM	$500			$500			$1,000			Man.	C3
7.3	Exterior Doors	RM	$1,000			$1,000			$1,000			Man.	D1
7.4	Roofing	RM	$1,000						$1,000			Man.	C3
7.5	Ceilings and Walls	RM	$500									Man.	D1
7.6	Fixed Items												
New Fog Alarm/Electronics Building Period Totals			$3,000	$0	$0	$1,500	$0	$0	$3,000	$2,000	$0		
New Fog Alarm/Electronics Building Total Expenditures			Total Short Term Expenditures				$4,500	Total Long Term Expenditures			$5,000		
8	**New Diesel Generator Building**												
8.1	Foundation	RM	$1,000							$2,000		Man.	D1

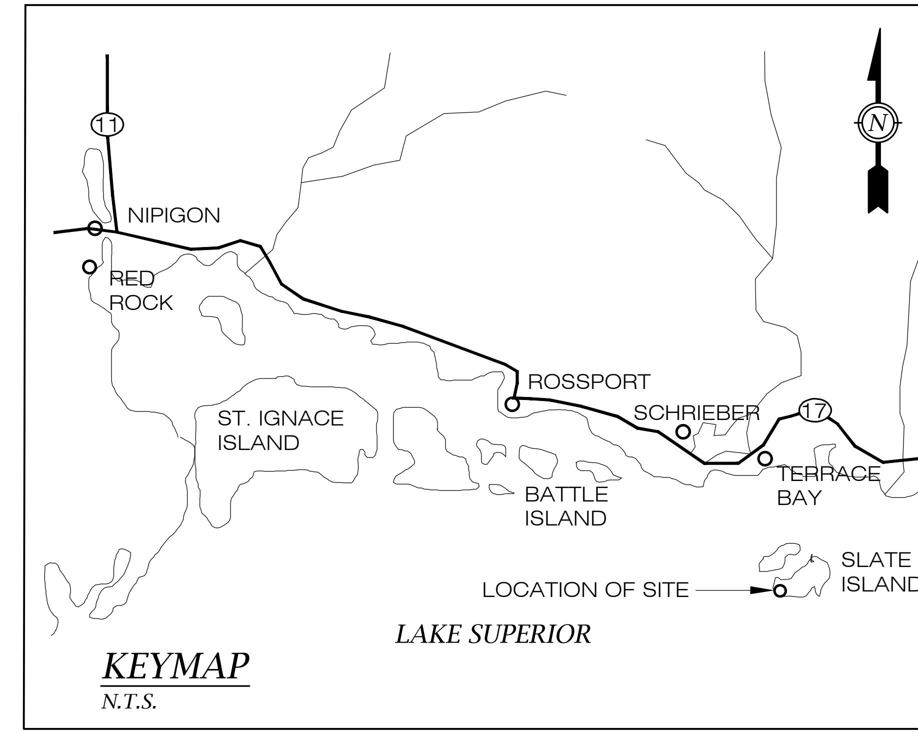
8.2	Exterior Walls	RM	$1,000						$1,000			Man.	C3
8.3	Exterior Doors	RM	$1,000			$1,000			$1,000			Man.	D1
8.4	Roofing	RM	$1,000						$1,000			Man.	C3
8.5	Ceilings and Walls	RM	$500									Man.	D1
8.6	Fixed Items												
New Diesel Generator Building Period Totals			$4,500	$0	$0	$1,000	$0	$0	$3,000	$2,000	$0		
New Diesel Generator Building Total Expenditures			Total Short Term Expenditures				$5,500	Total Long Term Expenditures			$5,000		
9	**Former Oil House**												
9.1	Superstructure	RM							$2,000		$2,000	Opt.	D1
9.2	Exterior Walls	RM				$1,000			$1,000			Cycl.	D2
9.3	Exterior Doors	RM				$1,000			$2,000			Cycl.	D2
9.4	Roofing	CC						$1,000			$10,000	Opt.	D1
Former Oil House Period Totals			$0	$0	$0	$2,000	$0	$1,000	$5,000	$0	$12,000		
Former Oil House Total Expenditures			Total Short Term Expenditures				$2,000	Total Long Term Expenditures			$18,000		
10	**Furnace Oil Tank Pad**												
10.1	Concrete Slab												
10.2	Concrete Cradles												
Furnace Oil Tank Pad Period Totals			$0	$0	$0	$0	$0	$0	$0	$0	$0		
Furnace Oil Tank Pad Total Expenditures			Total Short Term Expenditures				$0	Total Long Term Expenditures			$0		
11	**Diesel Tank Pad**												
11.1	Concrete Slab												
11.2	Concrete Cradles												
Diesel Tank Pad Period Totals			$0	$0	$0	$0	$0	$0	$0	$0	$0		
Diesel Tank Pad Total Expenditures			Total Short Term Expenditures				$0	Total Long Term Expenditures			$0		
12	**Diesel Tank Dyke**												
12.1	Concrete Walls												
12.2	Concrete Slab												
Diesel Tank Dyke Period Totals			$0	$0	$0	$0	$0	$0	$0	$0	$0		
Diesel Tank Dyke Total Expenditures			Total Short Term Expenditures				$0	Total Long Term Expenditures			$0		
13	**Transformer**												
13.1	Concrete Slab												
13.2	Steel Box	RM		$5,000					$2,000			Cycl.	D1
Transformer Period Totals			$0	$5,000	$0	$0	$0	$0	$2,000	$0	$0		
Transformer Total Expenditures			Total Short Term Expenditures				$5,000	Total Long Term Expenditures			$2,000		
14	**Lower Helicopter Pad**												
14.1	Concrete Slab												
Lower Helicopter Pad Period Totals			$0	$0	$0	$0	$0	$0	$0	$0	$0		
Lower Helicopter Pad Total Expenditures			Total Short Term Expenditures				$0	Total Long Term Expenditures			$0		
15	**Lighthouse Dock**												
15.1	Concrete Deck	RM		$5,000								Cycl.	C3
15.2	Concrete Walls	RM							$10,000			Opt.	C3
15.3	Steel Hoist	RM							$2,000			Opt.	D1

Lighthouse Dock Period Totals			$0	$5,000	$0	$0	$0	$0	$12,000	$0	$0		
Lighthouse Dock Total Expenditures			Total Short Term Expenditures				$5,000	Total Long Term Expenditures			$12,000		
16	**Log Retaining Wall**	CC	$20,000									Man.	C1
Log Retaining Wall Period Totals			$20,000	$0	$0	$0	$0	$0	$0	$0	$0		
Log Retaining Wall Total Expenditures			Total Short Term Expenditures				$20,000	Total Long Term Expenditures			$0		
17	**Sidewalks**	RM	$2,000										
Sidewalks Period Totals			$2,000	$0	$0	$0	$0	$0	$0	$0	$0		
Sidewalks Total Expenditures			Total Short Term Expenditures				$2,000	Total Long Term Expenditures			$0		
18	**Old Dwelling**												
18.1	Foundation	RM	$7,000							$10,000		Man.	C3
18.2	Exterior Walls	RM							$5,000			Opt.	D2
18.3	Exterior Doors	RM	$500						$1,000			Man.	D2
18.4	Windows	RM	$500						$1,000			Man.	C3
18.5	Roofing	CC	$55,000									Man.	C3
18.6	Floors												
18.7	Ceilings and Walls												
18.8	Stairs	RM	$500			$500						Man.	D2
18.9	Chimney	RM	$7,500									Man.	C3
18.10	Fixed Furnishings	RM						$1,000				Opt.	D1
Old Dwelling Period Totals			$71,000	$0	$0	$500	$0	$1,000	$7,000	$10,000	$0		
Old Dwelling Expenditures			Total Short Term Expenditures				$71,500	Total Long Term Expenditures			$18,000		
19	**Winch Pad**												
19.1	Concrete Slab												
19.2	Concrete Cradle												
19.3	Steel Winch	RM				$2,000						Cycl.	D1
Winch Pad Period Totals			$0	$0	$0	$2,000	$0	$0	$0	$0	$0		
Winch Pad Total Expenditures			Total Short Term Expenditures				$2,000	Total Long Term Expenditures			$0		
20	**Sunday Harbour Dock**												
20.1	Concrete Deck												
20.2	Concrete Wall												
20.3	Steel Hoist					$2,000							
Sunday Harbour Dock Period Totals			$0	$0	$0	$2,000	$0	$0	$0	$0	$0		
Sunday Harbour Dock Total Expenditures			Total Short Term Expenditures				$2,000	Total Long Term Expenditures			$0		
Period Totals			$187,000	$41,500	$32,000	$11,000	$38,500	$20,000	$79,000	$44,000	$150,000		
			Total Short Term Ependitures				$310,000	Total Long Term Expenditures			$293,000		

APPENDIX A

Site Plan





KEYMAP
N.T.S.

APPROXIMATE SCALE

No.	Date	Description
A	9/14/16	ISSUED FOR REPORT

Revisions

JML Engineering
105 Villa Street, 2nd Floor
Thunder Bay, ON P7A 7W5
Phone: 807.345.1131
Fax: 807.345.1229
Email: info@jmleng.com

Project
DST CONSULTING ENGINEERS INC.

STRUCTURAL CONDITION EVALUATION
SLATE ISLAND COAST GUARD SITE

Drawing
SITE PLAN

Designer	ME	Date	09/2016
Drafter	BA	Plot Scale	1:1270
Checked	-	Ref. No.	2016070
Cad File No.	2016070 .dwg		
Drawing No.	SK-1	Rev.	A

APPENDIX B

Photographs

Lighthouse

Photo 1: View of Lighthouse looking east.

Photo 2: Severe spalling and vegetative growth at foundation.


Photo 3: Wide crack at foundation.


Photo 4: Lighthouse floor and wall construction.


Photo 5: Cracked and peeling paint at exterior siding.


Photo 6: Exterior door.

Photo 7: Entrance to Lighthouse.

Photo 8: Peeling paint and missing sealants at Lighthouse wall window.


Photo 9: Cracked window at lantern.


Photo 10: Peeling paint and light corrosion at lantern.


Photo 11: Peeling paint and light corrosion at lantern.


Photo 12: Peeling paint and light corrosion at lantern.

Photo 13: Peeling paint and light corrosion at lantern.

Photo 14: Water damage and medium rot at wood flooring.

Photo 15: Mold, mildew, and water damage at wood ceiling.

Photo 16: Mold and mildew at wood walls.

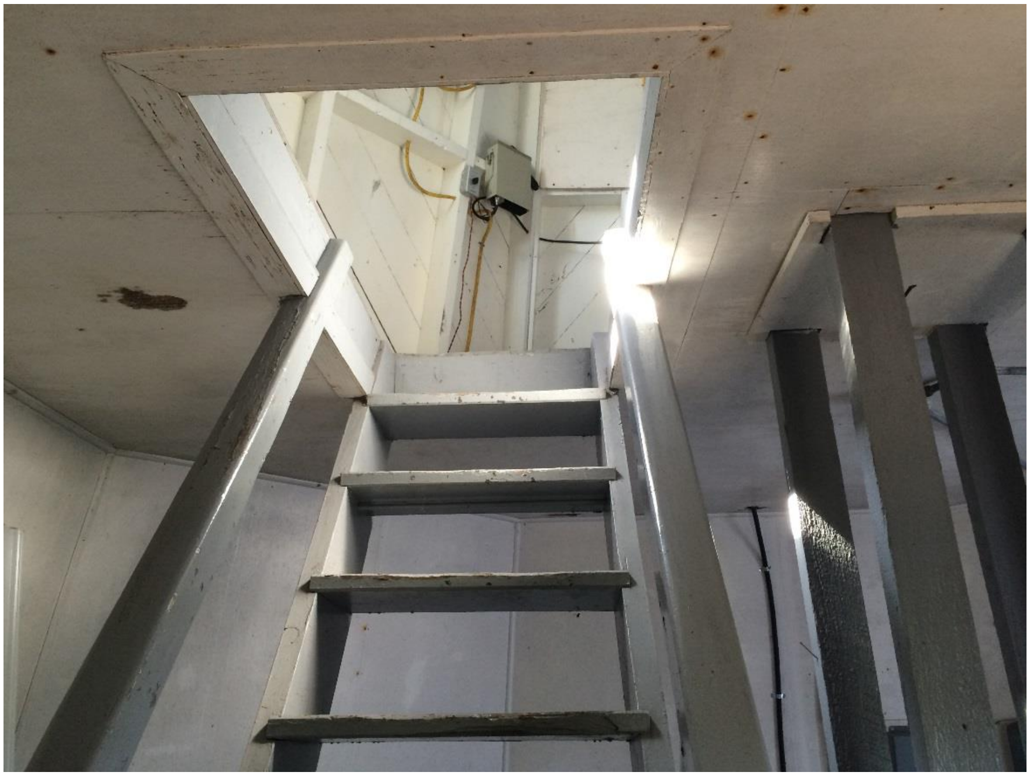


Photo 17: Peeling paint at stair and handrail.

Photo 18: Severe rot at stair bearing timber.

Photo 19: Out of level stair without handrail.

Photo 20: Gap below timber sill.

Solar Building


Photo 1: View of Solar Building looking southeast.


Photo 2: View of Solar Building looking north.

Photo 3: Solar Building foundation.

Upper Helicopter Pad

Photo 1: View of Upper Helicopter Pad looking northwest.

Photo 2: View of Upper Helicopter Pad looking east.

Photo 3: Vegetative growth below concrete slab.

Photo 4: Spall at west edge of slab.

Main Dwelling

Photo 1: View of Main Dwelling looking northwest.

Photo 2: View of Main Dwelling looking northeast.

Photo 3: View of Main Dwelling looking southeast.

Photo 4: View of Main Dwelling looking southwest.

Photo 5: Typical foundation crack at exterior.

Photo 6: Typical foundation crack at interior indicating leaks.

Photo 7: Leak at north foundation wall.

Photo 8: Typical main floor construction.

Photo 9: Typical roof construction.

Photo 10: Mildew at wood siding.

Photo 11: Cracks at wood siding.

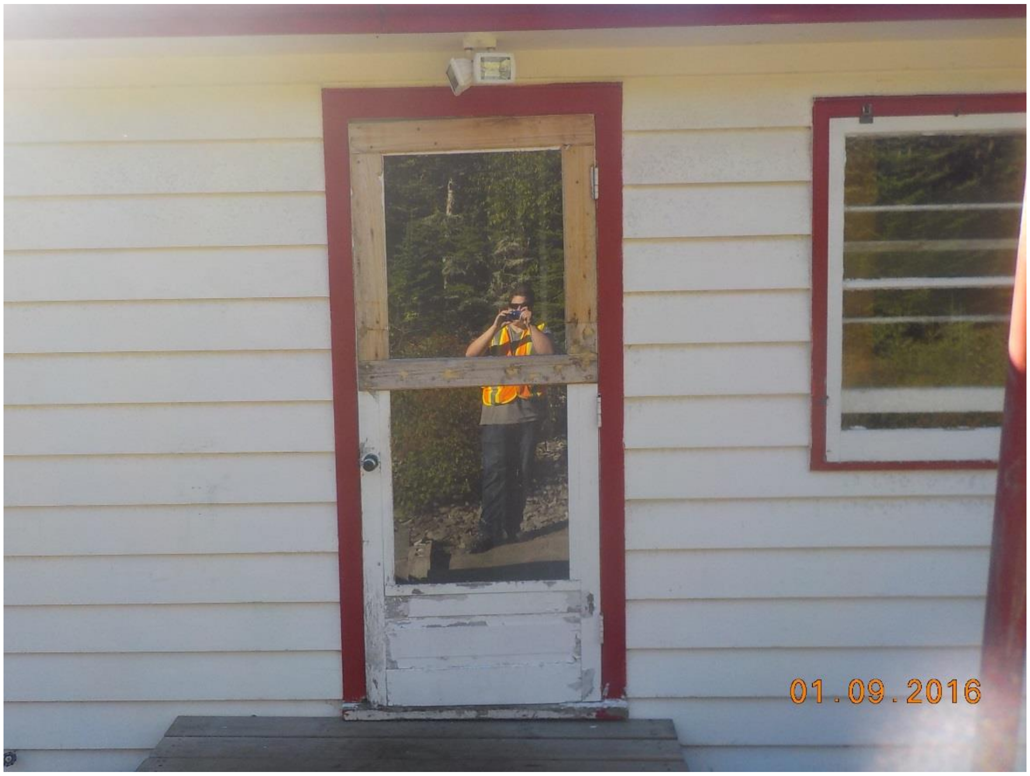


Photo 12: Northern door in poor condition.

Photo 13: Southern door closed off by plywood. Paint peeling at staircase.

Photo 14: Failed caulking at window.

Photo 15: Peeling paint and weathered window frame at foundation walls.

Photo 16: Preformed metal roofing over asphalt shingles.

Photo 17: Cracks in vinyl flooring in living room.

Photo 18: Vinyl flooring removed exposing water damaged subfloor at southern entrance.

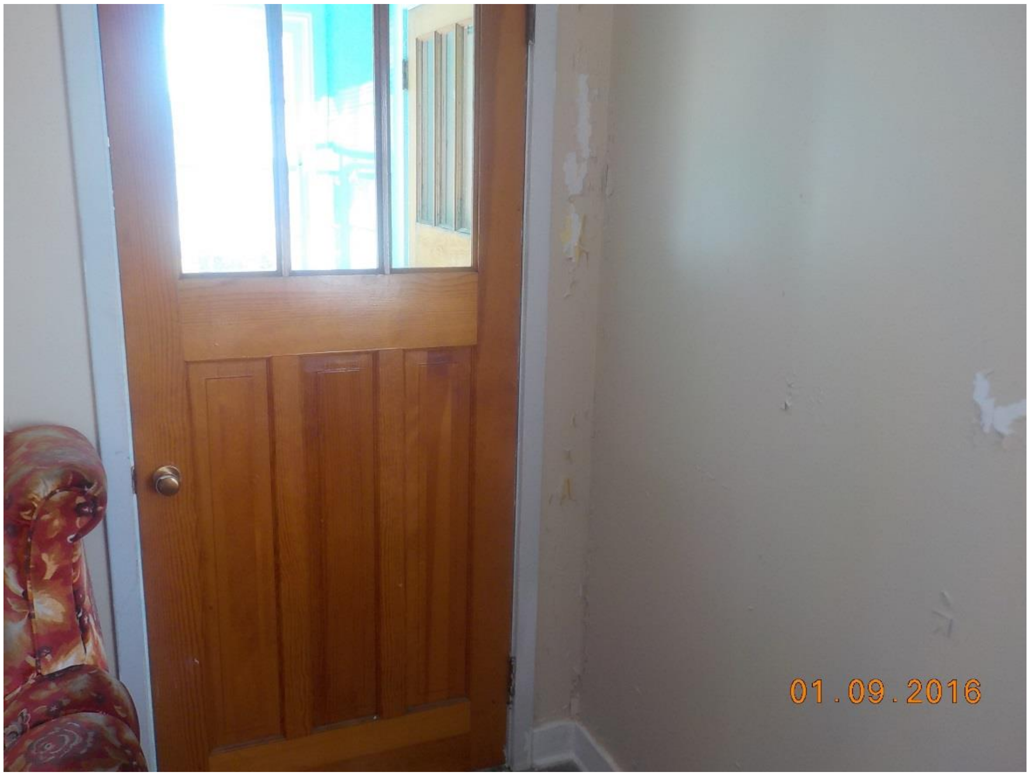


Photo 19: Paint peeling at interior wall at northern entrance.

Photo 20: Crack at ceiling at northern entrance.

Photo 21: Tub surround separating from wall within bathroom.

Photo 22: Staircase from basement to main floor.

Photo 23: Brick chimney within basement.

Photo 24: Counter and cupboards within kitchen.

Photo 25: Toilet, bathtub, and vanity within bathroom.

Photo 26: Failed sealant at bathtub within bathroom.

Duplex Dwelling

Photo 1: View of Duplex Dwelling looking northwest.

Photo 2: View of Duplex Dwelling looking southeast.

Photo 3: Typical step cracking at foundation wall.

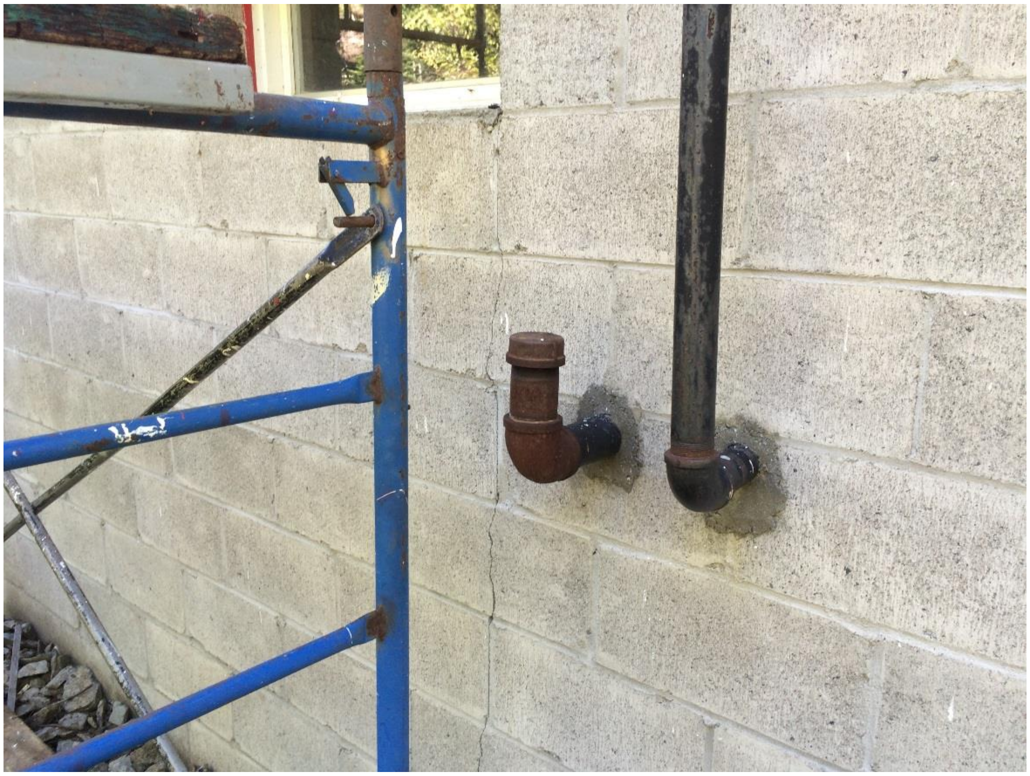


Photo 4: Typical splitting failure cracking at foundation wall.

Photo 5: Wide crack at concrete slab.

Photo 6: Typical second floor construction.

Photo 7: Typical weathering and paint peeling at siding.

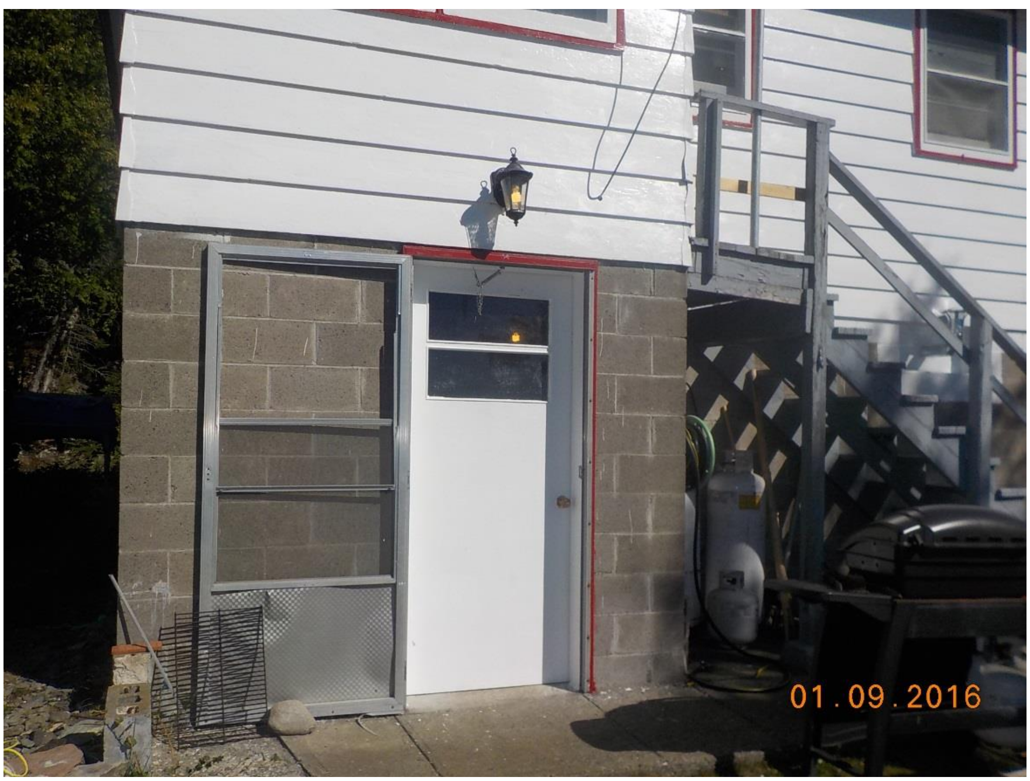


Photo 8: Typical exterior door.

Photo 9: Typical sealant failure and paint peeling at windows.

Photo 10: Typical flooring within living room.

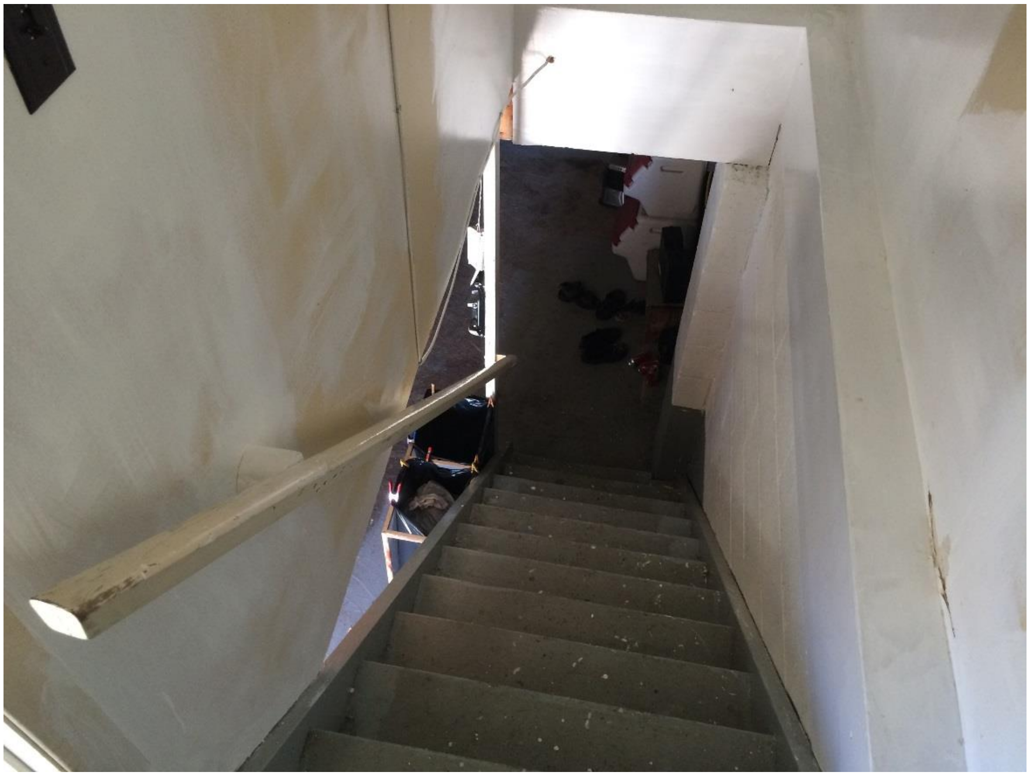


Photo 11: Typical interior stairway.

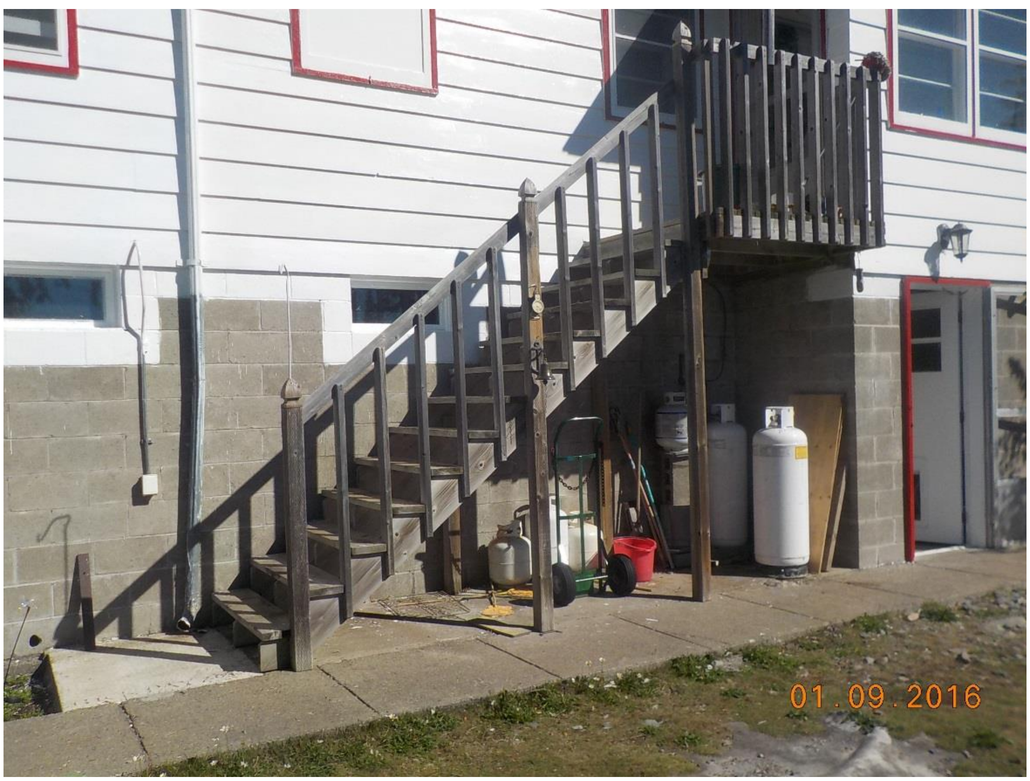


Photo 12: Southeast exterior stairway.

Photo 13: Southwest exterior stairway.

Photo 14: Typical kitchen.

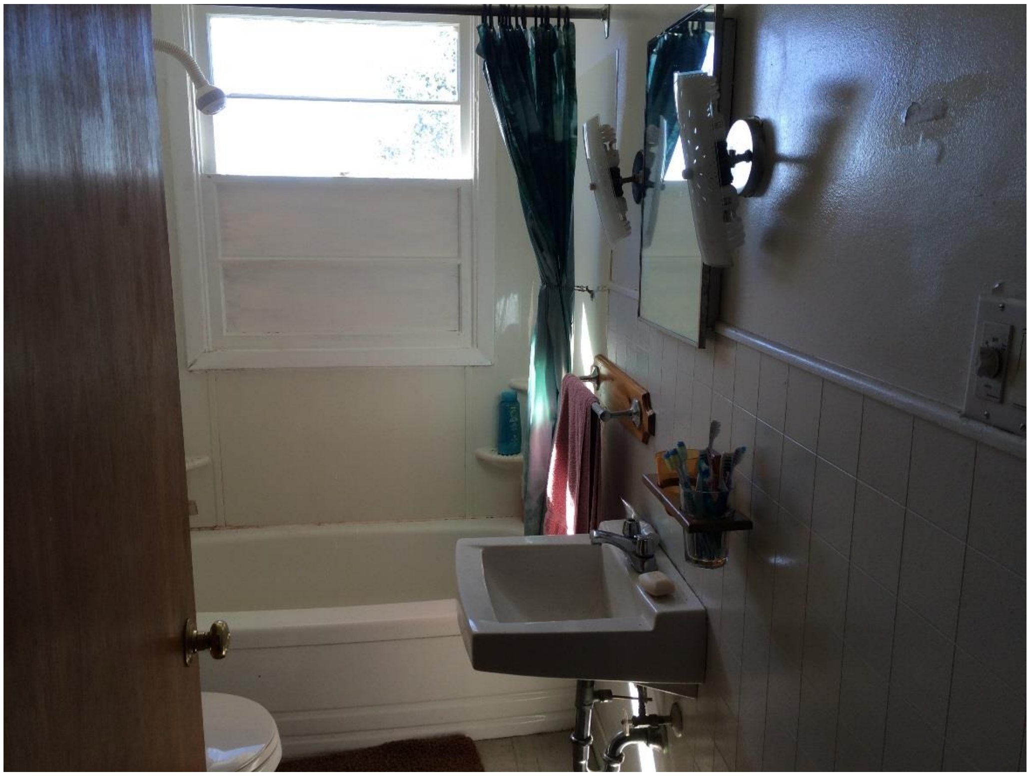


Photo 15: Typical bathroom. Failed sealant at bathtub.

Old Fog Alarm/Generator Building

Photo 1: View of Old Fog Alarm/Generator Building looking southwest.

Photo 2: View of Old Fog Alarm/Generator Building looking southeast.

Photo 3: View of Old Fog Alarm/Generator Building looking northeast.

Photo 4: Cracks at concrete slab.

Photo 5: Typical roof construction.

Photo 6: Weathering and peeling paint, ineffective weather stripping at east door.

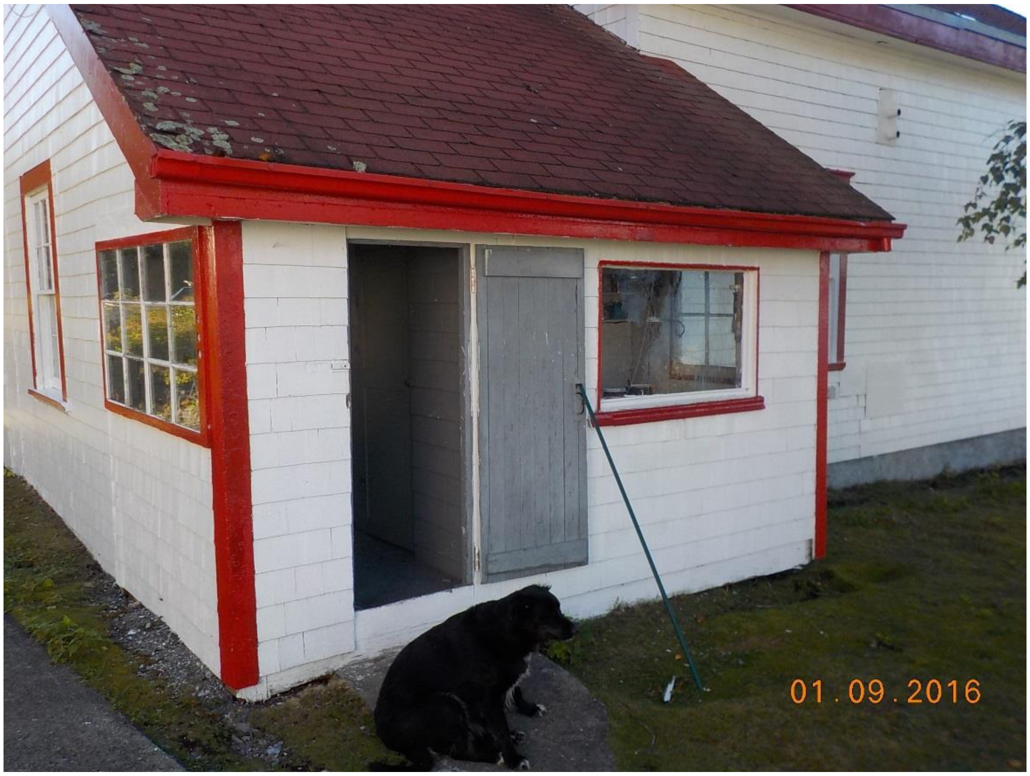


Photo 7: No weather stripping or sill at west door.

Photo 8: Typical wooden frame hung window.

Photo 9: Typical wooden frame fixed (decorative) window.

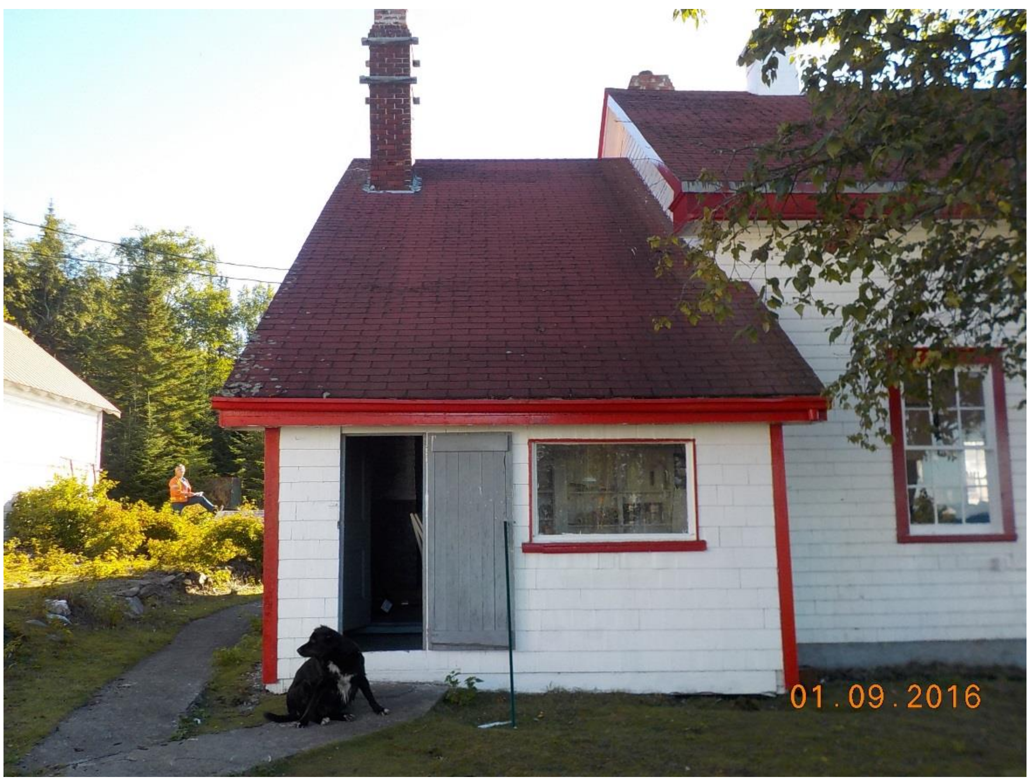


Photo 10: Tpical wooden frame fixed (picture) window.

Photo 11: Typical paint peeling and failed sealants at windows.

Photo 12: Typical fishmouthing, curling and moss growth at shingles.

Photo 13: Typical fishmouthing, curling and moss growth at shingles.

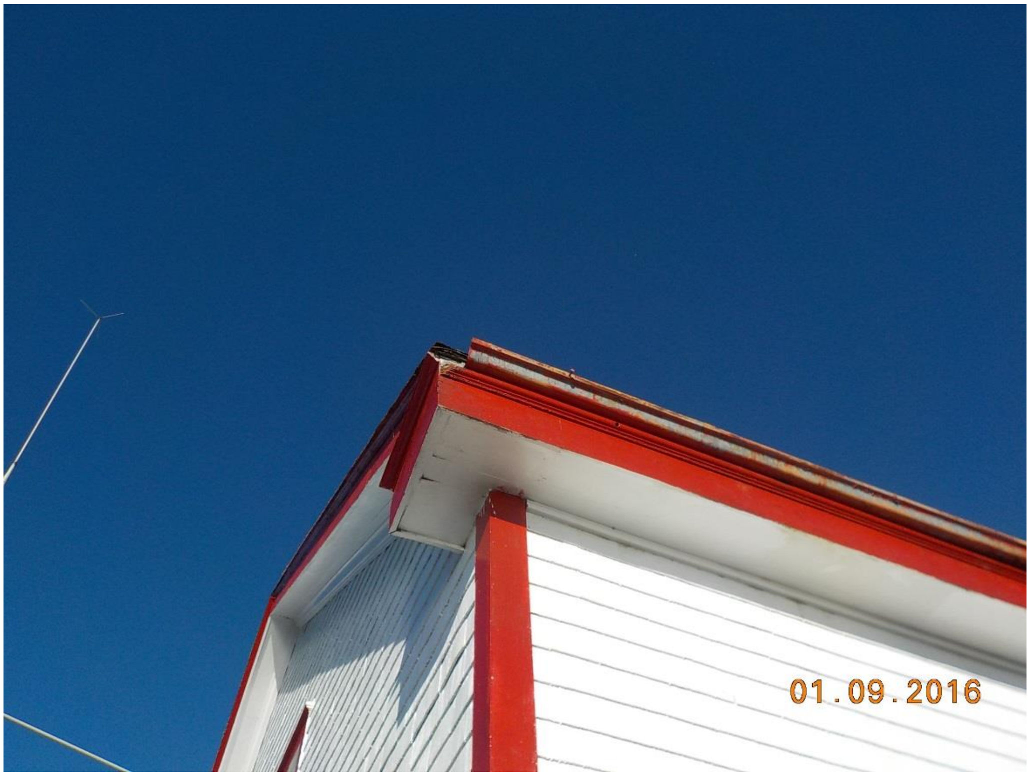


Photo 14: No downspout.

Photo 15: Hardwood flooring at second level.

Photo 16: Typical paint peeling and hole in ceiling.

Photo 17: Water damage at ceiling at second level.

Photo 18: Water damage at walls at second level.

Photo 19: Water damage at ceiling at second level.

Photo 20: Water damage around chimney at second level.

Photo 21: No handrail at stairs.

Photo 22: Nonstandard ladder.

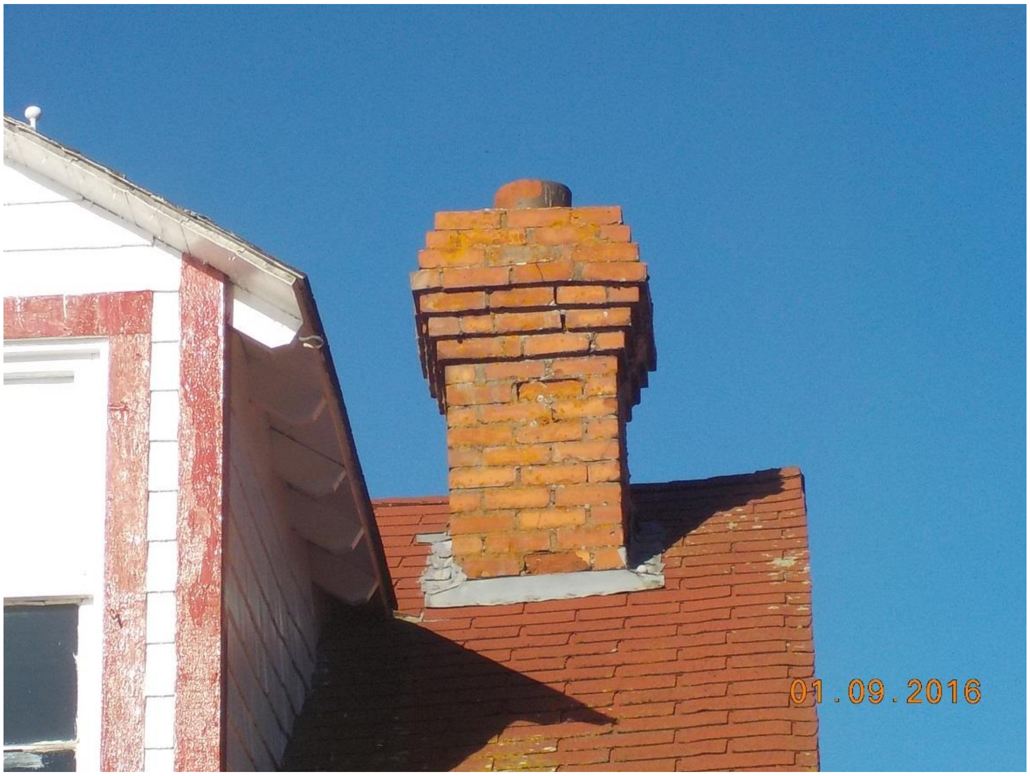


Photo 23: Voids at mortar joints and poor flashing at chimney.

Photo 24: Missing brick, broken brick, and poor flashing at chimney.

Photo 25: Three generators and control panel.

Photo 26: Steel boiler.

New Fog Alarm/Electronics Building

Photo 1: View of New Fog Alarm/Electronics Building looking southwest.

Photo 2: View of New Fog Alarm/Electronics Building looking southeast.

Photo 3: View of New Fog Alarm/Electronics Building looking north.

Photo 4: Missing sealant between wall and foundation. Light corrosion at fasteners.

Photo 5: Cracked sealant between wall and roof.

Photo 6: Cracked sealant, ineffective weather stripping, and peeling paint at door frame.

Photo 7: Failed closer strip below roof.

Photo 8: Cracked sealant at interior panels.

Photo 9: Electrical panel.

New Diesel Generator Building

Photo 1: View of New Diesel Generator Building looking southwest.

Photo 2: View of New Diesel Generator Building looking southeast.

Photo 3: View of New Diesel Generator Building looking north.

Photo 4: Cracks at foundation slab.

Photo 5: Wide crack at northwest corner of foundation slab. Missing sealant between wall and foundation.

Photo 6: Cracked sealant between wall and roof.

Photo 7: Cracks in siding (typical).

Photo 8: Cracked sealant at door frame.

Photo 9: Paint peeling and light corrosion at door.

Photo 10: Failed closer strip below roof.

Photo 11: Cracked sealant at interior.

Photo 12: Generator and control panels.

Former Oil House

Photo 1: View of Former Oil House looking northwest.

Photo 2: View of Former Oil House looking northeast.

Photo 3: Superstructure.

Photo 4: Paint peeling at exterior walls and door.

Photo 5: Preformed metal roofing over asphalt shingles.

Furnace Oil Tank Pad


Photo 1: View of Furnace Oil Tank Pad looking east.


Photo 2: Typical scaling and erosion at concrete slab.

Photo 3: Typical scaling and cracking at concrete cradles.

Diesel Tank Pad

Photo 1: View of Diesel Tank Pad looking north.

Photo 2: Typical scaling at concrete slab.

Photo 3: Vegetative growth.

Diesel Tank Dyke

Photo 1: View of Diesel Tank Dyke looking southeast.

Photo 2: View of Diesel Tank Dyke looking northeast.

Photo 3: Vegetative growth at concrete slab.

Transformer

Photo 1: View of Transformer looking north.

Photo 2: View of Transformer looking northeast.

Photo 3: Light corrosion and paint peeling at steel box. Medium scaling at concrete slab.

Lower Helicopter Pad

Photo 1: View of Lower Helicopter Pad looking southeast.

Photo 2: View of Lower Helicopter Pad looking west.

Photo 3: Light scaling and erosion.

Lighthouse Dock

Photo 1: View of Lighthouse Dock looking south.

Photo 2: View of steel hoist.

Photo 3: Typical wide cracks at concrete deck.

Photo 4: Spalling at concrete deck.

Photo 5: Severe spalling and wide cracks at concrete walls.

Photo 6: Light to medium scaling at concrete walls.

Log Retaining Wall

Photo 1: View of Log Retaining Wall looking northwest.

Photo 2: Medium to severe rot at logs.

Photo 3: View of vertical logs at west end.

Sidewalks

Photo 1: View of Sidewalk looking southwest toward the Lighthouse Dock.

Photo 2: View of Sidewalk looking northwest toward the Duplex Dwelling.

Photo 3: View of Sidewalk looking east toward the Main Dwelling.

Photo 4: Cracked and broken Sidewalk panel.

Old Dwelling

Photo 1: View of Old Dwelling looking southeast.

Photo 2: View of Old Dwelling looking southwest.

Photo 3: View of Old Dwelling looking northwest.

Photo 4: Typical stone and mortar foundation wall.

Photo 5: Cracked and failed mortar at foundation wall.

Photo 6: Missing stone at foundation wall.

Photo 7: Previous repair at foundation wall.

Photo 8: Void in foundation wall covered by plywood.

Photo 9: Typical exterior door, windows, siding.

Photo 10: View of kitchen.

Photo 11: View of living room.

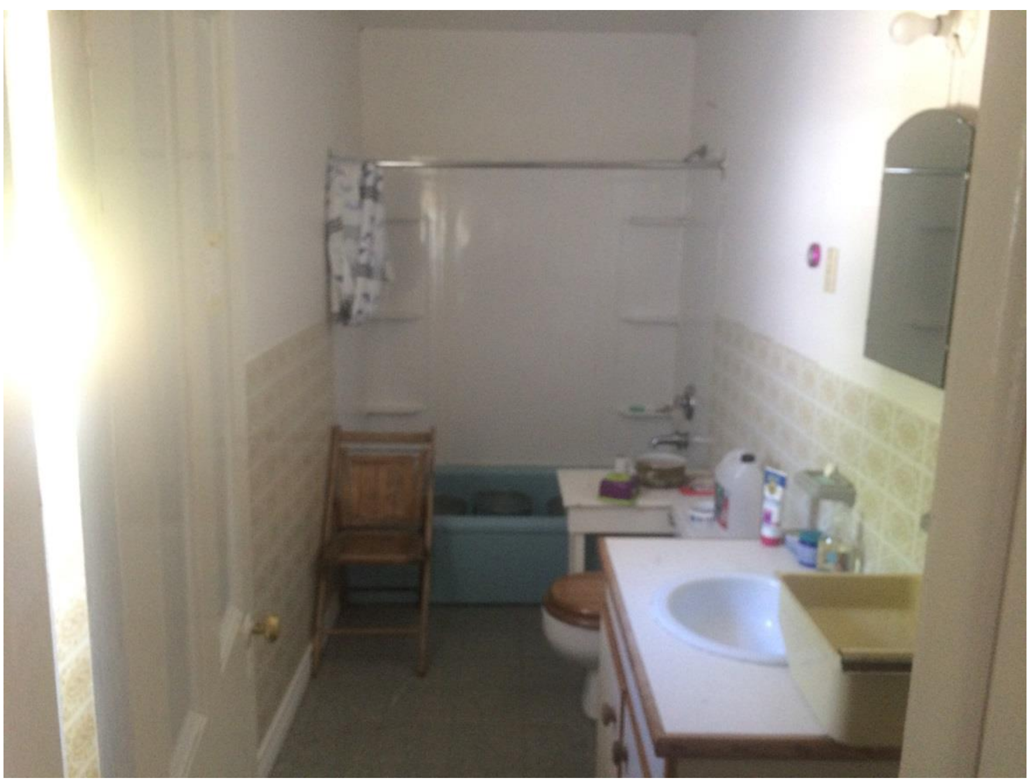


Photo 12: View of bathroom.

Photo 13: Typical bedroom.

Photo 14: Deteriorated flashing and cracked mortar at chimney.

Winch Pad

Photo 1: View of Winch Pad looking northeast.

Photo 2: Light corrosion at winch.

Photo 3: Vegetative growth at cradle and slab.

Sunday Harbour Dock

Photo 1: View of Sunday Harbour Dock looking southwest.

Photo 2: View of Sunday Harbour Dock looking west.

Photo 3: Narrow cracks with efflorescence and vegetative growth.

Photo 4: Paint peeling at steel hoist.

Attachment 6

Deconstruction/Disassembly Material Audit Form

DECONSTRUCTION/DISASSEMBLY MATERIAL AUDIT FORM

Material Category	Unit	Total Quantity of Waste	Disposed Amount Projected	Disposed Amount Actual	Reused Amount Projected	Reused Amount Actual	Recycled Amount Projected	Recycled Amount Actual	Material Destination
Wood (excluding doors)									
Drywall/Gypsum									
Metal									
Electrical									
Composites (Blinds, Shingles, Vapour Barrier, Vinyl Flooring, Ceramic Tiles)									
Carpet & Pad									
Ceiling Tiles									
Windows									
Doors (Metal and Wood)									
Washroom Fixtures									
Concrete									
Mechanical Equipment (HVAC, boiler, etc.)									
Miscellaneous Waste (insulation, rubber mats, vinyl moulding)									