

City of Brandon

1st and Rosser Site Remediation Closure Report, Brandon, Manitoba

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Date:

February, 2010



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February 22, 2010

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Dear Contact Name:

Project No: 60116296 (100138)

Regarding: 1st and Rosser Site Remediation Closure Report, Brandon, Manitoba

Please find enclosed six (6) hard copies and two (2) electronic copies of the above mentioned final report.

If you have any questions or concerns, please feel free to contact Scott Chapman, M.Sc., P.Eng. at (204) 477-5381.

Sincerely,
AECOM Canada Ltd.

Ron Typliski, P.Eng.
Vice-President, Manitoba District
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snb
Encl.

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Executive Summary

The City of Brandon retained AECOM to design and supervise the remediation of the property on the northeast corner of 1st Street and Rosser Avenue in the City of Brandon, Manitoba (the Site). The Site includes properties at 123 Rosser Avenue East, 9 – 1st Street, and 17, 218, and 308 Pacific Avenue. The remediation also included the adjacent residential properties located at 3 Russell Street and 214 Pacific Avenue East.

Historic activities at the Site, including a petroleum distribution facility, a metal scrap yard and recycling depot, have apparently resulted in hydrocarbon and heavy metal impacts to soil and groundwater. Stockpiles of waste battery casings, metals impacted soil and debris accumulated in various areas of the Site and old building foundations remained from historic site activities. Human Health Risk Assessments (HHRAs) were completed for the Site and for the neighbouring residential properties by Dillon Consulting in 2007. Five metals of concern were identified (arsenic, antimony, iron, lead and manganese) and site-specific target levels (SSTLs) were developed as remediation guidelines.

Remediation activities were based upon the Remedial Action Plan (RAP) prepared for the Site and accepted by Manitoba Conservation in August 2008. The site work was generally divided into three stages, described below.

Surface Soil Delineation

Prior to the site remediation, AECOM completed the delineation of the surface soil metals impacts. Soil samples were collected from the Site and screened for metals concentrations using an X-ray Fluorescence (XRF) unit and laboratory analysis to finalize the remediation design.

Site Remediation

Site preparation activities included utility assessment and monitoring well decommissioning. Site debris was transported off site and disposed at appropriate facilities. Metals impacted soil and waste battery casings were excavated from the following areas of the Site;

- Surface soil from various areas of the Site as determined from surface soil delineation
- Surface soil from residences at 3 Russell Street and 214 Pacific Avenue East
- Subsurface soil and battery casings north of Pacific Avenue
- Stockpiled soil and battery casings north of Pacific Avenue

The metals impacted soil and battery casings were excavated and relocated to the former scrap yard area at 9-1st Street. The excavated areas were backfilled with clean imported fill material and covered with topsoil. The impacted material was isolated by installing a low permeability engineered cap over the scrap yard area to prevent water infiltration, wind-borne migration and human contact with heavy metals impacted material. The cap consisted of a geosynthetic clay liner (GCL), a geocomposite drainage layer, a protective layer and a vegetation support layer. The cap was surrounded by a perimeter drain. Site restoration activities included site re-vegetation, erosion control measures and the construction of a walking path to expand upon existing City of Brandon off-site infrastructure.

Groundwater Monitoring Plan

Following remediation activities, a groundwater monitoring well network was established to monitor long-term groundwater conditions using existing monitoring wells and new monitoring wells installed up- and down-gradient of the engineered cap.

The remedial work was completed at the Site by AECOM according to the RAP accepted by Manitoba Conservation. Based on the results of the field activities, the following conclusions can be made:

Air Monitoring

1. The ambient air monitoring program results indicate elevated concentrations of PM₁₀ and lead in comparison to the Manitoba Conservation Ambient Air Quality Criteria. However, based on the air quality monitoring results, the risk to human or environmental health due to PM₁₀ and lead concentrations in air during construction activities was very low. The elevated concentrations occurred over the 10 hour work period at the Site and compared directly to the Manitoba Conservation Ambient Air Quality Criteria 24 hour average MAL as a very conservative approach. As such, it is reasonable to conclude that the concentrations of PM₁₀ and lead in ambient air during construction activities at the Site were acceptable.
2. The personal air monitoring program results indicate no exceedances of the Manitoba Occupational Exposure Limits PM₁₀ or lead or concentrations in air.

Soil Remediation

1. The volume of metals impacted surface soil excavated from the Site and neighbouring residences (3 Russell Street and 214 Pacific Avenue) and placed beneath the engineered cap was approximately 2,161 m³.
2. The volume of impacted subsurface soil excavated from the area north of Pacific Avenue and placed beneath the engineered cap was approximately 1,406 m³. Soil samples collected from the north and east limits of the excavation at depths greater than 1 m (3 ft) marginally exceeded the site-specific HHRA remediation guidelines for arsenic, lead or manganese with concentrations much lower than concentrations determined during surface soil delineation activities. None of the samples collected from the excavation limits exceeded the Manitoba Leachate Quality Criteria.
3. Laboratory and field analysis results for soil samples collected from the base of each surface soil excavation area (at a depth of 0.3 m below ground surface) indicate that eleven (11) soil samples exceeded the site-specific HHRA remediation guidelines for arsenic, antimony, lead and/or manganese with concentrations much lower than concentrations determined during surface soil delineation activities. In addition, two (2) of the soil samples also exceeded the Manitoba Leachate Quality Criteria for lead.
4. The backfilling of each excavated area with clean fill material ensures that the low potential for human contact with any remaining subsurface impacted soil effectively eliminates the risk to human health. Also, seeding/sodding of the excavated/backfilled areas further ensures that once re-vegetation of the Site is established, the potential for migration of surface soil by wind and other erosion will be substantially reduced.
5. Site remediation tasks carried over to the 2009 field season include the removal of the silt fence once the site vegetation is sufficiently established and asphalt paving of the extended foot and bike path across the Site. Additional seeding and/or landscaping will be completed by the City of Brandon according to future land development plans but will accommodate the remedial measures put in place for the Site.
6. A post-closure groundwater monitoring program has been developed to monitor the trends in groundwater quality. The post-remediation groundwater monitoring program consists of a monitoring well system that includes up to 14 previously installed monitoring wells and the 6 newly installed monitoring wells with quarterly groundwater monitoring and semi-annual groundwater sampling, starting in December 2008 and finishing in the fall of 2010. The results of the two year groundwater monitoring program will then be reviewed and a

recommendation will be made to Manitoba Conservation regarding the degree of future groundwater monitoring, if required.

Potential for Future Commercial Development

1. Although not currently a risk to human health, metal and PHC impacts to subsurface soil remain on the portion of the Site designated for potential future commercial development following remediation activities. The remaining soil impacts must be considered during the design and construction of commercial buildings on certain portions of the commercially designated area so exposure risks to human health (vapour inhalation inside commercial buildings and soil contact for construction workers) can be mitigated. From this perspective, the area of metal-impacted subsurface soil remaining at the Site is approximately 271 m². The area of PHC-impacted soil remaining is approximately 205 m² (950 m³). Several potential mitigation options including excavation of impacted material, use of appropriate construction protocol for site worker safety and specific building placement can be considered for future development in this area of the Site.

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1. Introduction

The City of Brandon retained AECOM to design and supervise the remediation of the property on the northeast corner of 1st Street and Rosser Avenue in the City of Brandon, Manitoba (the Site). The Site location is presented on Figure 1. The Site includes properties at 123 Rosser Avenue East, 9 – 1st Street, and 17, 218, and 308 Pacific Avenue. The remediation project also included the adjacent residential properties located at 3 Russell Street and 214 Pacific Avenue East. Remediation activities were based upon the Remedial Action Plan (RAP) prepared for the Site and accepted by Manitoba Conservation in August 2008.

1.1 Background

Historic activities at the Site, including a petroleum distribution facility, a metal scrap yard and recycling depot, have apparently resulted in hydrocarbon and heavy metal impacts to soil and groundwater. Phase I, II, and III Environmental Site Assessments (ESAs) have been completed for each of the major portions of the Site to delineate heavy metal and hydrocarbon impacted soils and groundwater. In 2005, an estimated 1,140 tonnes of waste battery casings and lead impacted soil were excavated from 17 Pacific Avenue. Approximately half of the excavated soil was stockpiled on the adjacent property (9-1st Street) and the remainder of the excavated material was transported to the Eastview Landfill in Brandon, treated and disposed of using cement solidification/stabilization methods. Stockpiles of waste battery casings, metals impacted soil and debris accumulated in various areas of the Site and old building foundations remained from historic site activities. The site plan and site topography prior to any further remediation activities are presented in Figure 2 and Figure 3, respectively.

Hydrocarbon impacts to soil associated with historic fuel handling and storage also exist in the south portion of the Site. An assessment of the site receptors and exposure pathways was completed by AECOM in 2005 to determine the site-specific risks associated with the hydrocarbon impacted material. The assessment resulted in the elimination of the freshwater aquatic life pathway as detailed in a letter to Manitoba Conservation in August 2005. The remaining significant exposure pathways for hydrocarbon impacts in soil were the soil ingestion, soil inhalation and soil contact pathways protective of human health.

In 2006, Manitoba Conservation completed an assessment of metals impacts in surface soil for neighbouring residential areas, including 3 Russell Street and 214 Pacific Avenue East. In 2007, two Human Health Risk Assessments (HHRAs) were completed by Dillon Consulting due to the concern for human contact with the impacted soil for the Site and for the neighbouring residential properties. For the neighbouring residential properties, five metal contaminants of concern were identified (arsenic, antimony, iron, lead and manganese) and site-specific target levels (SSTLs) were developed as remediation guidelines. As no petroleum hydrocarbon (PHC) impacts were identified during the 2006 Manitoba Conservation assessment, SSTLs for PHC were not developed for the neighbouring residential properties. For the Site, the same five metal contaminants of concern were identified (arsenic, antimony, iron, lead and manganese) and site-specific target levels (SSTLs) were developed as remediation guidelines. For PHC impacts previously identified at the Site, SSTLs were not developed since remediation to address direct contact exposure to petroleum hydrocarbons in the soil was not deemed necessary by the HHRA. The HHRA completed for the Site did note that exposures to hydrocarbon vapours in indoor air would represent a potential concern for human health for employees who may work in a building constructed on the Site as part of any redevelopment.

Several options were considered for future site development, including parkland development and mixed residential/commercial development. At a meeting in April 2007 between the City of Brandon, Manitoba Conservation and AECOM, a consensus was reached to develop the Site primarily as a green space with potential future commercial development along 1st Street, the option preferred by both the City of Brandon and Manitoba Conservation. This land use development plan is presented in Figure 4. In subsequent discussions between Manitoba Conservation, the City of Brandon, Manitoba Health and AECOM, it was agreed that the SSTLs developed

in the residential HHRA should be used as remediation guidelines for both the Site and the residential properties located at 3 Russell Street and 214 Pacific Avenue East.

1.2 Site Remedial Action Plan

The RAP was developed by AECOM with input from the City of Brandon and Manitoba Conservation personnel. The RAP mainly focused on the heavy metals contamination identified in soil at the Site and surrounding residential properties at 3 Russell Street and 214 Pacific Avenue East.

As previously mentioned, SSTLs for PHC impacts previously identified at the Site were not developed since remediation to address direct contact exposure to PHC in the soil was not deemed necessary by the HHRA. As such, hydrocarbon remediation was not included as part of the RAP scope of work. However, risk related to human health exposure pathways associated with the hydrocarbon impacted material at the Site (soil ingestion, soil inhalation and soil contact) was further reduced with the placement of topsoil over the entire site along with seeding and/or tree planting. The HHRA completed for the Site did note however, that exposures to hydrocarbon vapours in indoor air would represent a potential concern for human health for the employee who may work in a building constructed on the Site as part of any redevelopment. As PHC impacts to soil were estimated only to exist on a very small portion of the potential future commercial development area of the Site, it was decided by AECOM and the City of Brandon to address any potential concerns related to hydrocarbon vapours in indoor air at a later date when more details of the future commercial development on this area of the Site became available. No human health exposure concerns are associated with the area designated for green space land use. Further discussion on the relevance of PHC impacts at the Site is included in Section 4.3.2.

The site work was generally divided into three stages, described below:

Surface Soil Delineation

Prior to the site remediation, AECOM completed the delineation of the surface soil metals impacts. Soil samples were collected from the Site and screened for metals concentrations using an X-ray Fluorescence (XRF) unit coupled with laboratory analysis to finalize the remediation design.

Site Remediation

Site debris was transported off-site and disposed of at appropriate facilities. Metals impacted soil and battery casings were excavated from the following areas of the Site;

- Surface soil from various areas of the Site
- Surface soil from residences 3 Russell Street and 214 Pacific Avenue East
- Subsurface soil and battery casings north of Pacific Avenue
- Stockpiled soil and battery casings north of Pacific Avenue

The metals impacted soil and battery casings were excavated and relocated to the former scrap yard area at 9-1st Street. The excavated areas were backfilled to original grade with clean imported backfill effectively mitigating the risk of human exposure to any remaining subsurface impacts to soil by creating a physical barrier. The excavated impacted material was relocated to the scrap yard area and isolated by installing a low permeability engineered cap over the area to prevent water infiltration, wind-borne migration and human contact with the heavy metal-impacted material. The cap consisted of a geosynthetic clay liner (GCL), a drainage layer, a protective layer and a vegetation support layer. The cap was surrounded by a perimeter drain.

Groundwater Monitoring Plan

Following remediation activities, a groundwater monitoring well network was established to monitor long-term groundwater conditions using a combination of existing monitoring wells and new monitoring wells installed up- and down-gradient of the engineered cap. The post-remediation site plan is presented on Figure 5.

2. Methodology

In May 2008, AECOM completed the delineation of surface soil impacts and the baseline topographic survey to provide a basis for the final remediation design. In August and September 2008, site preparation activities were completed, including utility assessment and monitoring well decommissioning. The final RAP was submitted to Manitoba Conservation on August 14, 2008 and approved on September 10, 2008. HAZCO Environmental Services (Hazco) provided the contractor services to conduct the remediation activities with resident services provided by AECOM.

Starting in September 2008, the site remediation consisted of excavating metals impacted soil and relocating it to the former scrap yard area at 9-1st Street. The scrap yard area was covered by an engineered cap surrounded by a perimeter drain to prevent water infiltration, wind-borne migration and human contact with the impacted material. Site restoration activities included site grading, erosion control measures, re-vegetation and construction of a walking path. Site remediation activities were completed in November 2008 and are described in further detail in the following sections. Photographs of various stages of the site work are attached in Appendix A.

2.1 Baseline Survey

In May 2008, AECOM completed a detailed topographic survey of the Site to establish the base contours for the area. The survey was completed with a Topcon™ RTK unit, indicating all the main site features, utilities and the surface soil sample locations. The base contours were used to estimate soil quantities for the detailed remedial design and to develop a drainage plan for the remediated Site. In addition, a legal survey was completed by a third party to identify the property line between City of Brandon and CP Rail property north of Pacific Avenue.

2.2 Surface Soil Delineation

In May 2008, AECOM completed the delineation of metals impacts to surface soil over the entire Site using an X-ray Fluorescence (XRF) unit. The areas tested included 17, 218 and 308 Pacific Avenue, 123 Rosser Avenue and the west portion of 9-1st Street. Particular attention was given to human health exposure pathways for the area along 1st Street where there may be potential future commercial development. Laboratory analysis of select soil samples was used to correlate the results obtained from the XRF unit.

2.2.1 Soil Sampling

A total of 320 discrete soil samples were collected from the top 0.15 m (6 inches) of material across the site approximately following a 10 m by 10 m grid pattern, with more soil samples collected from the areas of potentially greater contamination as indicated by previous investigations at the Site. An additional eight (8) composite soil samples were collected from the soil stockpile on 17 Pacific Avenue. Discrete soil samples were collected using an AMS™ Core Sampler with plastic liners to ensure a consistent sampling method and volume across the Site. Composite soil samples were collected by shovel. To prevent cross-contamination, the field personnel used new nitrile gloves and new plastic liners to collect each sample. The sampling equipment was decontaminated between samples using paper towel, water and Alconox™ cleaner where necessary. The samples were labelled and placed in individual plastic bags for transit. Selected soil samples were submitted for metals analysis by Maxxam Analytics, a CAEAL accredited laboratory, at their facility in Mississauga, Ontario. The sample locations were recorded using a Topcon™ RTK GPS unit. The locations of the discrete surface soil samples are presented on Figure 6. For each

soil sample exceeding the site-specific HHRA soil quality guidelines (based upon the correlation of field results with laboratory analysis), a 5 m by 5 m area surrounding the sample (i.e. half of the distance between that sample and the next sample in all directions) was considered to be impacted with metals above the HHRA guidelines. The estimated areas of impacted surface soil are presented on Figure 7.

The residential areas located at 3 Russell Street and 214 Pacific Avenue East were not included in the surface soil delineation program, as previous information on surface soil metals impacts existed for these locations.

2.2.2 Field Screening

The collected soil samples were analyzed for metals concentrations at AECOM's Edmonton facility with an X-50 Mobile XRF system. Soil samples were prepared for analysis by drying, pulverizing and sieving the samples to ensure consistent moisture content and particle size. The XRF unit analyzed the samples for 25 metals, including the metals of concern for the site; arsenic, antimony, iron, lead and manganese. Based upon the laboratory analysis of 33 selected soil samples, or 10 percent of the total samples analyzed by the XRF unit, a correlation between the XRF readings and the laboratory results was developed. The information gathered from the surface soil delineation was used to estimate soil volumes for remediation work based on metals concentration.

2.3 Remediation

The Site remediation activities, including site preparation, remediation and site restoration, are summarized in the following sections.

2.3.1 Site Preparation

Utilities

Prior to the site work, utility representatives were consulted to identify locations of all Site utilities and to determine potential relocation strategies and power requirements for the Site. As a result, overhead electrical utilities along Pacific Avenue were relocated to Russell Street by Manitoba Hydro and the City of Brandon prior to the commencement of remediation activities. As part of the remediation, Pacific Avenue was closed and re-graded between 1st Street and Russell Street. The water line and sewer lines that run under Pacific Avenue were left in place and three (3) manholes and one water valve on Pacific Avenue were extended to match the post-remediation grade level. The locations of the pre-remediation site utilities are presented on Figure 2 and the post remediation site utilities are presented on Figure 5.

Monitoring Well Decommissioning

In August 2008, a total of twenty (20) existing monitoring wells at the site were decommissioned according to Manitoba regulations by AECOM and Paddock Drilling of Brandon, Manitoba using a truck mounted drill rig. The monitoring wells were removed and the holes were backfilled with bentonite and covered with native material. Monitoring wells located on the neighbouring CP Rail property were not included in decommissioning activities. The seventeen (17) monitoring wells that were not affected by remediation activities were retained for potential future groundwater monitoring. The monitoring well locations are presented on Figure 5. The details of the decommissioned wells are summarized in Appendix B.

Site Set-up

In September 2008, Hazco mobilized equipment to the Site and completed the set-up of temporary office facilities, installation of electrical services, construction of an equipment decontamination area and installation of a silt fence. The decontamination pad was constructed for washing the equipment and vehicles that contacted the impacted material. The decontamination pad included a synthetic liner to contain decontamination liquid. The silt fence was

installed along the northern construction limits between 1st Street and Russell Street to prevent the off-site migration of eroded soil during and following construction until vegetation is re-established at the Site. The location of the silt fence is presented on Figure 5.

2.3.2 Air Monitoring

During the remediation activities in September, October and November 2008, AECOM conducted an air quality monitoring program to determine the concentrations of dust, and specifically the concentrations of lead present in the air at the Site during construction activities. The air quality monitoring program included ambient air monitoring and personal air monitoring.

Ambient Air Monitoring

The ambient air monitoring equipment was set up each work day from September 24 to October 23 2008, weather permitting. The equipment was set up at one of three stations (as shown in Figure 5) around the Site based on the wind direction, usually down-wind of the remediation activities. Real time field monitoring of ambient air was conducted during work hours using a DustTrakTM aerosol monitor. The results were analyzed daily to determine the maximum recorded concentration of particulate matter 10 µm or less (PM₁₀). Ambient air was also sampled during work hours using a Partisol 2000TM high volume air sampler. Each day, a new filter was used and the time run and volume of air sampled was recorded. Filters were selected for analysis at Maxxam Analytics in Edmonton based on the predominant construction activities and the daily DustTrakTM aerosol monitor results. A total of nine (9) filters from the Partisol 2000TM high volume air sampler were selected for lead and PM₁₀ analysis.

Personal Air Monitoring

Personal air sampling was conducted each work day from September 26 to October 21 2008, weather permitting. Personal air sampling was conducted using an SKCTM low volume air pump worn by the worker in closest proximity to any potentially impacted material. Typically, this was the excavator operator. Each day, a new filter was used and the sample collection time and volume of air sampled was recorded from the pump. Filters were selected for analysis at the ALS laboratory in Edmonton based on the predominant construction activities and the daily DustTrakTM aerosol monitor results. A total of five (5) filters from the SKCTM low volume air pump were selected for lead and PM₁₀ analysis.

Site staff were issued half-mask respirators equipped with particulate cartridges in case of high fugitive emissions levels during construction activities. The Site was watered using a water truck to mitigate dust generation based on visual assessment during the consolidation of the battery casing piles, hammering concrete foundations and other activities of potentially high dust emissions.

2.3.3 Clearing of Site Debris

The trees along Pacific Avenue were removed during the first few weeks of construction activities. Approximately 50 tonnes of trees were removed and disposed of at the Eastview Landfill Site in Brandon, Manitoba. Other debris material, such as scrap metal, concrete and tires was disposed throughout the project. Approximately 250 tonnes of scrap metal was removed from the site; 200 tonnes was taken to the Mandak Metal Processors facility in Selkirk, Manitoba and 50 tonnes was taken to Wesman Salvage in Brandon. Approximately 650 tonnes of concrete, tires and mixed refuse was removed and disposed of at the Eastview Landfill Site in Brandon, including debris from several concrete building foundations and the retaining wall south of Pacific Avenue. Approximately 1 tonne of broken light ballasts potentially containing polychlorinated biphenyls (PCBs) was sealed in metal drums and shipped to Envirocare Environmental Services, a licensed disposal facility in Regina, Saskatchewan. A hazardous waste manifest was completed for the PCB-containing material and the transport and disposal was approved by Manitoba Conservation. An empty metal tank containing a small amount of sludge was uncovered near the Dennis Street

entrance to the Site. The tank was removed and disposed of off-site at the Eastview Landfill Site in Brandon. Copies of waste manifests for the Site are attached in Appendix C.

2.3.4 Stockpiled Material

Approximately 500 tonnes of stockpiled battery casing material in the former Scrap Yard was moved further south to the low-lying area of the former rail line running east-west through the Site, to be covered by the engineered cap. The impacted material stockpiled north of Pacific Avenue was moved to the same location at 9-1st Street for placement under the engineered cap.

2.3.5 Surface Soil Excavation

Based on the results of the surface soil delineation, metal-impacted surface soil was excavated from various areas of the Site. The impacted areas were excavated to an approximate depth of up to 0.3 m (1 ft). The estimated volume of surface soil excavated was 1,795 m³. This material was collected and moved to 9-1st Street for placement under the engineered cap. A total of sixty-two (62) closure soil samples were collected from the base of the excavated areas (at least one closure sample from each excavated area), and screened for metals content using the XRF unit. The excavated areas were backfilled using clean imported fill material. The surface soil excavations and closure sample locations are presented on Figure 8.

2.3.6 Residential Properties Soil Excavation

Based on the results of the 2007 Dillon Consulting HHRA and the 2006 Manitoba Conservation soil sampling, metal impacted surface soil was delineated on two residential properties east of the Site; 3 Russell Street and 214 Pacific Avenue. To satisfy the residents' concerns, the entire lot on each property was excavated to a maximum depth of 0.3 m (1 ft). The total estimated volume of surface soil excavated from the residences was 366 m³. This material was moved to 9-1st Street for placement under the engineered cap. A total of nine (9) closure soil samples were collected from the base of the excavated areas and screened for metals content using the XRF unit. The excavated areas were backfilled using clean imported fill material. The residential properties were re-sodded and the driveways were restored to original conditions. The surface soil excavations and closure sample locations are presented on Figure 8.

2.3.7 Subsurface Excavation

A subsurface excavation was completed north of Pacific Avenue to remove lead battery casings and metal-impacted soil. The impacted area was excavated to a maximum depth of 5 m below grade. The estimated volume of impacted material excavated north of Pacific Avenue was 1,406 m³. All of the excavated material was relocated to 9-1st Street for placement under the engineered cap. A total of sixty-four (64) soil samples were collected from the walls and base of the excavation and screened for metals content using the XRF unit. The excavation was backfilled using clean imported fill material which was sampled and analyzed prior to final placement. The backfill was compacted with regular compaction testing conducted as per design specifications. The subsurface soil excavation and closure sample locations are presented on Figure 9.

2.3.8 Soil Sampling Program

Soil samples were collected and sealed in Ziploc bags and placed in coolers for storage. New nitrile gloves were used to collect each sample. All sampling tools and screening tools were cleaned between samples to minimize cross-contamination. All soil samples collected were analyzed using the XRF unit for metals concentration with selected soil samples from the surface excavations and the subsurface excavation submitted for laboratory metals and Toxicity Characteristic Leaching Procedure (TCLP) analysis at Maxxam Analytics in Mississauga, Ontario.

2.3.9 Cap Installation

The impacted material surface was prepared for the cap installation, including removal of debris, grading and compaction. An engineered cap was installed over the impacted material using the following design;

- A geosynthetic clay liner (GCL) was installed to prevent infiltration of water and air. The GCL consisted of a uniform layer of bentonite encapsulated between two non-woven geotextiles reinforced with a woven scrim. The GCL was needle-punched to enhance the frictional and internal shear strength characteristics. It was installed over an area of 11,000 m² in panels parallel to the slope and overlapped on each side according to design specifications.
- A geocomposite drainage layer was placed on top of the GCL to collect and drain any water that may permeate through the overlying cap structure. The geocomposite drainage layer consisted of a geonet material with geotextile layers adhered to both sides. It was installed over an area of 11,000 m² in panels parallel to the slope and welded together at the seams, according to design specifications. A perimeter sub-drain was installed around the cap using 150 mm perforated high density polyethylene (HDPE) pipe and coarse grain fill material to ensure that surface water did not drain from the cap surface to its edges and migrate into the materials beneath the cap. The perimeter sub-drain pipes were joined and sloped towards a culvert exiting on the north bank of the cap.
- A protective fill layer was placed over the drainage layer to provide physical separation between the metals impacted material and the final grade, and to provide some protection for the underlying GCL layer from frost penetration. A minimum protective fill thickness of 0.70 m, confirmed by GPS survey, was placed over all areas to protect the GCL.
- A layer of topsoil approximately 150 mm thick was placed over the protective fill layer to support the Site re-vegetation. Topsoil depths were checked manually by AECOM personnel to ensure the design specifications were met.

The final site contours and a typical cross-section of the cap design are presented in Figure 10 and Figure 11.

2.3.10 Site Restoration

In November 2008, final grading of the Site was completed to ensure appropriate surface water drainage and eliminate the potential for standing water at the Site. Utility lines were extended to bring existing utility access points to final grade.

Topsoil was placed at a thickness of at least 0.150 m (0.5 ft) over the entire Site to provide optimal conditions for site revegetation and ensure physical separation of any residual soil impacts at the Site. The Site was then seeded by City of Brandon personnel and equipment using a seed mix specified by the City of Brandon. After seeding, erosion control matting was placed over the capped area and any other sloped areas of the Site and anchored with metal staples to provide a stable surface for site revegetation. The erosion control material used was a high strength three-dimensional matting structure incorporated with a coconut fiber matrix, according to design specifications. The original silt fence installed north of the Site prior to construction was left in place until site vegetation is sufficiently re-established in 2009. The erosion control measures employed at the Site are presented on Figure 12.

A bike and foot path was constructed along the east and north portion of the capped area connecting the existing path east of Russell Street to the 1st Street Bridge. The gravel base layer for the path was installed and compacted with paving of the path to occur in the spring of 2009. The location of the path is presented on Figure 5.

Compaction testing was completed for the cap area and the walking path by an independent third party. Copies of the field density reports from M. Block and Associates Ltd. are attached in Appendix D. Additional seeding and/or

landscaping will be completed by the City of Brandon according to future land development plans but will accommodate the remedial measures put in place for the Site. The silt fence will be removed once the site vegetation is sufficiently established.

2.3.11 Groundwater Monitoring Program

Groundwater sampling results previously gathered from the Site have indicated elevated concentrations of heavy metals north and down-gradient of the site. Although groundwater treatment was not part of the site remediation scope of work, a post-remediation groundwater monitoring program has been developed to monitor the trends in groundwater quality resulting from the site remediation.

Six new monitoring wells were installed by Paddock Drilling of Brandon with a truck-mounted rig on December 12 and 13, 2008, under the supervision of AECOM. The new monitoring wells were installed to a maximum depth of 7.6 m (25 ft), and protected with locking steel aboveground casings or flush mount well casings. The locations of the monitoring wells are shown in Figure 5.

The post-remediation groundwater monitoring program consists of a monitoring well system that includes up to 14 previously installed monitoring wells and the 6 newly installed monitoring wells. The program, accepted by Manitoba Conservation, includes quarterly groundwater monitoring and semi-annual groundwater sampling, starting in December 2008 and finishing in the fall of 2010. The quarterly groundwater monitoring will measure groundwater elevations and standard water quality parameters such as pH, electrical conductivity, dissolved oxygen and temperature. Groundwater samples will be collected from 16 monitoring wells at the Site semi-annually and analyzed for heavy metal parameters, including the contaminants of concern identified by the Dillon Consulting HHRA; arsenic, antimony, iron, lead and manganese. The monitoring wells selected for analysis include the 7 northernmost monitoring wells (MW08-1 through MW08-6 and MW111) and a combination of other on-site/background wells. The first groundwater monitoring and sampling event was completed in December 2008 and the next event is scheduled for March 2009.

A report summarizing groundwater monitoring/sampling activities and results will be provided to the City of Brandon and Manitoba Conservation annually. At the end of the two year monitoring period, the frequency and intensity of the groundwater monitoring/sampling will be re-evaluated based on groundwater quality results obtained from the Site. The groundwater monitoring plan schedule is summarized in the following table;

Date	GW Monitoring	GW Sampling	Annual Report
Fall 2008	✓	✓	
Winter 2009	✓		
Spring 2009	✓	✓	
Summer 2009	✓		
Fall 2009	✓	✓	✓
Winter 2010	✓		
Spring 2010	✓	✓	
Summer 2010	✓		
Fall 2010	✓	✓	✓

2.4 Quality Assurance/Quality Control Program

As outlined in the above sections, AECOM field personnel followed pre-defined field procedures for quality control. These procedures ensured that representative samples were collected and that the risk of cross-contamination was minimized.

Blind field duplicate samples were submitted for laboratory analysis for quality assurance. A blind field duplicate is an additional sample collected at the same sampling location and at the same time as another. The samples are collected by carefully partitioning the soil sample evenly into two separate Ziploc bags so as to minimize the variability between the two samples (i.e. the original and the field duplicate). The blind field duplicate is then submitted to the laboratory with a different sample name. The field duplicates ensure that the data is reproducible within certain limits and provide a means to evaluate precision of the field quality control program. Reproducibility is quantified by calculating the relative percent difference (RPD) defined by the following equation:

$$\text{Field Duplicate RPD(\%)} = \frac{(C1 - C2)}{(C1 + C2)/2} \times 100$$

Where: RPD = relative percent difference
 C1 = larger of the two observed values from the field duplicate analysis
 C2 = smaller of the two observed values from the field duplicate analysis

In order for a valid Field Duplicate RPD to be calculated, both results must be greater than 5 times the Method Detection Limit (MDL). If one or both of the analytical results for the matrix duplicate samples are less than 5 times the MDL for an analyte, then it is not possible to calculate a valid Field Duplicate RPD.

Chain of Custody forms were completed for tracking purposes. These forms were completed prior to delivering the samples to the laboratory and included the following information: project address, sample identification, type of analysis required, sampling date and time, sampler's name and project contact information.

2.5 Selection of Applicable Environmental Quality Guidelines

2.5.1 Soil Quality Guidelines

2.5.1.1 Metals

Site Specific Target Levels (SSTL) for metals in soil were developed for the Site RAP in two documents;

1. Human Health Risk Assessment for Residential Properties; Brandon, Manitoba (Dillon Consulting Ltd., October 2007).
2. Human Health Risk Assessment for the Former Brandon Scrap Iron and Former Imperial Oil Properties; Brandon, Manitoba (Dillon Consulting Ltd., October 2007).

In subsequent discussions between Manitoba Conservation, the City of Brandon, Manitoba Health and AECOM, it was agreed that the SSTLs developed as part of the residential HHRA should be used as remediation guidelines for both the Site and the residential areas. As such, the SSTL soil quality guidelines for contaminants of concern at the Site and residential areas are summarized in the following table.

Metal of Concern	Calculated Site Specific Target Level (Remediation Guideline)
Antimony	15.2 mg/kg
Arsenic	12 mg/kg ¹
Iron	41,800 mg/kg
Lead	1,170 mg/kg
Manganese	1,290 mg/kg

Source: Human Health Risk Assessment for the Former Brandon Scrap Iron and Former Imperial Oil Properties, Brandon Manitoba (Dillon Consulting Ltd., 2007)

¹ The SSTL generated for arsenic by the HHRA referenced the Canadian Council of Ministers of Environment (CCME) Soil Quality Guideline of 12 mg/kg for Residential/Parkland land use.

2.5.1.2 Hydrocarbons

As PHC SSTLs were not developed for the Site through the HHRA completed by Dillon, the CCME Tier II Soil Quality Guidelines (SQGs) and the CWS Tier I SQGs for PHC have been used for comparison purposes in this report as referenced from the documents entitled:

- Canadian Environmental Quality Guidelines (CEQG), Canadian Council of Ministers of the Environment (CCME), updated 2007.
- Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, CCME, 2008.

The SQGs used in this report assume the following:

- The 2007 CCME Soil Quality Guideline for the Protection of Human Health (SQGHH) for benzene contains guidelines for both 10-6 and 10-5 incremental risk. As Manitoba Conservation has adopted the 10-6 incremental risk value, the results of previously completed soil investigations have been compared to the 10-6 incremental risk guideline.
- Soil samples collected from surface soil during previous investigations at the Site were submitted for grain size analysis, which indicated a fine-grained soil. However, these surface soil samples were considered insufficient to properly categorize subsurface transport of contaminants at the Site. Therefore, the most conservative of the fine or coarse-grained SQGs were used for comparison guidelines.

The CCME and CWS soil quality guidelines were derived for surface soil and subsoil. Surface soil is defined as soil <1.5 m below the ground surface and subsoil is defined as soil >1.5 m below the ground surface.

The CCME guidelines use a risk-based approach allowing limited modification of the generic (Tier I) soil quality guidelines in light of prescribed site-specific factors affecting contaminant mobility and receptor characterization. In other words, in cases where soil concentrations exceed the generic Tier I guidelines, an analysis of risk factors specific to the site in question is acceptable in order to allow for a realistic assessment of the actual risks at the site. Using this approach, soil quality guidelines are selected based on a step-through procedure eliminating the exposure pathways that do not apply to receptors in the vicinity of the site and finally selecting the appropriate and most conservative guideline remaining after the elimination procedure. The guidelines are protective of both human and environmental receptors. Typical human exposure pathways, for example, include soil ingestion, drinking water and inhalation of indoor air. Typical environmental exposure pathways, for example, include soil contact, groundwater consumption by livestock and groundwater migration into surface water bodies (implications for aquatic life).

Using data from previous investigations and the HHRA, the Tier I modification approach was undertaken for the Site in order to provide a more realistic assessment of environmental risks at the Site. As a result, the Eco Soil exposure pathway, the pathway protective of Freshwater Aquatic Life (FAL) and direct soil contact and ingestion (human health exposure pathways) have all been deemed inapplicable at the Site.

As previously mentioned, hydrocarbon impacts to subsurface soil present on the western portion of the Site were not addressed during remedial activities as they were not in the scope of the RAP developed for the Site. A summary of these impacts is included in this report and discussed in Section 4.3.2 with regards to future site limitations on the area of the Site designated for potential future commercial development.

2.5.1.3 Toxicity Characteristic Leaching Procedure (TCLP)

Guidelines used for comparison purposes are included in the document *Manitoba Regulation MR282/87 Table 1 - Leachate Quality Criteria* as part of The Dangerous Goods Handling and Transportation Act (C.C.S.M.c. D12).

2.5.2 Water Quality Guidelines

Groundwater remediation was not included in the scope of the RAP and the guidelines referenced herein are for use in the annual reporting on groundwater quality. The Environmental Quality Guidelines (EQG) that will be used for comparison purposes for groundwater at the Site are included in the document entitled *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of Environment (March 2004). Specifically, *Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition*.

2.5.3 Air Quality Guidelines

Air Quality Guidelines used for comparison purposes for ambient air are included in the document entitled *Objectives and Guidelines for Various Air Pollutants: Ambient Air Quality Criteria*; Manitoba Conservation (updated July 2005). The Maximum Acceptable Levels (MAL) were used for comparison for lead and PM₁₀ concentrations in air. The MAL is considered essential to provide adequate protection for soils, water, vegetation, materials, animals, visibility, personal comfort and well-being. The MAL for lead and PM₁₀ are 24 hour averages, and the data collected at the Site was for work hours only, or approximately 10 hours per day. To be conservative, it was assumed that the site conditions and contaminant concentrations present during the work day were continued over the 24 hour period. As such, the 10 hour average site data was compared directly to the 24 hour average MAL.

Air Quality Guidelines used for comparison purposes for personal air monitoring are included in the document entitled, *Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices*, American Conference of Governmental Industrial Hygienists (ACGIH) for 2006. According to Manitoba Workplace Safety and Health Division personnel, the ACGIH threshold limit values (TLVs) are used as the Occupational Exposure Limits (OELs) in Manitoba. The Manitoba OELs are set for an 8 hour period. The Manitoba OELs were

adjusted to reflect the 10 hour shifts worked at the Site using the Brief & Scala method. This model compensates for varying work schedules by reducing the concentration limit in proportion to the increase in exposure time and the reduction in recovery time.

3. Results

3.1 Air Monitoring

The results of the air monitoring program are summarized in the paragraphs below and the accompanying tables. Copies of the analytical results and the Chains of Custody for the submitted samples are included in Appendix E.

3.1.1 Ambient Air Monitoring

According to the DustTrak™ aerosol monitor, the average daily PM₁₀ concentrations ranged from 5 µg/m³ on October 7, 2008 to 53 µg/m³ on October 5, 2008. Most of the higher average daily PM₁₀ concentrations occurred between October 1 and 5, 2008 during the removals portion of the remediation and between October 29 and November 3, 2008 during grading, sodding and subdrain trenching activities. The daily averages were compared with the Manitoba Conservation Ambient Air Quality Criteria MAL of 50 µg/m³ (based on a 24 hour average). The Manitoba Conservation MAL for PM₁₀ was slightly exceeded on October 5, 2008 (53 µg/m³). The results of the DustTrak™ aerosol monitor are summarized in Table 1 and Figure 13. The most recent ambient air quality data collected from the City of Brandon by Manitoba Conservation indicated a background PM₁₀ concentration of 22.6 µg/m³ (collected at the Assiniboine Community College in the City of Brandon on 18th Street in 2006).

According to the Partisol 2000™ filter results, the highest daily average PM₁₀ concentration was 51 µg/m³ on September 28, 2008 during removal activities (Manitoba Conservation MAL is 50 µg/m³). The daily average PM₁₀ concentration on October 5, 2008 was 35 µg/m³, as compared to the DustTrak™ aerosol monitor result of 53 µg/m³ recorded on the same day. The highest daily average lead concentration determined by the Partisol 2000™ filter results was 5.6 µg/m³ on October 5, 2008, also during removal activities. The Manitoba Conservation Ambient Air Quality Criteria for lead is 2 µg/m³ based on a 24 hour average. All other daily average lead concentration were well below the applicable air quality criteria. The results of the Partisol 2000™ air sampler are summarized in Table 2.

3.1.2 Personal Air Monitoring

According to the SKC™ pump filter results, the highest daily 10 hour average PM₁₀ concentration in air was 740 µg/m³ on October 5, 2008 when the pump was worn by the excavator operator during removal activities. The highest daily average lead concentration in air was 2.1 µg/m³ on September 30, 2008 also when the pump was worn by the excavator operator during removal activities. The results were compared to the Manitoba Workplace Health and Safety OEL, a time weighted average for an 8 hour work day. A 10 hour time weighted average was calculated using the Brief and Scala method to reflect the 10 hour work day for this project. There were no exceedances of the Manitoba OEL guidelines (10 hr) for PM₁₀ or lead concentrations in air (40 µg/m³ and 8,000 µg/m³, respectively). The personal air sampling results are summarized in Table 3.

3.2 Soil Results

The results of the XRF field screening and laboratory analyses for the surface soil and subsoil samples collected during remediation activities are summarized in the paragraphs below and the accompanying tables. The XRF field screening results for all soil samples are included in Appendix F. Copies of the laboratory analytical results for the submitted samples are included in Appendix E.

3.2.1 Surface Soil Delineation

The surface soil samples collected in May 2008 and used for delineation purposes were screened for metals parameters using the XRF unit. The XRF results are summarized in Appendix F. According to the XRF results, the highest concentrations of metals in soil were predominantly detected in soil samples collected from the former scrap yard area at 9-1st Street. To derive correlations between the field screening and laboratory results, a total of 33 soil samples were selected for laboratory metals analysis based on their location and XRF screening results. As shown

in Table 4, the site-specific HHRA soil quality guidelines for antimony, arsenic, lead, iron and/or manganese were exceeded in 25 of the 33 surface soil samples submitted for laboratory analysis.

Correlations were established between the laboratory analytical results and the XRF field screening results for the five (5) metals of concern at the Site. Relative percent difference (RPD) values were calculated for the XRF/laboratory correlations to establish a range of acceptable concentrations for use in the field. The most accurate parameter for correlation was iron with an average RPD value of 25%. The average RPD values for antimony, arsenic, lead and manganese were 143%, 135%, 29% and 58%, respectively. Details on the correlations are presented in Appendix F. The correlations were applied to all surface soil samples collected in May 2008. Based on the derived correlations and laboratory results, approximately 140 of the 320 surface soil samples were estimated to exceed the site-specific HHRA guidelines. The corresponding estimated area of impacted surface soil was 14,190 m², of which 7,273 m² was already located under the anticipated location of the engineered cap. The areas of impacted surface soil are presented on Figure 6.

3.2.2 Surface Soil Excavations

The closure samples collected from the base of the completed surface excavation areas were screened for metals using the XRF unit. The results are summarized in Appendix F. Based on the XRF results, twelve (12) soil samples were selected for laboratory metals analysis and three (3) samples were selected for TCLP analysis. The site-specific HHRA soil quality guidelines for antimony, arsenic, lead and/or manganese were exceeded in nine (9) soil samples submitted for analysis. Soil sample 65-96A had the highest concentration of antimony (40 mg/kg) and arsenic (21 mg/kg), soil sample 65-96G had the highest concentration of manganese (1,800 mg/kg) and soil sample 31-36C had the highest concentration of lead (9,400 mg/kg). These values exceed the site-specific HHRA soil quality guidelines developed for surface soil by a factor of approximately two (2) (antimony, arsenic and manganese) and by a factor of approximately eight (8) (lead). The Manitoba Leachate Quality Criteria were exceeded in two (2) soil samples for lead. The analytical results for the surface soil closure samples are summarized in Table 5.

The XRF/laboratory correlations were applied to all surface soil closure samples collected and there were no additional samples estimated to exceed the site-specific HHRA guidelines. The surface soil excavation closure sample locations and results are summarized on Figure 8.

3.2.3 Residential Surface Soil Excavation

The surface soil closure samples collected from the base of the excavated residential areas were screened for metals using the XRF unit. The results are summarized in Appendix F. Based on the XRF results, two (2) soil samples were selected for laboratory analysis of metals. The site-specific HHRA soil quality guideline for manganese was exceeded in both soil samples submitted for analysis. The highest concentration of manganese (1,600 mg/kg) was found in soil sample R1C, which exceeds the site-specific HHRA soil quality guideline of 1,290 mg/kg by less than 25%. The analytical results for the residential surface soil closure samples are summarized in Table 6.

The XRF/laboratory correlations were applied to all residential surface soil closure samples collected and there were no additional samples estimated to exceed the site-specific HHRA guidelines. The residential closure sample locations and results are summarized on Figure 8.

3.2.4 Subsurface Soil Excavation

The soil closure samples collected from the walls and the base of the subsurface excavation were screened for metals using the XRF unit. The results are summarized in Appendix F. Based on the XRF results, fourteen (14) soil samples were selected for laboratory metals analysis and two (2) samples were selected for TCLP analysis. The site-specific HHRA soil quality guidelines for arsenic, lead and/or manganese were exceeded in seven (7) soil

samples, generally located on the north or east wall of the excavation. Soil sample SS-N-Wall-D3#2 had the highest concentration of arsenic (15 mg/kg) at 3 m below grade, soil sample SS-N-Wall-B3 had the highest concentration of lead (1,700 mg/kg) at 3 m below grade and soil samples SS-N-Wall-CRNR-1 and SS-E-Wall-C2 had the highest concentrations of manganese (1,300 mg/kg) at 1 m and 3 m below grade, respectively. These values exceed the site-specific HHRA soil quality guidelines by less than 50%. There were no exceedances of the Manitoba Leachate Quality Criteria. The analytical results for the subsurface soil closure samples are summarized in Table 7.

The XRF/laboratory correlations were applied to all subsurface soil closure samples collected and there were no additional samples estimated to exceed the site-specific HHRA guidelines. The closure sample locations and results are summarized on Figure 9.

3.2.5 Excavation Backfill

Two (2) excavation backfill samples were analyzed for metals and hydrocarbon parameters. The analytical results for both samples met the site-specific HHRA soil quality guidelines and the applicable CCME Soil Quality Guidelines. In addition, the backfill material was tested for grain size distribution by AMEC Earth and Environmental and met material specifications. The analytical results for the excavation backfill samples are summarized in Table 8. Copies of the sieve test results are attached in Appendix E.

3.2.6 Quality Assurance and Quality Control

Blind field duplicate soil samples were collected as part of the quality assurance/quality control (QA/QC) program. The relative percent difference (RPD) values for the duplicate samples ranged from 0 to 88%, which is within the acceptable range of 0 to 100% for metals analysis in soil. RPD calculations for the blind field duplicate soil samples are presented in Table 9.

Laboratory quality assurance testing such as matrix spike, spiked blanks, method blanks and RPD were all within acceptable laboratory limits.

4. Discussion

The following sections of the report discuss the results of the site remediation including air monitoring and soil sampling completed following the remedial work at the Site.

4.1 Air Monitoring

4.1.1 Ambient Air Monitoring

On two days during the removal of debris material from the Site, October 5 and September 28, 2008, data collected from the DustTrak™ air monitor and the Partisol 2000™ air sampler indicated elevated PM₁₀ and lead concentrations. However, the PM₁₀ concentrations on these were only very slightly above the criterion and were only greater than background concentrations established for the City of Brandon by an approximate factor of two. The highest ambient air lead concentration at the Site over a 10 hour period was also recorded on October 5, 2008, which exceeded the Manitoba Conservation Ambient Air Quality Criteria (MAL) 24 hour average for lead of 2 µg/m³. All other recorded concentrations of airborne lead were well below the air quality guidelines and were, on average, significantly less than the maximum concentrations recorded on October 5, 2008.

The direct comparison of the daily 10 hour air quality data at the Site to the Manitoba Conservation Ambient Air Quality Criteria 24 hour average MAL represent a conservative approach, as the daily results were only collected during construction work hours when airborne dust and lead concentrations are the highest. As such, it is reasonable to conclude that the concentrations of PM₁₀ and lead in ambient air during construction activities at the Site were acceptable.

4.1.2 Personal Air Monitoring

The personal air monitoring results represent the maximum contaminant concentrations, as the personal air pump was given to the worker closest to the construction activities each day. The personal air monitoring program results indicate no exceedances of the Manitoba Occupational Exposure Limits (OEL) for PM₁₀ or lead concentrations. Dust control activities, such as site watering, were employed to minimize airborne dust levels. The air quality monitoring results indicate that there was very minimal risk to human or environmental health due to the PM₁₀ and lead concentrations in air during construction activities.

4.2 Soil

The remediation of metals impacted material was completed as per the RAP developed for the Site. However, historic hydrocarbon impacted soil remains in the south portion of the Site which was not addressed as part of the site remediation. The risks associated with the historic hydrocarbon impacted material remaining at the Site are discussed in Section 4.3.

4.2.1 Surface Soil

The volume of metals impacted surface soil excavated from the Site and from the surrounding residences (3 Russell Street and 214 Pacific Avenue) was approximately 2,161 m³. The impacted surface soil was excavated to a depth of 0.3 m (1 ft) and placed under the engineered cap. Eleven (11) closure soil samples (collected at a depth of 0.3 m) exceeded the site-specific HHRA remediation guidelines for arsenic, antimony, lead and/or manganese. These soil samples were generally collected from areas west of the engineered cap and east of the two residences. Also, two (2) soil samples exceeded the Manitoba Leachate Quality Criteria for lead.

In general, the highest concentrations of metals remaining on the site surface (at a depth of 0.3 m) exceeded the site-specific HHRA soil quality guidelines by a factor of two or less, with the exception of lead (exceeded site-specific HHRA soil quality guideline by a factor of eight). As shown in Figure 8, the closure soil samples generally had much

lower concentrations of metals than the original surface soil samples collected during the metals impact delineation completed in May 2008, indicating that a substantial quantity of the contaminant source has been removed and subsequently placed under the engineered cap. In addition, the backfilling of each excavated area with clean fill material and topsoil ensures that the risk of human contact with impacted soil is mitigated. Also, seeding of the excavated/backfilled areas also ensures that once re-vegetation of the Site is established, the potential for migration of surface soil by wind and erosion will be substantially reduced. Potential impacts as a result soil contact during future commercial development on the west portion of the Site are discussed in Section 4.3.

Although TCLP results indicated that lead leachability exceeded the Manitoba Leachate Quality Criteria of 5.0 mg/L in two closure samples located west (5.4 mg/L) and south (29.3 mg/L) of the engineered cap, the leaching of metals into groundwater at the Site is not a concern as groundwater is not used a potable water source and the protection of freshwater aquatic life is not an applicable exposure pathway. Based on lead concentrations for all other closure soil samples collected from the Site, it is not expected that the leachability criteria is exceeded anywhere else on the Site. In addition, the positive drainage created by final site grading and the growth of vegetation over the entire site greatly reduces the infiltration of precipitation and the potential for metals leaching in the soil.

4.2.2 Subsurface Soil

The volume of impacted subsurface soil excavated from the area north of Pacific Avenue was approximately 1,406 m³. The subsurface soil was excavated to a depth of 5 m (16 ft) and placed under the engineered cap. Closure soil samples collected from the north and east walls of the excavation at depths greater than 1 m (3 ft) marginally exceeded the site-specific HHRA remediation guidelines for arsenic, lead or manganese. None of the soil samples collected from the excavation limits exceeded the Manitoba Leachate Quality Criteria.

Closure soil samples generally had much lower concentrations of metals than the original surface soil samples collected during the metals impact delineation completed in May 2008, indicating that a substantial quantity of the contaminant source has been removed and subsequently placed under the engineered cap. In addition, the backfilling of each excavated area with clean fill material ensures that the risk of human contact with impacted soil is eliminated. Also, seeding of the excavated/backfilled area also ensures that once re-vegetation of the Site is established, the potential for migration of surface soil by wind and erosion will be substantially reduced.

4.3 Site Limitations and Risk Mitigation

The site remediation was completed with the approval of the City of Brandon and Manitoba Conservation. The remediation was completed according to the future site development of green space land use for most of the Site with the option of commercial development for the west portion of the Site along 1st Street. The site-specific HHRA remediation guidelines were applied specifically for the intended site development. If the Site is used for any other land use, adjustments to the selected soil quality guidelines and related mitigation measures should be considered.

The RAP developed for the Site addressed the immediate human and environmental health concerns related to soil exposure and inhalation at the Site. However, several issues must be considered with respect to the potential future development of the west portion of the Site for commercial land use. Although not an immediate concern, metals and hydrocarbon impacts to soil below grade are still present on this portion of the Site following remediation activities.

4.3.1 Metals

Although all metals-impacted surface soil has been excavated and replaced with clean fill material, subsurface metals impacts are still present in one area of the commercially designated portion of the Site and may present human health exposure risk (soil contact) during future development/construction. The estimated metals impacted area is shown in Figure 14 and is approximately 277 m². The potential concerns associated with the remaining

metals-impacted subsurface material are dependent on the type (shallow/deep foundations, slab on grade construction methods, utilities, etc.) and position of any commercial development that may occur in this area.

4.3.2 Hydrocarbons

Subsurface hydrocarbon impacts to soil have been delineated at the Site through previous investigations. Based on the land use plan established for the Site, the Site is split into green space and an area designated for potential future commercial development. For the green space areas of the Site, the risk of exposure to hydrocarbon-impacted soil is negligible, as the impacts are typically at depth. As an added measure, a layer of topsoil placed over the entire site during site remediation provided a base for site revegetation but also further reduced the potential for soil contact. For the potential commercial development area on the west portion of the Site along 1st Street, the hydrocarbon impacts only present a concern for a small expanse of the southeast portion of this area. It should be noted that the potential concerns associated with the hydrocarbon impacted subsurface material are dependent on the type (shallow/deep foundations, slab on grade construction methods, utilities, etc.) and position of any commercial development that may occur in this area and are within reasonable means of mitigation during design and construction planning phases. Remediation of the PHC impacts should not be necessary if future commercial development does not intersect the PHC-impacted subsurface material.

As shown in Table 10, historical soil hydrocarbon analysis results from the 2002 and 2004 investigations for the commercially designated area were compared to current CCME and CWS Soil Quality Guidelines for Commercial Land Use. The estimated area of hydrocarbon impacted material (based on the vapour inhalation exposure pathway) existing in the southeast corner of the area set aside for future commercial development is 205 m², as shown in Figure 14. The impacted material appears to be contained from just below grade to 4.6 metres in depth, creating a total estimated volume of 950 m³ of hydrocarbon impacted material in the proposed commercial development area. Aside from the potential vapour inhalation exposure pathway associated with future commercial development in this area, a management limit (including considerations such as exposure of workers in trenches to PHC vapours and buried infrastructure effects) is also an applicable exposure pathway.

4.3.3 Mitigation Options for Future Commercial Development

With respect to the areas of metal- and hydrocarbon-impacted subsurface soil discussed in the preceding sections, several potential mitigation options can be considered for future development of the commercially designated area at the Site. Some potential mitigation options that can be employed separately or in combination prior to, or during, commercial development are as follows:

1. Prior to commercial development, excavate PHC-impacted material and replace with clean fill material. Excavated PHC-impacted material should be disposed of at a licensed soil treatment facility. To prevent the migration of hydrocarbon impacts back into the excavated area, install an impermeable liner along the eastern limit of the excavation prior to backfilling.
2. With respect to metals impacted subsoil, ensure that proper construction protocol is used during commercial development to prevent site worker contact with the impacted material. Also, ensure that any subsoil material excavated during construction activities is not left exposed at the surface to mitigate the soil contact exposure pathway. Excavated subsoil material can either be covered with clean cover material or pavement or disposed of off-site at a licensed disposal facility.
3. Place slab on grade buildings, building foundations and utilities in areas that do not intersect the estimated PHC contaminant plume.

5. Conclusions

The remedial work was completed at the Site by AECOM according to the RAP accepted by Manitoba Conservation. Based on the results of the field activities, the following conclusions can be made:

Air Monitoring

1. The ambient air monitoring program results indicate elevated concentrations of PM₁₀ and lead in comparison to the Manitoba Conservation Ambient Air Quality Criteria. However, based on the air quality monitoring results, the risk to human or environmental health due to PM₁₀ and lead concentrations in air during construction activities was very low. The elevated concentrations occurred over the 10 hour work period at the Site and compared directly to the Manitoba Conservation Ambient Air Quality Criteria 24 hour average MAL as a conservative approach. As such, it is reasonable to conclude that the concentrations of PM₁₀ and lead in ambient air during construction activities at the Site were acceptable.
2. The personal air monitoring program results indicate no exceedances of the Manitoba Occupational Exposure Limits PM₁₀ or lead or concentrations in air.

Soil Remediation

1. The volume of metals impacted surface soil excavated from the Site and neighbouring residences (3 Russell Street and 214 Pacific Avenue) and placed beneath the engineered cap was approximately 2,161 m³.
2. The volume of impacted subsurface soil excavated from the area north of Pacific Avenue and placed beneath the engineered cap was approximately 1,406 m³. Soil samples collected from the north and east limits of the excavation at depths greater than 1 m (3 ft) marginally exceeded the site-specific HHRA remediation guidelines for arsenic, lead or manganese with concentrations much lower than concentrations determined during surface soil delineation activities. None of the samples collected from the excavation limits exceeded the Manitoba Leachate Quality Criteria.
3. Laboratory and field analysis results for soil samples collected from the base of each surface soil excavation area (at a depth of 0.3 m below ground surface) indicate that eleven (11) soil samples exceeded the site-specific HHRA remediation guidelines for arsenic, antimony, lead and/or manganese with concentrations much lower than concentrations determined during surface soil delineation activities. In addition, two (2) of the soil samples also exceeded the Manitoba Leachate Quality Criteria for lead.
4. The backfilling of each excavated area with clean fill material ensures that the low potential for human contact with any remaining subsurface impacted soil effectively eliminates the risk to human health is very low. Also, seeding/sodding of the excavated/backfilled areas further ensures that once re-vegetation of the Site is established, the potential for migration of surface soil by wind and other erosion will be substantially reduced.
5. Site remediation tasks carried over to the 2009 field season include the removal of the silt fence once the site vegetation is sufficiently established and asphalt paving of the extended foot and bike path across the Site. Additional seeding and/or landscaping will be completed by the City of Brandon according to future land development plans but will accommodate the remedial measures put in place for the Site.
6. A post-closure groundwater monitoring program has been developed to monitor the trends in groundwater quality. The post-remediation groundwater monitoring program consists of a monitoring well system that includes up to 14 previously installed monitoring wells and the 6 newly installed monitoring wells with quarterly groundwater monitoring and semi-annual groundwater sampling, starting in December 2008 and finishing in

the fall of 2010. The results of the two year groundwater monitoring program will then be reviewed and a recommendation will be made to Manitoba Conservation regarding the degree of future groundwater monitoring, if required.

Potential for Future Commercial Development

1. Although not currently a risk to human health, metal and PHC impacts to subsurface soil remain on the portion of the Site designated for potential future commercial development following remediation activities. The remaining soil impacts must be considered during the design and construction of commercial buildings on certain portions of the commercially designated area so exposure risks to human health (vapour inhalation inside commercial buildings and soil contact for construction workers) can be mitigated. From this perspective, the area of metal-impacted subsurface soil remaining at the Site is approximately 271 m². The area of PHC-impacted soil remaining is approximately 205 m² (950 m³). Several potential mitigation options including excavation of impacted material, use of appropriate construction protocol for site worker safety, and specific building placement can be considered for future development in this area of the Site.

6. Conditions

The present study was designed to meet the requirements of the City of Brandon (in accordance with provincial guidelines). Conditions outlined in the Consulting Agreement and Authorization to Proceed of the project proposal apply.

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report:

are subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
represent Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
may be based on information provided to Consultant which has not been independently verified
have not been updated since the date of issuance of the Report and their accuracy is limited to the time period and circumstances in which they were collected, processed, made or issued
must be read as a whole and sections thereof should not be read out of such context
were prepared for the specific purposes described in the Report and the Agreement
in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Unless expressly stated to the contrary in the Report or the Agreement, Consultant:

shall not be responsible for any events or circumstances that may have occurred since the date on which the Report was prepared or for any inaccuracies contained in information that was provided to Consultant
agrees that the Report represents its professional judgement as described above for the specific purpose described in the Report and the Agreement, but Consultant makes no other representations with respect to the Report or any part thereof
in the case of subsurface, environmental or geotechnical conditions, is not responsible for variability in such conditions geographically or over time

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

as agreed by Consultant and Client
as required by law
for use by governmental reviewing agencies

Any use of this Report is subject to this Statement of Qualifications and Limitations. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

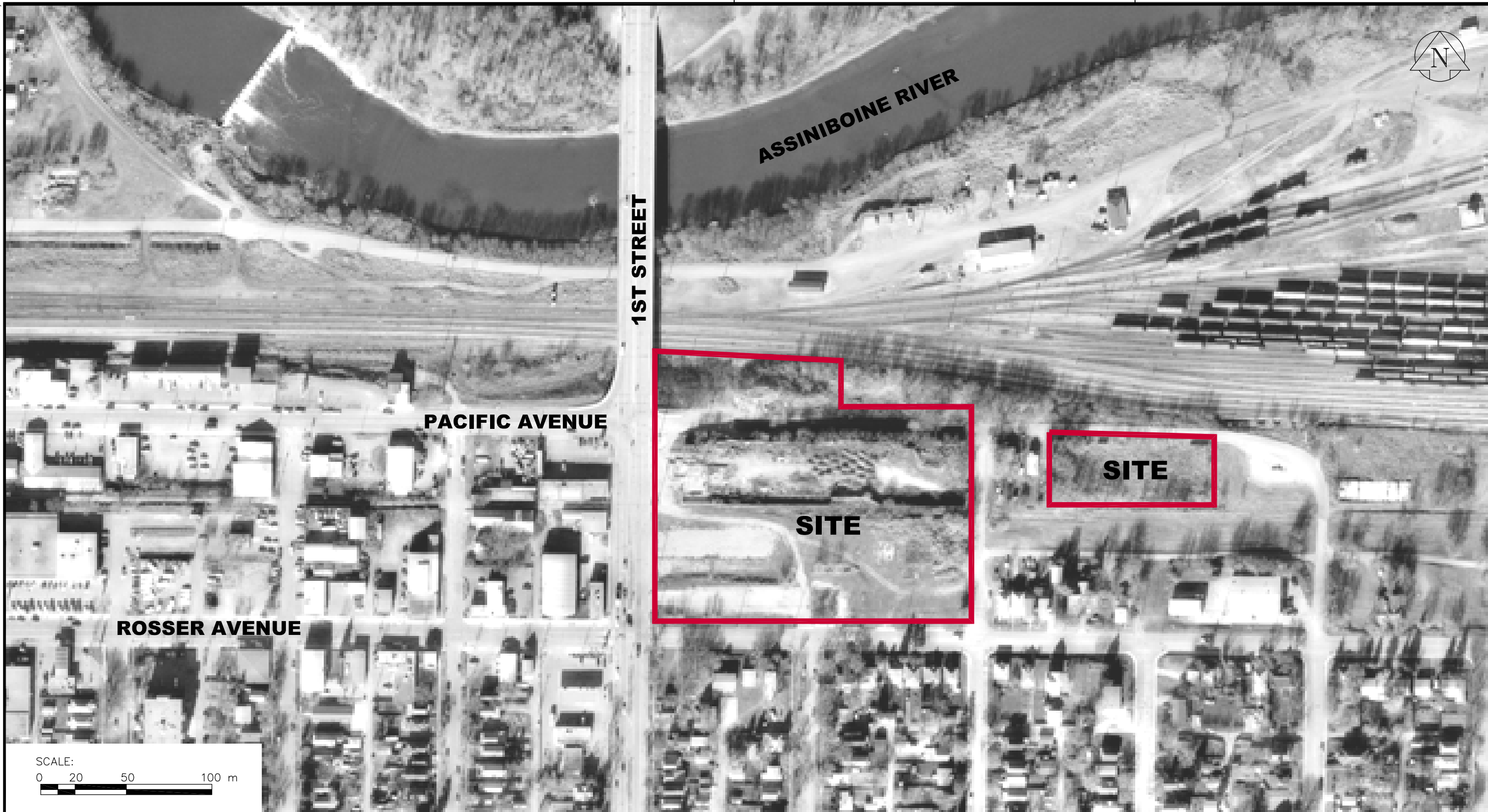
This Statement of Qualifications and Limitations is attached to and forms part of the Report.

Figures

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 2/17/2009 11:33:56 AM

FILE NAME: SITE LOCATION.DWG BY:-----



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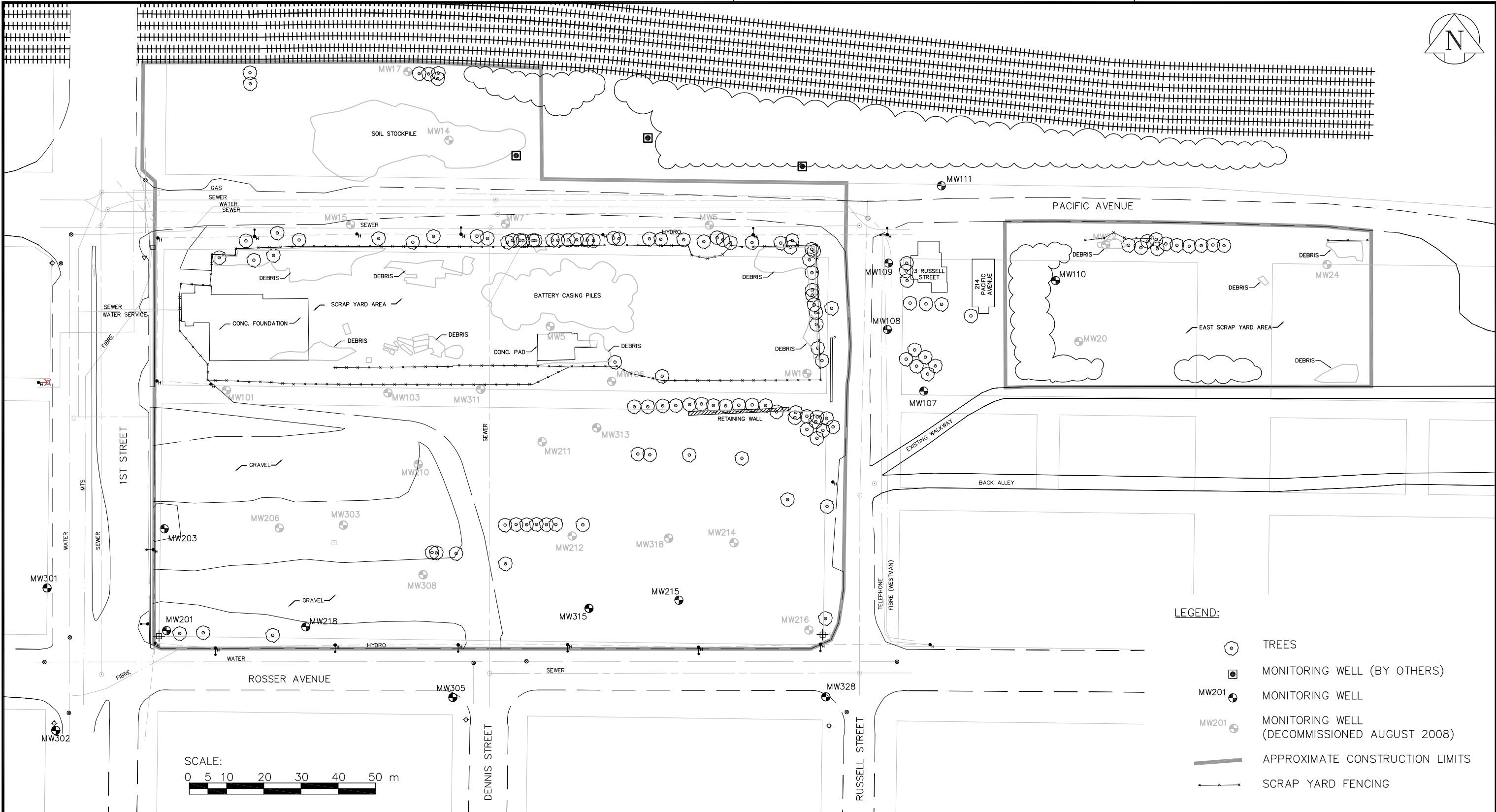
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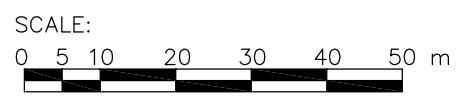
CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SITE LOCATION

PROJECT NUMBER 100138	DRAWING NUMBER FIGURE 1	ISSUE/REVISION A
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FILE NAME: SITE PLAN PRE-REMEDIATION.DWG BY:----- PLOT: 2/17/2009 11:35:29 AM B SIZE 11" x 17" (279.4mm x 431.8mm)



- LEGEND:**
- TREES
 - MONITORING WELL (BY OTHERS)
 - MONITORING WELL
 - MONITORING WELL (DECOMMISSIONED AUGUST 2008)
 - APPROXIMATE CONSTRUCTION LIMITS
 - SCRAP YARD FENCING



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CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SITE PLAN - PRE-REMEDIATION

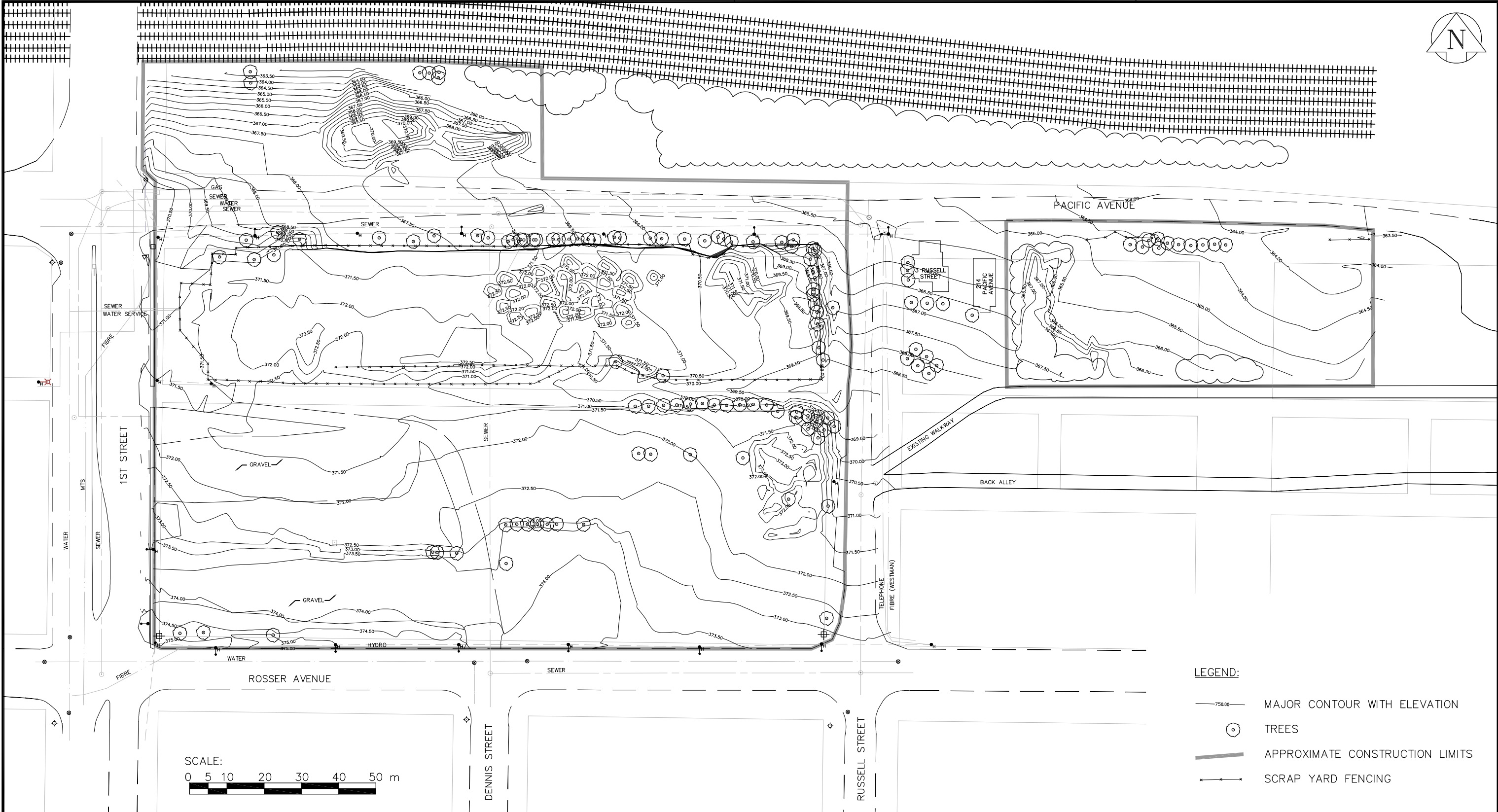
PROJECT NUMBER 100138	DRAWING NUMBER FIGURE 2	ISSUE/REVISION A
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B SIZE 11" x 17" (279.4mm x 431.8mm)

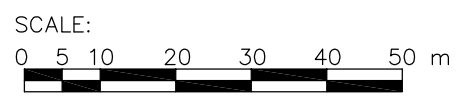
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BY:-----

FILE NAME: SITE PLAN PRE-REMEDIATION.DWG



- LEGEND:**
- MAJOR CONTOUR WITH ELEVATION
 - TREES
 - APPROXIMATE CONSTRUCTION LIMITS
 - SCRAP YARD FENCING



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CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SITE CONTOURS - PRE-REMEDIATION

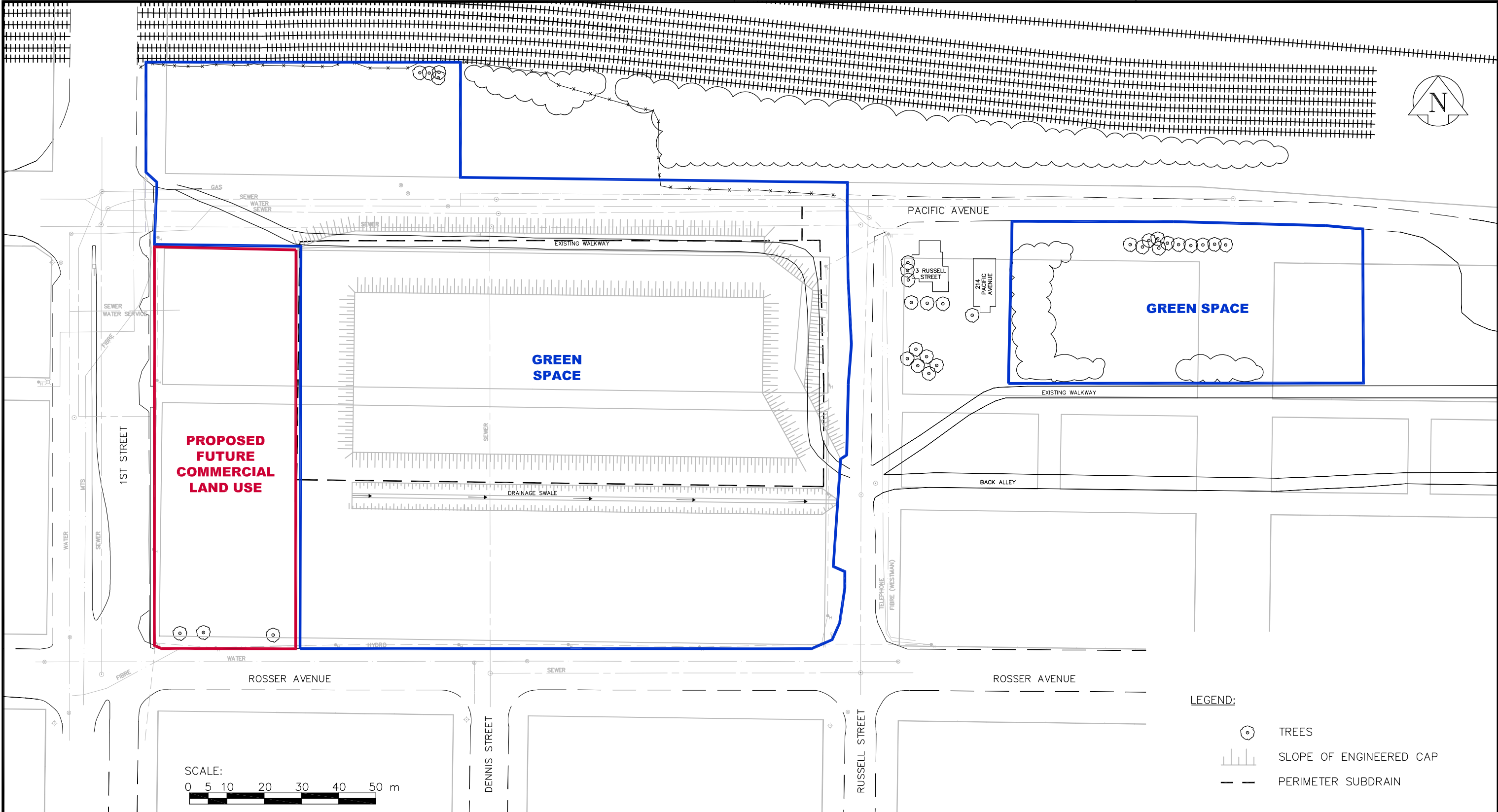
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100138	FIGURE 3	A

B SIZE 11" x 17" (279.4mm x 431.8mm)

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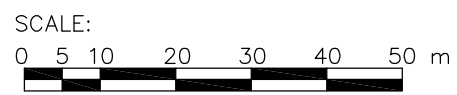
FILE NAME: SITE PLAN POST-REMEDIATION.DWG



**PROPOSED
FUTURE
COMMERCIAL
LAND USE**

GREEN SPACE

GREEN SPACE



- LEGEND:
- TREES
 - SLOPE OF ENGINEERED CAP
 - PERIMETER SUBDRAIN

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**CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
POST-REMEDIATION
PROPOSED LAND USE**

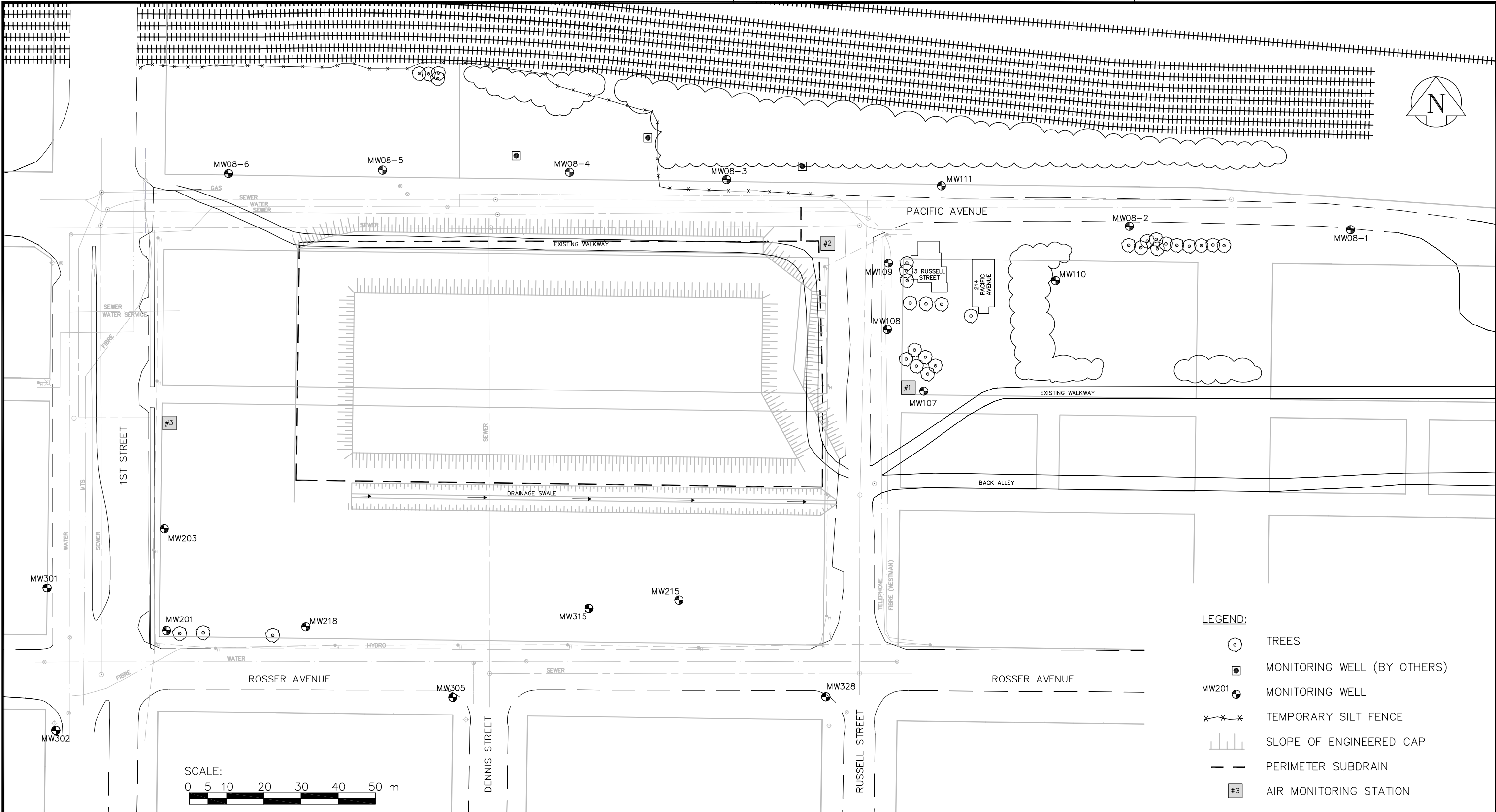
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100138	FIGURE 4	A

B SIZE 11" x 17" (279.4mm x 431.8mm)

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FILE NAME: SITE PLAN POST-REMEDIATION.DWG



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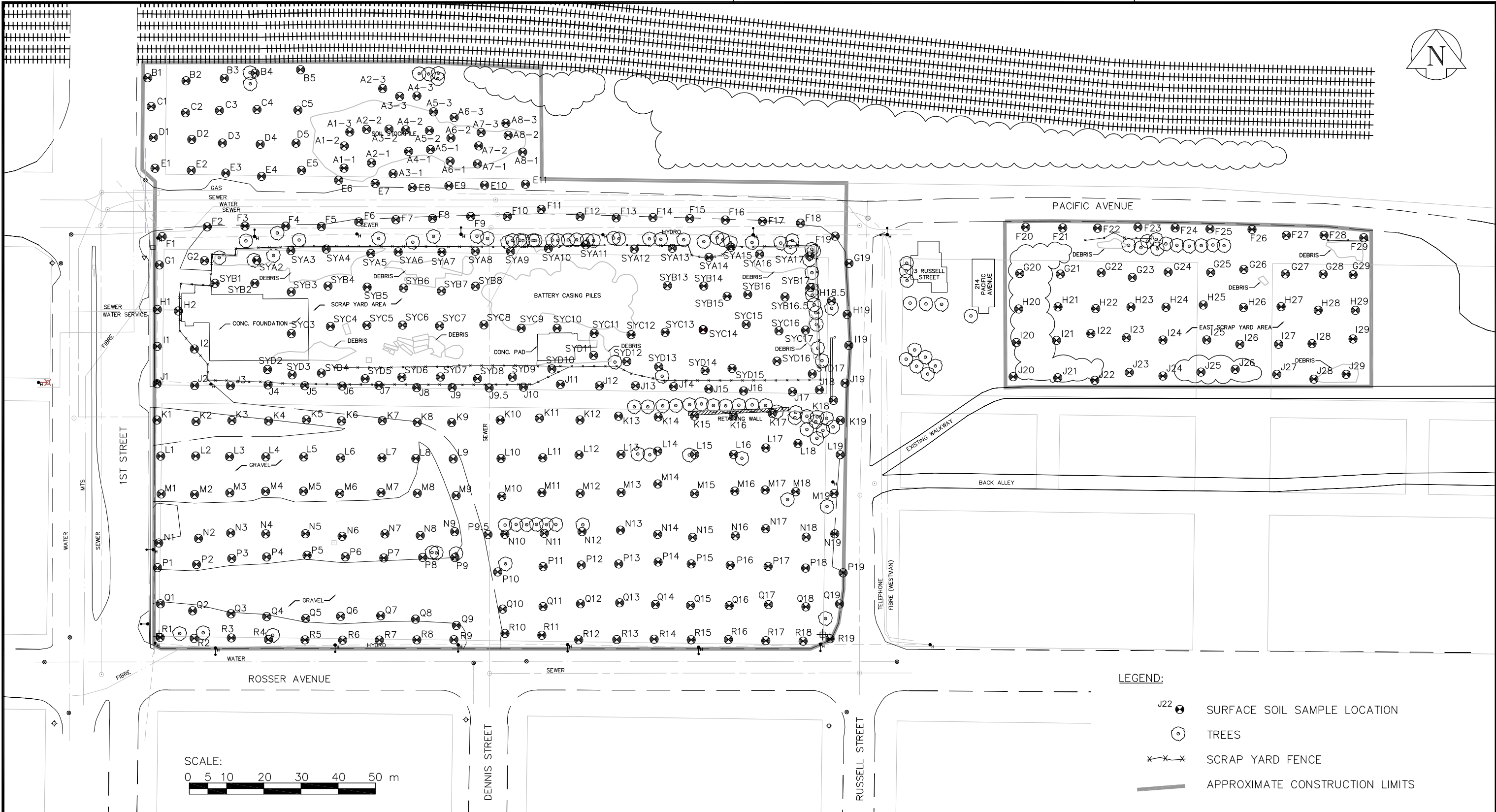
CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SITE PLAN - POST-REMEDIATION

PROJECT NUMBER 100138	DRAWING NUMBER FIGURE 5	ISSUE/REVISION A
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B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 2/17/2009 11:39:44 AM

FILE NAME: SURFACE DELINEATION.DWG BY:-----



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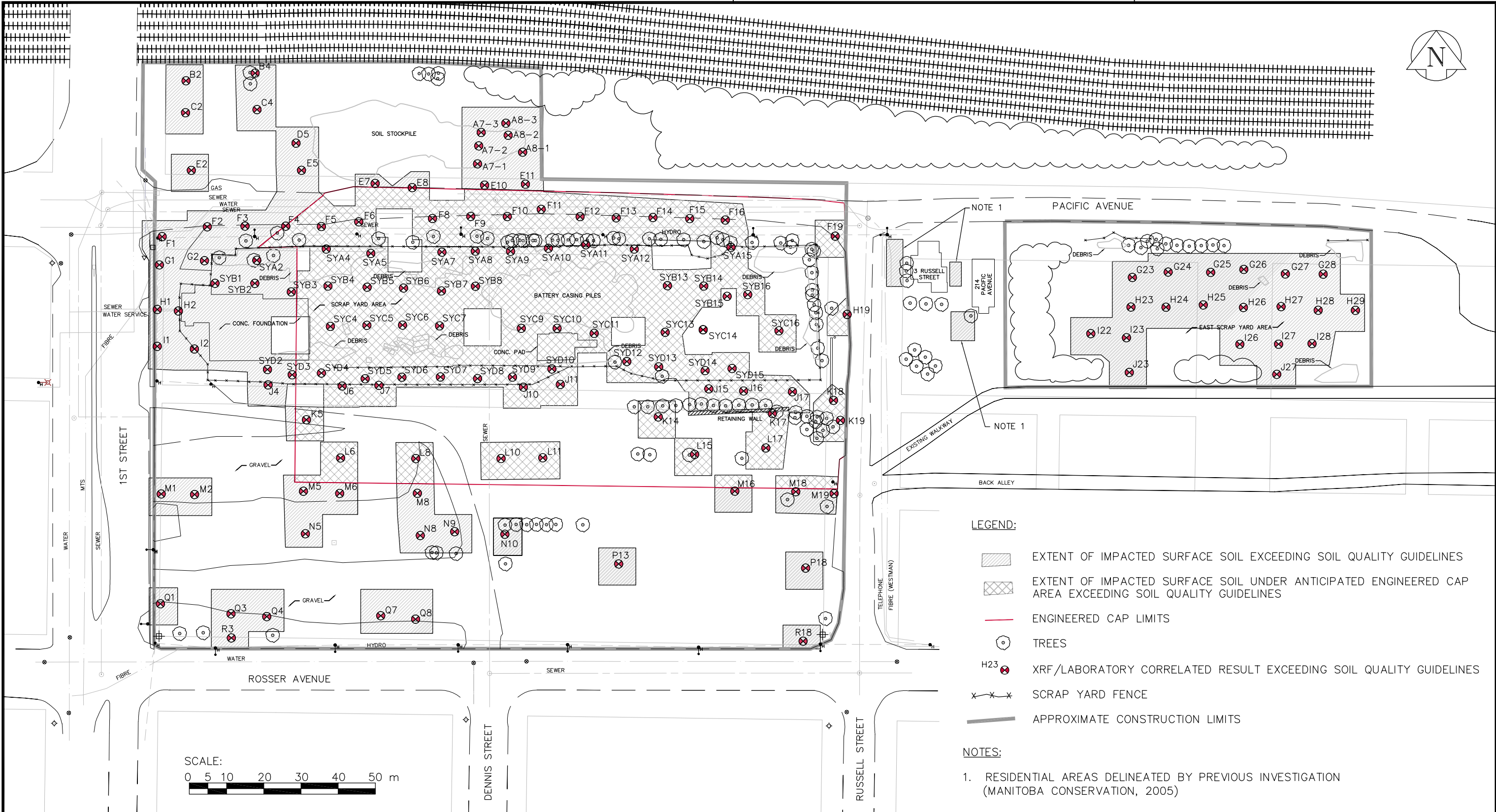
CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SURFACE SOIL DELINEATION

PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 6	A

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 2/17/2009 11:40:37 AM

FILE NAME: SURFACE DELINEATION.DWG BY:-----



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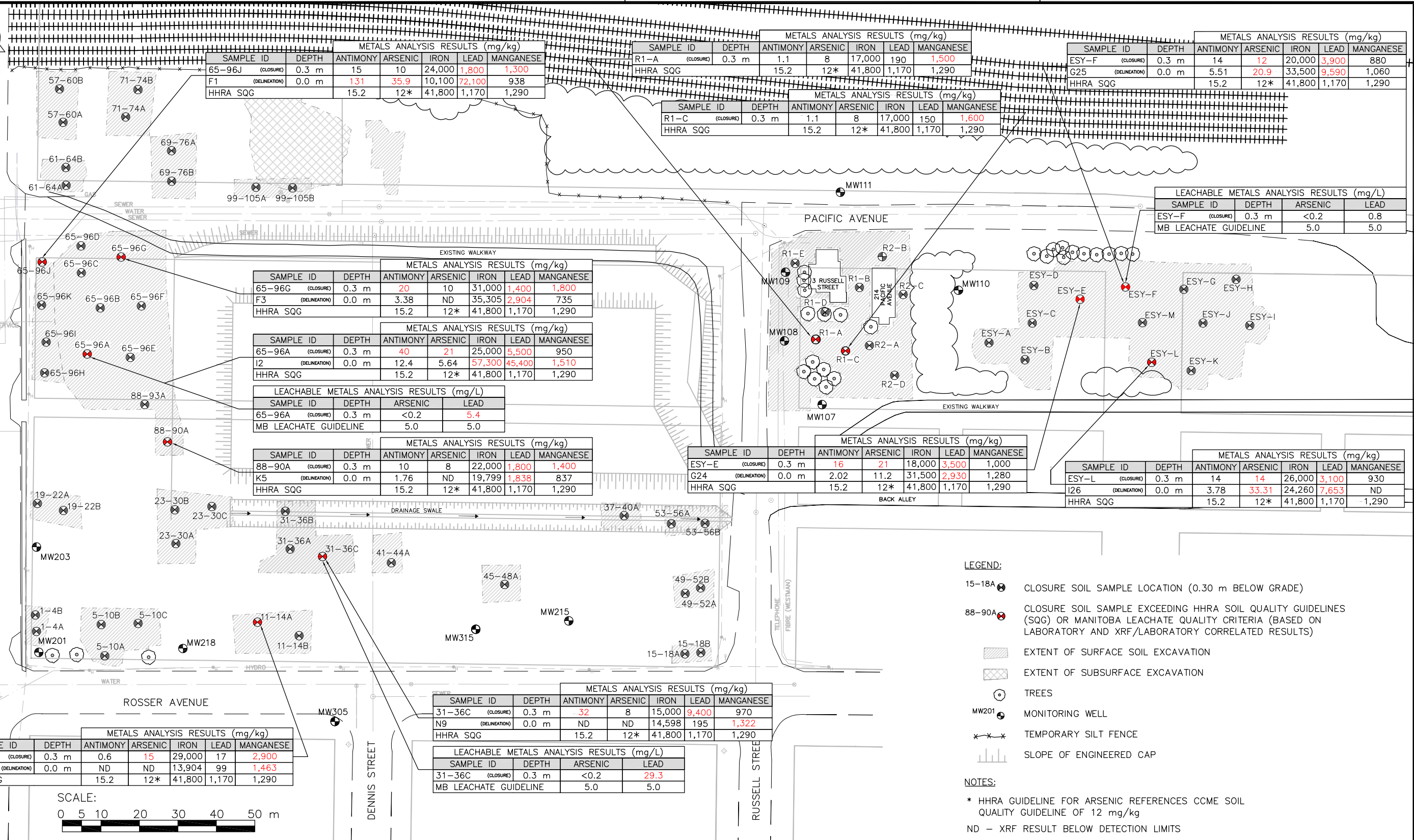
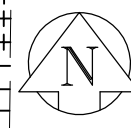
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CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
IMPACTED SURFACE SOIL DELINEATION

PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 7	A

FILE NAME: SITE PLAN POST-REMEDIATION.DWG BY:--- PLOT: 2/17/2009 1:51:07 PM B SIZE 11" x 17" (279.4mm x 431.8mm)



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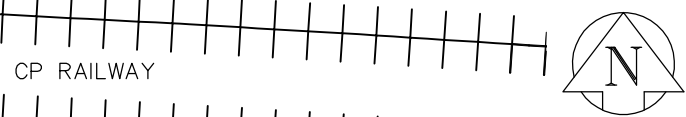
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I/R	YY/MM/DD	ISSUE/REVISION DESCRIPTION	DRN	CHK	DES	ENG	IDR	APP	

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CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SURFACE SOIL EXCAVATIONS

PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 8	A

FILE NAME: SUBSOIL EXCAVATION REVISIONS.DWG BY: --- PLOT: 2/17/2009 1:48:11 PM B SIZE 11" x 17" (279.4mm x 431.8mm)



METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-N-WALL-A1	OCT/08	1.0 m	6.9	7	13,000	1,500	680
SS-N-WALL-A1#3	OCT/08	1.0 m	ND	ND	15,978	565	ND
SS-N-WALL-A2#3	OCT/08	2.0 m	ND	ND	13,094	157	ND
SS-N-WALL-A3	OCT/08	3.0 m	ND	ND	8,523	789	ND
SS-N-WALL-A3#2	OCT/08	3.0 m	ND	ND	14,421	55	ND
SS-N-WALL-AB#2	OCT/08	4.0 m	ND	ND	9,830	ND	ND
SS-N-WALL-AB#3	OCT/08	4.0 m	ND	ND	4,648	ND	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-N-WALL-CRNR-1	OCT/08	1.0 m	2.2	9	22,000	280	1,300
SS-N-WALL-CRNR-2	OCT/08	2.0 m	ND	ND	12,113	161	ND
SS-N-WALL-CRNR-3	OCT/08	3.0 m	ND	ND	24,592	ND	ND
SS-N-WALL-CRNR-B	OCT/08	4.0 m	ND	ND	24,333	ND	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-N-WALL-B1	OCT/08	1.0 m	ND	ND	8,805	84	ND
SS-N-WALL-B2	OCT/08	2.0 m	ND	ND	8,925	81	ND
SS-N-WALL-B3	OCT/08	3.0 m	8.2	8	16,000	1,700	1,100
SS-N-WALL-BB	OCT/08	4.0 m	ND	ND	9,074	ND	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-N-WALL-C1	OCT/08	1.0 m	ND	ND	5,396	186	ND
SS-N-WALL-C2	OCT/08	2.0 m	3.1	12	9,600	180	440
SS-N-WALL-C3	OCT/08	3.0 m	ND	ND	5,548	209	ND
SS-N-WALL-CB	OCT/08	4.0 m	ND	ND	17,377	95	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-N-WALL-D1	OCT/08	1.0 m	ND	ND	5,488	77	ND
SS-N-WALL-D2	OCT/08	2.0 m	ND	ND	6,645	132	ND
SS-N-WALL-D3#2	OCT/08	3.0 m	6.0	15	10,000	1,100	520
SS-N-WALL-DB#2	OCT/08	4.0 m	ND	ND	7,131	ND	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

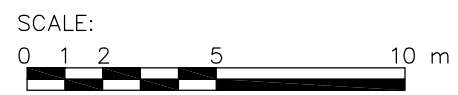
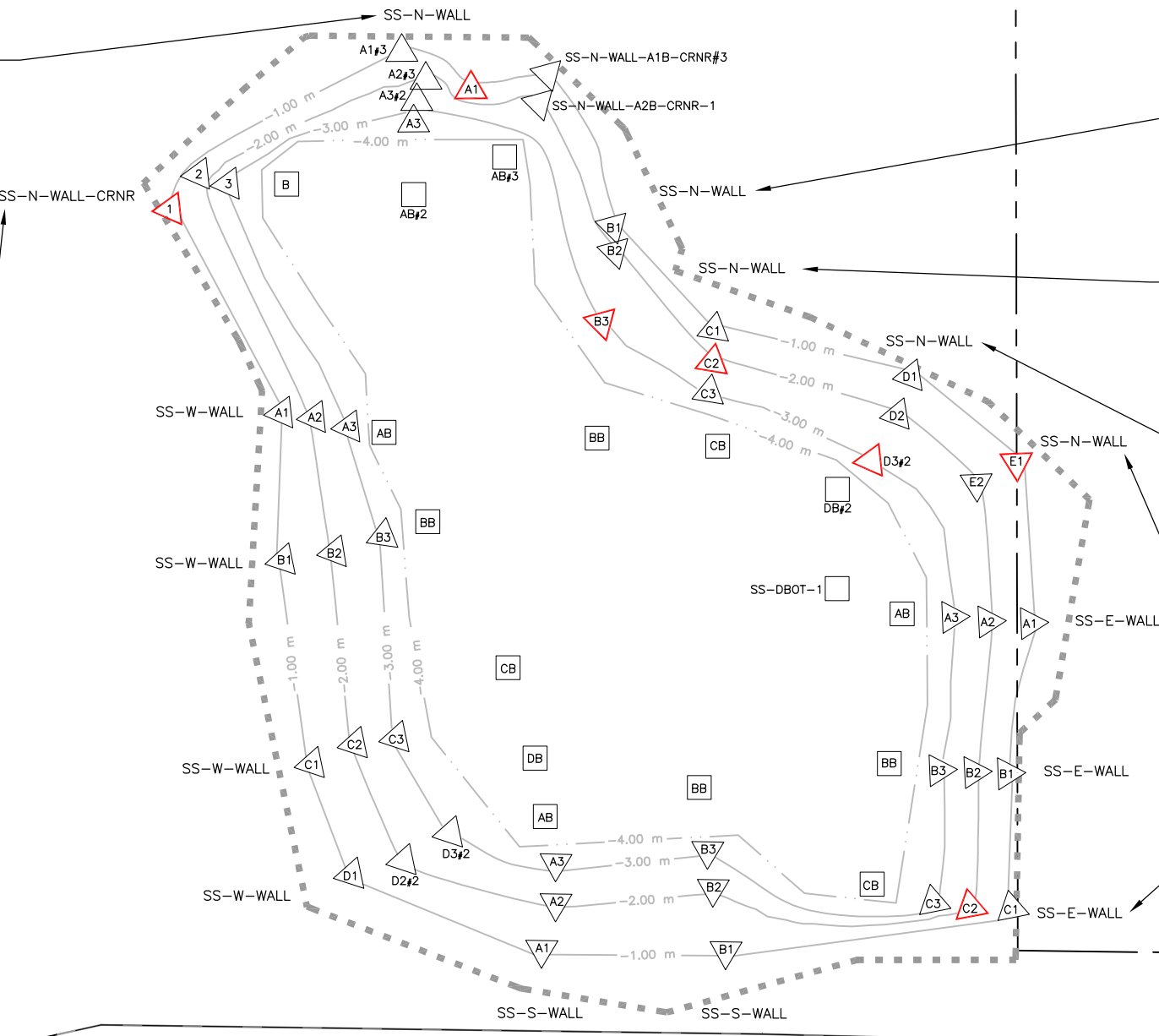
METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-N-WALL-E1	OCT/08	1.0 m	3.8	13	13,000	610	560
SS-N-WALL-E2	OCT/08	2.0 m	ND	ND	8,913	562	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

METALS ANALYSIS RESULTS (mg/kg)							
SAMPLE ID	DATE	DEPTH	ANTIMONY	ARSENIC	IRON	LEAD	MANGANESE
SS-E-WALL-C1	OCT/08	1.0 m	ND	ND	15,999	81	ND
SS-E-WALL-C2	OCT/08	2.0 m	0.5	11	24,000	38	1,300
SS-E-WALL-C3	OCT/08	3.0 m	ND	ND	13,771	88	ND
SS-E-WALL-CB	OCT/08	4.0 m	ND	ND	21,319	ND	ND
HHRA SQG			15.2	12*	41,800	1,170	1,290

- LEGEND:**
- SUBSURFACE EXCAVATION WALL SOIL SAMPLE LOCATION
 - SUBSURFACE EXCAVATION FLOOR SOIL SAMPLE LOCATION
 - SOIL SAMPLE EXCEEDING HHRA SOIL QUALITY GUIDELINES (SQG) - LABORATORY RESULT
 - FINAL EXTENTS OF SUBSURFACE EXCAVATION
 - FINAL FLOOR EXTENTS OF SUBSURFACE EXCAVATION
 - EXCAVATION CONTOUR LINE WITH ELEVATION
 - CITY OF BRANDON/CP RAIL PROPERTY LINE
 - MONITORING WELL (BY OTHERS)

NOTES:

- * HHRA GUIDELINE FOR ARSENIC REFERENCES CCME SOIL QUALITY GUIDELINE OF 12 mg/kg
- ND - XRF RESULT BELOW DETECTION LIMITS



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AECOM

**CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SUBSURFACE EXCAVATION
NORTH OF PACIFIC AVENUE**

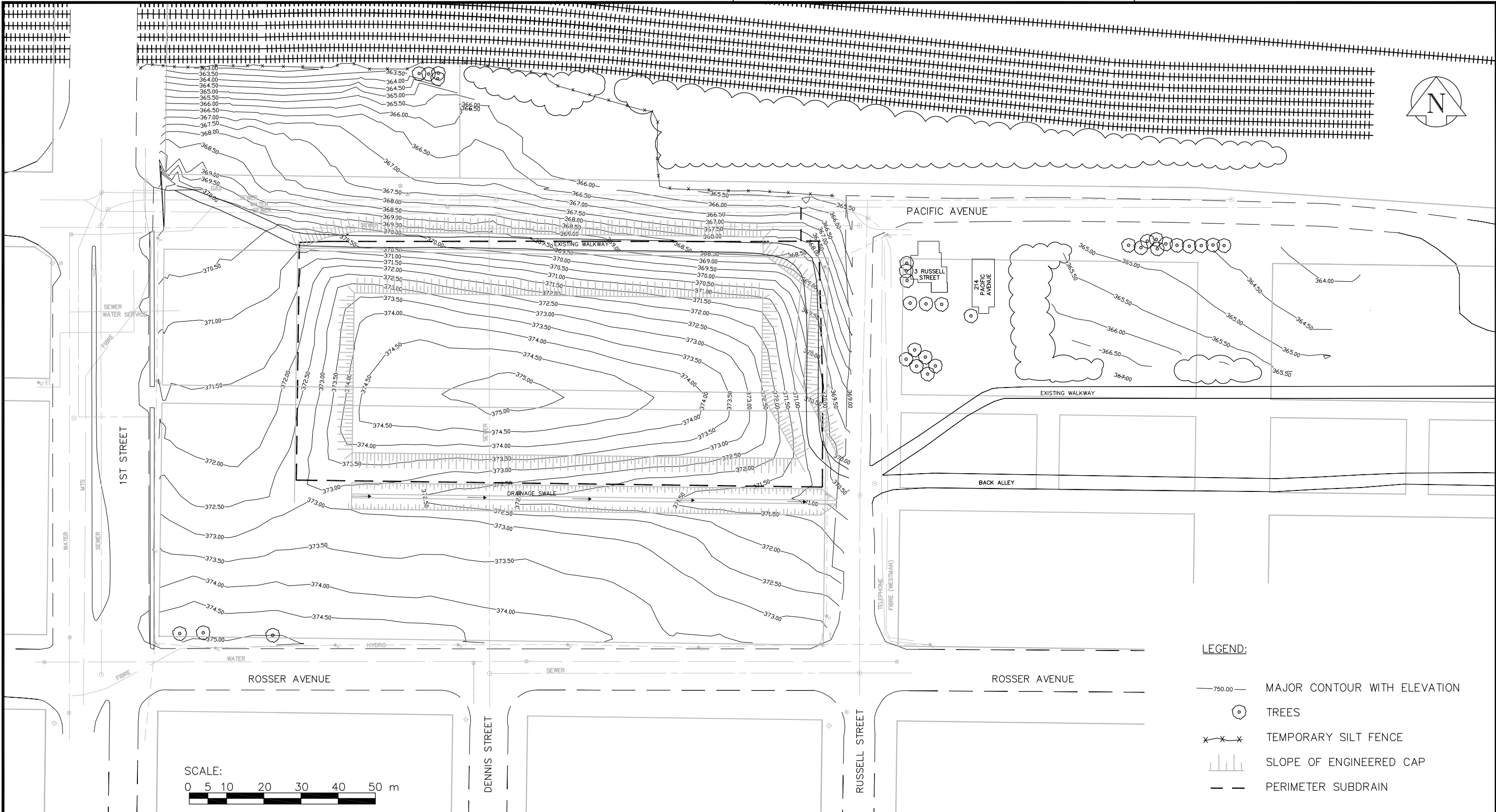
PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 9	A

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 2/17/2009 11:42:57 AM

BY:----

FILE NAME: SITE PLAN POST-REMEDIATION.DWG



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AECOM

CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
SITE CONTOURS - POST-REMEDIATION

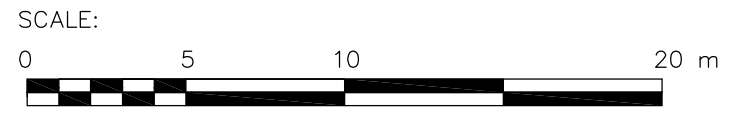
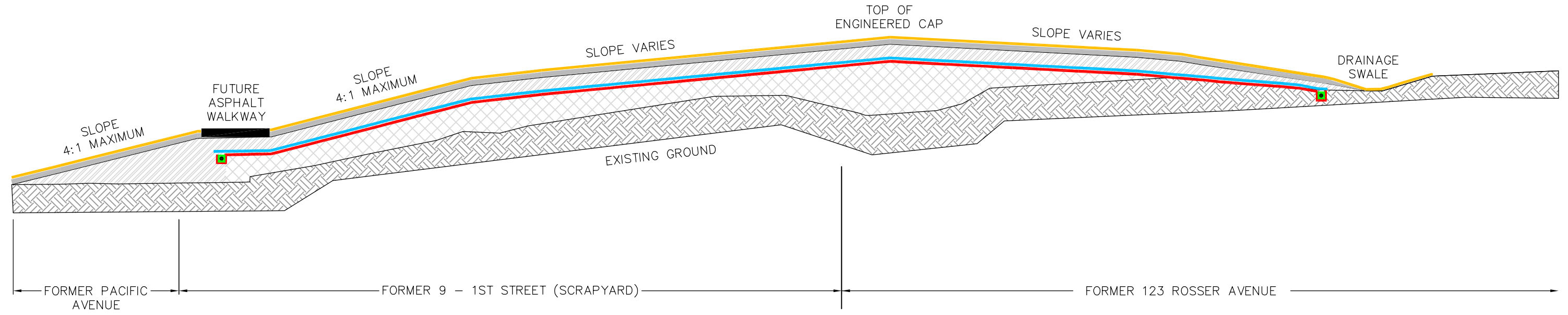
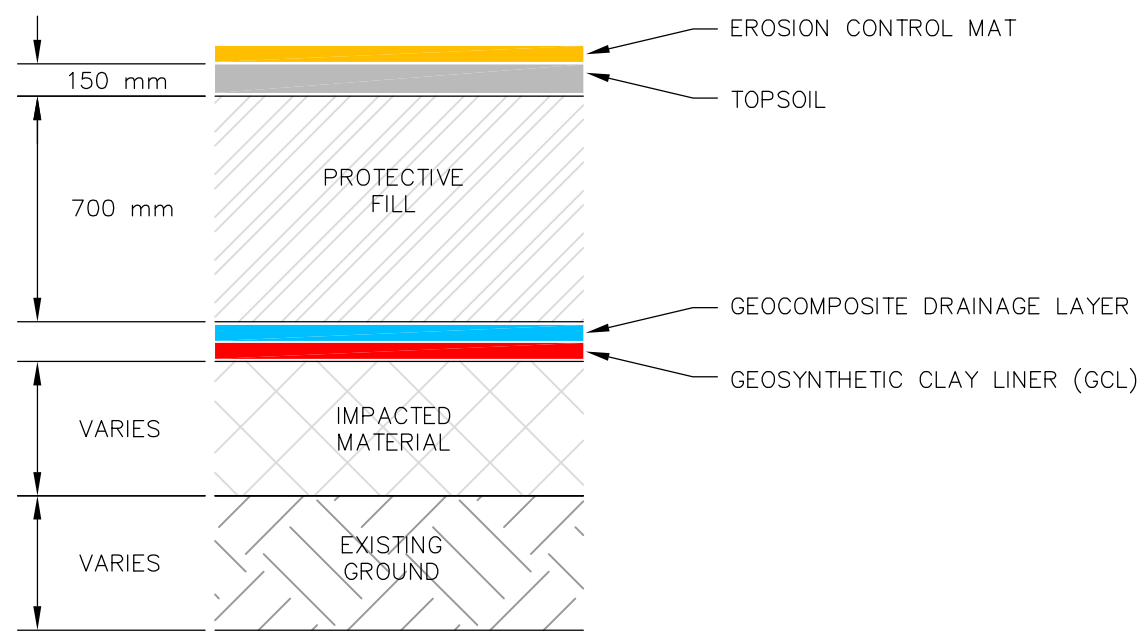
PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 10	A

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 2/17/2009 12:09:23 PM

BY:----

FILE NAME: SITE PLAN POST-REMEDIATION.DWG



LEGEND:

- PERIMETER SUBDRAIN
- EXISTING GROUND
- IMPACTED MATERIAL
- PROTECTIVE FILL LAYER
- TOPSOIL LAYER
- GEOSYNTHETIC CLAY LINER (GCL)
- GEOCOMPOSITE DRAINAGE LAYER
- EROSION CONTROL MAT

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CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
TYPICAL ENGINEERED CAP
CROSS SECTION

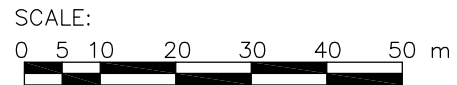
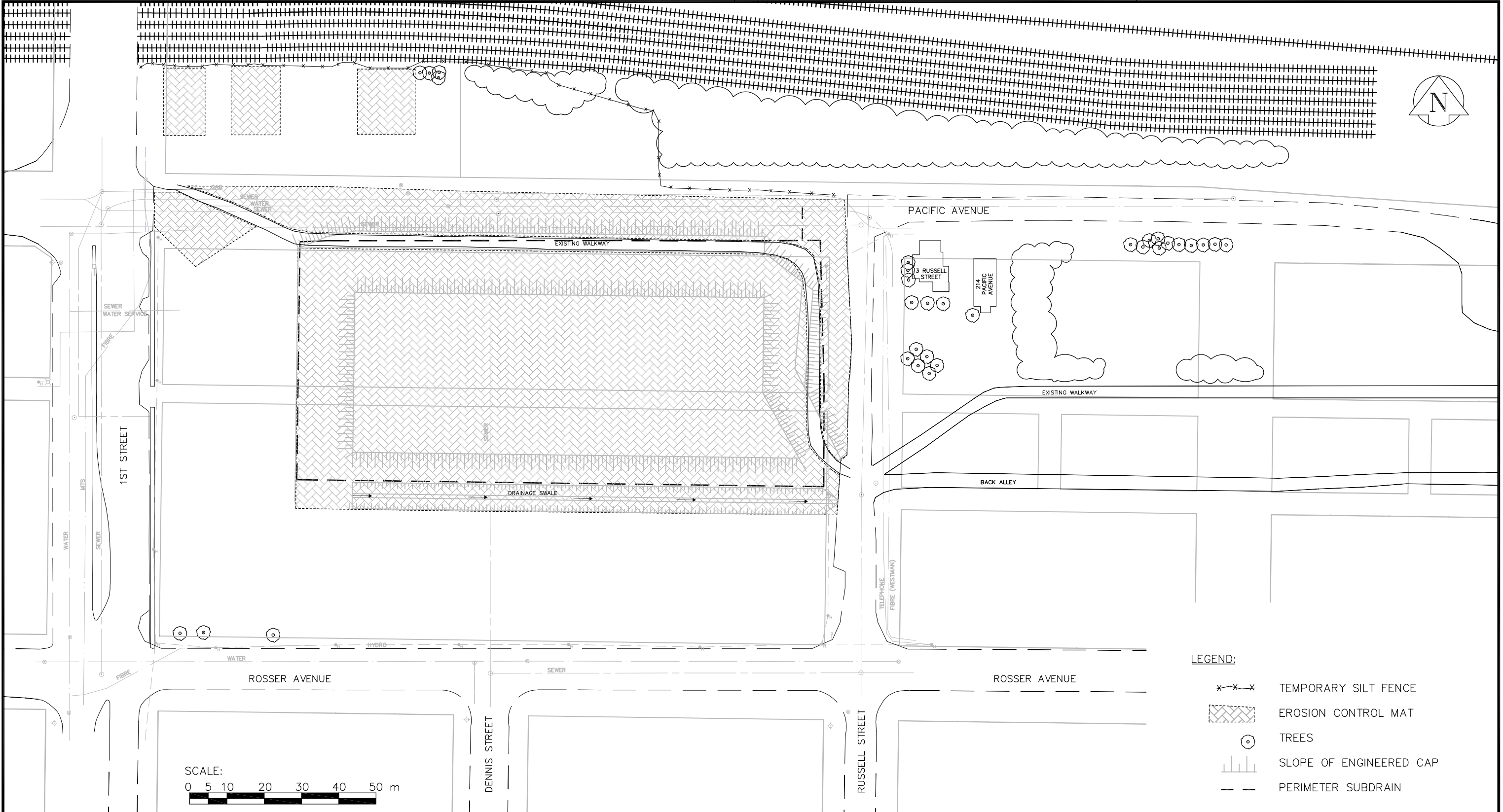
PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 11	A

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 2/17/2009 11:43:42 AM

BY:----

FILE NAME: SITE PLAN POST-REMEDIATION.DWG



- LEGEND:**
- TEMPORARY SILT FENCE
 - EROSION CONTROL MAT
 - TREES
 - SLOPE OF ENGINEERED CAP
 - PERIMETER SUBDRAIN

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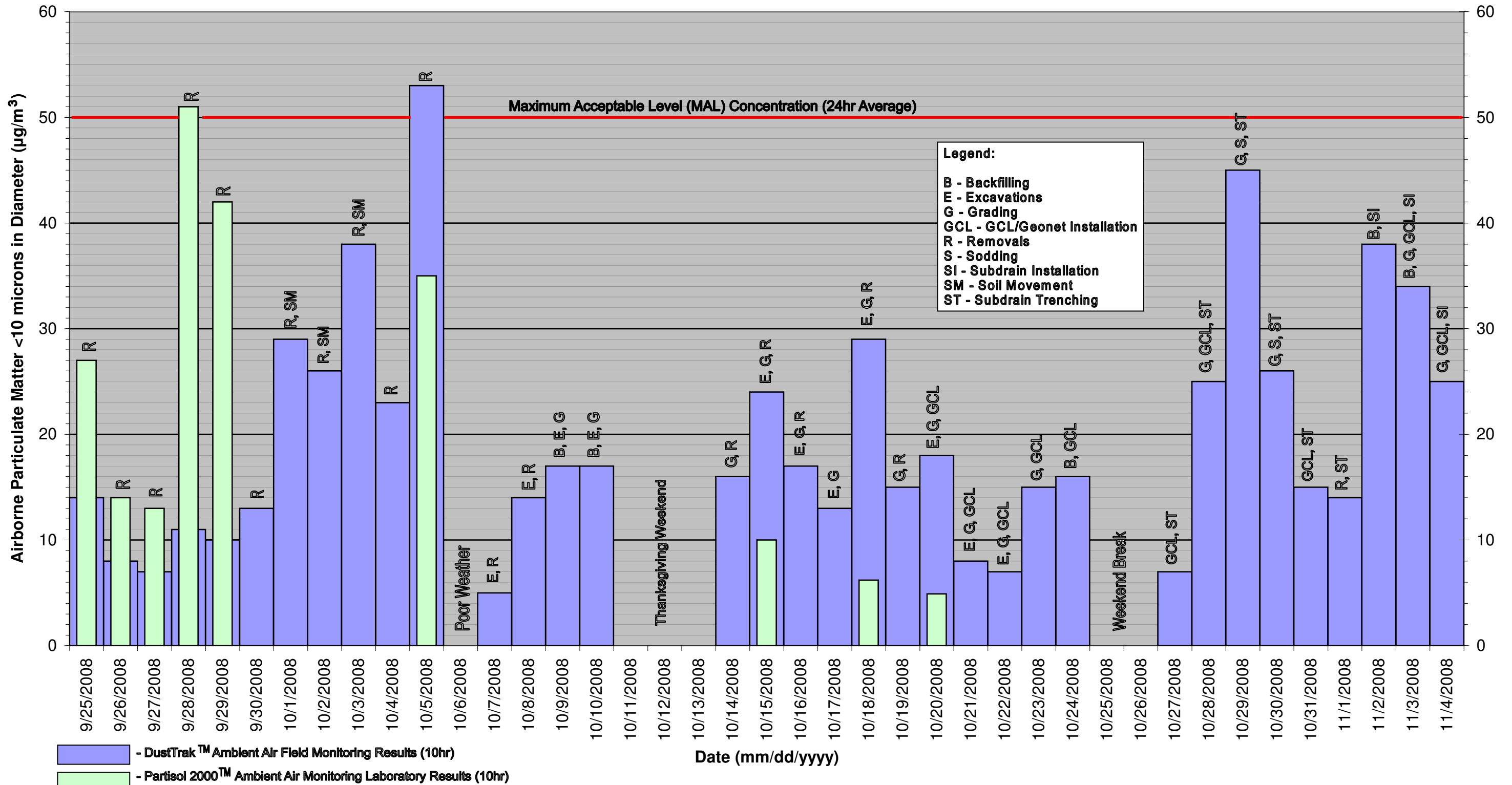
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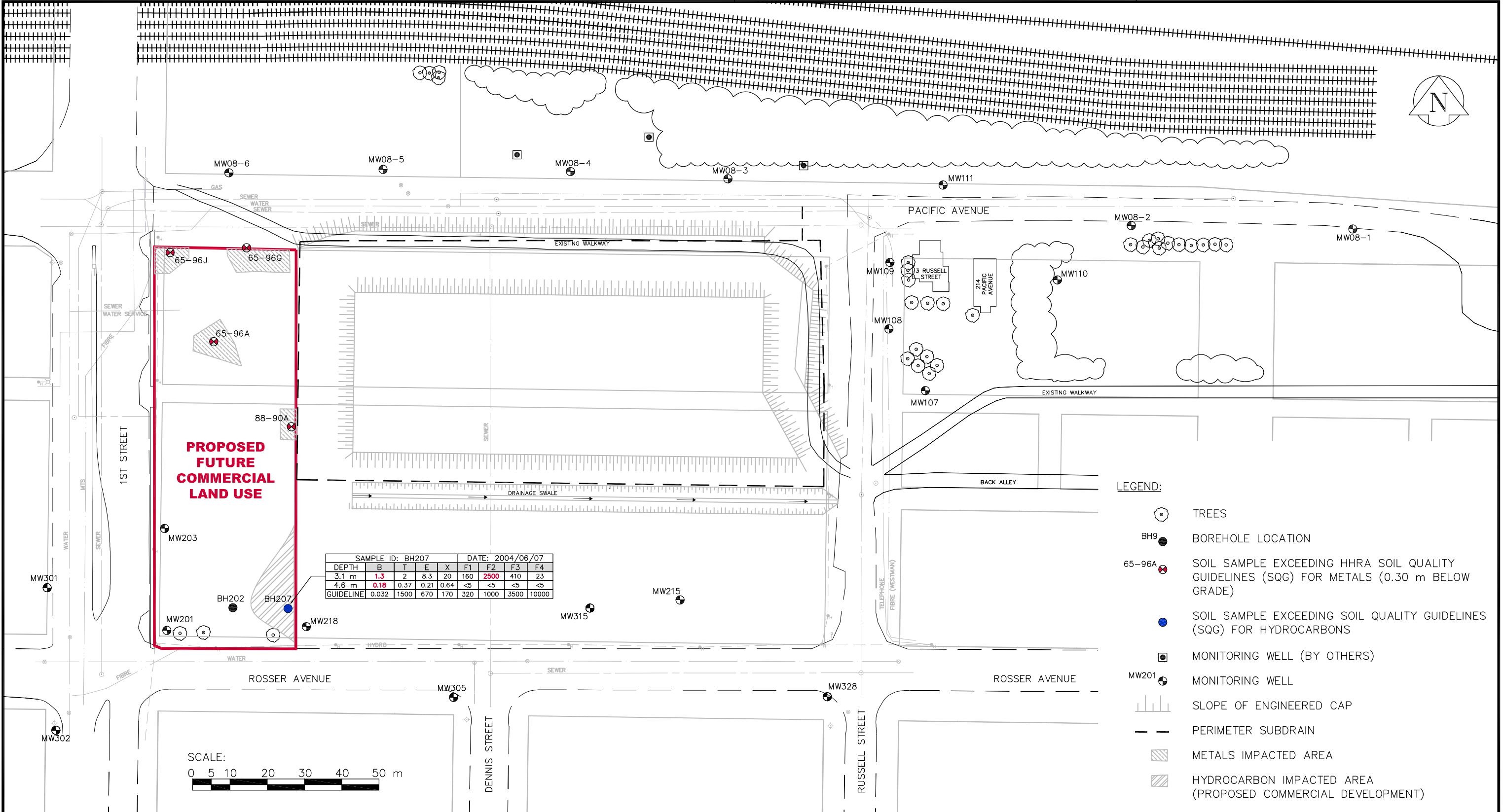
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**CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
POST-REMEDIATION
EROSION CONTROL MEASURES**

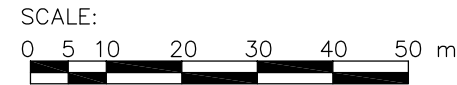
PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 12	A

Figure 13. Average Ambient Air Quality Monitoring Results (PM₁₀)





- LEGEND:**
- TREES
 - BOREHOLE LOCATION
 - SOIL SAMPLE EXCEEDING HHRA SOIL QUALITY GUIDELINES (SQG) FOR METALS (0.30 m BELOW GRADE)
 - SOIL SAMPLE EXCEEDING SOIL QUALITY GUIDELINES (SQG) FOR HYDROCARBONS
 - MONITORING WELL (BY OTHERS)
 - MONITORING WELL
 - SLOPE OF ENGINEERED CAP
 - PERIMETER SUBDRAIN
 - METALS IMPACTED AREA
 - HYDROCARBON IMPACTED AREA (PROPOSED COMMERCIAL DEVELOPMENT)



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**CITY OF BRANDON
1ST AND ROSSER SITE REMEDIATION
BRANDON, MB
PROPOSED COMMERCIAL LAND USE
REMAINING IMPACTED AREAS**

PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
100138	FIGURE 14	A

Tables

Table 1. Ambient Air Quality (PM₁₀) Field Monitoring Results (DustTrak™)

Date	Air Monitor Location	Duration (hr:min:sec)	Average PM ₁₀ Concentration (µg/m ³)	Maximum PM ₁₀ Concentration (µg/m ³)	Site Work
25-Sep-08	Station 1	6:43:52	14	1,861	Removals
26-Sep-08	Station 1	6:00:54	8	4,095	Removals
27-Sep-08	Station 1	11:43:50	7	247	Removals
28-Sep-08	Station 1	10:09:25	11	332	Removals
29-Sep-08	Station 1	9:04:05	10	1,568	Removals
30-Sep-08	Station 1	9:26:05	13	460	Removals
01-Oct-08	Station 2	8:39:05	29	2,654	Soil Movement, Removals
02-Oct-08	Station 2	9:46:50	26	710	Soil Movement, Removals
03-Oct-08	Station 3	4:18:45	38	1,741	Soil Movement, Removals
04-Oct-08	Station 3	8:08:35	23	1,143	Removals
05-Oct-08	Station 3	8:43:45	53	3,276	Removals
07-Oct-08	Station 1	1:35:30	5	654	Surface Excavations, Removals
08-Oct-08	Station 1	9:49:19	14	11,145	Surface Excavations, Removals
09-Oct-08	Station 1	10:20:25	17	2,332	Surface Excavations, Backfill, Grading
10-Oct-08	Station 1	5:00:20	17	1,593	Surface Excavations, Backfill, Grading
14-Oct-08	Station 1	6:59:55	16	2,031	Grading, Removals
15-Oct-08	Station 1	8:30:45	24	5,424	Subsurface Excavation, Grading, Removals
16-Oct-08	Station 1	11:08:45	17	3,232	Subsurface Excavation, Grading, Removals
17-Oct-08	Station 1	10:28:20	13	856	Subsurface Excavation, Grading
18-Oct-08	Station 1	11:27:00	29	2,200 ^a	Grading, Removals, Excavation
19-Oct-08	Station 1	11:09:55	15	2,667	Grading, Removals
20-Oct-08	Station 1	10:03:30	18	3,519	Surface Excavations, GCL Installation, Grading
21-Oct-08	Station 1	8:05:15	8	125	Surface Excavations, GCL Installation, Grading
22-Oct-08	Station 1	8:42:50	7	2,870	Surface Excavations, GCL Installation, Grading
23-Oct-08	Station 1	8:32:35	15	1,462	GCL Installation, Grading
24-Oct-08	Station 1	6:47:50	16	2,408	GCL Installation, Topsoil Backfilling
27-Oct-08	Station 1	8:44:35	7	2,706	GCL Installation, Subdrain Trenching
28-Oct-08	Station 1	9:12:50	25	1,449	GCL Installation, Subdrain Trenching, Grading
29-Oct-08	Station 1	8:44:45	45	6,360	Sodding, Grading, Subdrain Trenching
30-Oct-08	Station 1	9:03:55	26	3,494	Sodding, Grading, Subdrain Trenching
31-Oct-08	Station 1	9:04:40	15	1,573	GCL Installation, Subdrain Trenching
01-Nov-08	Station 1	7:41:00	14	222	Removals, Subdrain Trenching
02-Nov-08	Station 1	6:47:10	38	310	Subdrain Installation, Backfilling
03-Nov-08	Station 1	9:35:40	34	1,560	Subdrain Installation, Backfilling, Grading, GCL Installation
04-Nov-08	Station 1	9:35:20	25	897	Subdrain Installation, Grading, GCL Installation

^a Duration and maximum values are approximated.

Notes:

1. Manitoba Conservation Ambient Air Quality Criteria Maximum Acceptable Level (MAL) Concentration = 50 µg/m³ (24 hr average).
2. Station 1 located approximately 7 m west of MW107.
3. Station 2 located on southwest corner of Pacific Avenue and Russell Street intersection.
4. Station 3 located along the east side of 1st Street approximately half way between Pacific Avenue and Rosser Avenue.
5. No air monitoring data was collected for October 6th due to inclement weather.
6. No site work was conducted from October 11th to 13th or October 25th to 26th.

XX Exceeds applicable guideline/criteria.

Table 2. Air Quality Analytical Results - Ambient Air Monitoring (Partisol 2000™)

Sample ID:	091301-09252008	097998-09262008	076985-09272008	084365-09282008	038962-09292008	097901-10052008	036942-10152008	098796-10182008	072297-10202008	Guideline^a
Date Sampled:	25-Sep-08	26-Sep-08	27-Sep-08	28-Sep-08	29-Sep-08	05-Oct-08	15-Oct-08	18-Oct-08	20-Oct-08	(µg/m ³)
Location:	Station 1	Station 1	Station 1	Station 1	Station 1	Station 3	Station 1	Station 1	Station 1	
Sample Volume (m ³):	8.8	9.4	8.7	8.8	9.1	8.6	11.5	11.2	10.3	
Sample Time (hrs):	9.1	9.4	8.6	8.9	9.0	8.7	11.2	11.3	10.0	
Lead (Pb)										
Analytical Result (µg/filter)	0.036	0.033	0.32	2.7	1.0	48	<3.0	<3.0	<3.0	
Daily 10 hr Average (calculated, µg/m ³)	0.0041	0.0035	0.037	0.31	0.11	5.6	0.26	0.27	0.29	2
Parcticulate Matter (PM₁₀)										
Analytical Result (µg/filter)	236	129	113	445	383	302	110	69	50	
Daily 10 hr Average (calculated, µg/m ³)	27	14	13	51	42	35	10	6.2	4.9	50

^a Manitoba Conservation Ambient Air Quality Criteria Maximum Acceptable Level (MAL) Concentration - 24 hr average

XX	Exceeds applicable guideline/criteria.
-----------	--

Table 3. Air Quality Analytical Results - Personal Air Monitoring (SKC™ Pump Filter)

Sample ID:	24119	24151	24139	24133	24145	Guideline
Date Sampled:	29-Sep-08	30-Sep-08	05-Oct-08	15-Oct-08	20-Oct-08	(µg/m ³)
Location:	Office Trailer Staff	Excavator Operator	Excavator Operator	Excavator Operator	Excavator Operator	
Sample Volume (m³):	1.07	1.25	1.22	1.31	1.25	
Sample Time (hrs):	8.82	10.35	10.15	10.97	10.45	
Lead (Pb)						
Analytical Result (µg/filter)	0.5	2.6	0.3	<0.2	<0.2	
8 hr Average (µg/m ³)						50^a
Daily 10 hr Average (calculated, µg/m ³)	0.47	2.1	0.25	0.15	0.16	40^b
Particulate Matter (PM₁₀)						
Analytical Result (µg/filter)	300	200	900	<100	100	
8 hr Average (µg/m ³)						10,000^a
Daily 10 hr Average (calculated, µg/m ³)	280	160	740	76	80	8,000^b

^a Manitoba Workplace Health and Safety Occupational Exposure Limit (OEL) - 8 hr Time Weighted Average (TWA)

^b Manitoba Workplace Health and Safety Occupational Exposure Limit (OEL) - Calculated 10 hr TWA

XX	Exceeds applicable guideline/criteria.
-----------	--

Table 4. Surface Soil Delineation Laboratory Analytical Results

Sample ID:	A8-1 (composite)	B2	E5	E35 (dup of E5)	E11	F1	F31 (dup of F1)	F6	F21	F29	G24	G25	H19	I1	I2	I23	I28	J4	J8	J14	J19	J29	J39 (dup of J29)	K19	L10	N5	N14	Q3	Q8	SYA2	SYA15	SYC4	SYC14	HHRA Guideline ^a
Metals																																		
Antimony (Sb)	0.94	0.13	1.36	1.33	0.47	131	146	2.54	0.39	1.37	2.02	5.51	10.9	3.84	12.4	5.15	1.11	4.33	1.54	0.8	0.26	0.88	2.07	0.16	0.15	0.21	0.09	0.15	0.45	3.47	2.4	1370	0.95	15.2
Silver (Ag)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	3	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NG
Aluminum (Al)	5640	4,100	8,230	10,000	3,760	2,150	2,360	5,210	6,260	5,710	5,130	7,110	7,800	4,590	5,260	7,260	8,430	7,610	5,780	7,370	4,480	6,970	7,130	4,970	5,080	4,450	5,890	3,510	3,250	7,180	18,300	1,400	4,970	NG
Arsenic (As)	7.95	28.4	9.16	9.93	4.43	35.9	49	10.7	6.93	7.05	11.2	20.9	15.9	8.23	5.64	19.9	13.2	8.81	11.8	9.77	5.5	6.59	10.1	5.78	6.36	6.97	6.53	3.89	4.46	16	11	72.5	6.6	12 ^b
Boron (B)	21.4	6.8	38.2	41.1	9.5	5.5	6.4	14.3	28.5	27.7	15.5	30	79.2	13.2	35.7	23	47.2	38.4	14.5	13.5	9.2	26.5	32.4	8.8	12.7	10.8	9.7	7.1	7.6	19.5	86.5	11	34	NG
Barium (Ba)	400	266	656	616	134	152	113	243	326	351	224	344	898	192	223	256	612	518	312	215	224	502	446	139	192	190	215	141	144	460	380	2.63	241	NG
Beryllium (Be)	0.39	0.23	0.66	0.63	0.21	0.15	0.17	0.33	0.42	0.36	0.32	0.44	0.21	0.26	0.17	0.41	0.51	0.6	0.37	0.34	0.3	0.46	0.46	0.3	0.3	0.27	0.31	0.22	0.21	0.44	0.23	0.09	0.25	NG
Bismuth (Bi)	0.13	0.05	0.26	0.24	0.08	3.42	3.91	0.19	0.12	0.18	0.2	0.54	0.76	0.71	7.82	0.51	0.77	0.28	0.22	0.12	0.12	0.26	0.37	0.09	0.09	0.09	0.12	0.05	0.06	0.42	1.05	7	0.16	NG
Calcium (Ca)	64,400	108,000	79,400	96,900	77,500	23,900	21,800	89,100	62,300	81,500	61,500	69,400	63,400	82,000	79,900	45,400	46,000	49,300	52,700	83,100	62,400	41,100	42,600	57,100	88,400	85,100	60,800	64,600	64,400	44,300	55,700	19,400	79,500	NG
Cadmium (Cd)	1.77	0.33	2.55	3.14	0.73	1.41	1.43	2.38	0.7	3.27	3.46	5.57	15.6	2.15	13.5	4.72	30.5	2.33	2.9	1.48	0.37	6.15	6.57	0.81	0.56	1.08	0.41	0.37	0.52	6.19	13.4	1.81	3.8	NG
Cobalt (Co)	5.07	11.1	6.7	7.44	4.44	3.84	4.21	6.9	5.54	5.58	6.98	8.99	15.1	5.94	7.66	7.13	6.7	5.74	7.16	9.8	5.88	6.8	7.06	7.37	6.14	5.5	5.81	4.07	4.34	9.64	11.9	7.17	7.55	NG
Chromium (Cr)	12	10.1	15.7	19.6	15.6	8.3	9.4	15.3	11.3	11.8	17.6	22.5	89.9	18.2	56.3	15.2	21.5	11.9	22.4	21.9	10.7	15	17.5	14.1	13.9	13.8	11	11.1	10.7	41.9	56.7	19.3	22	NG
Copper (Cu)	120	20.7	108	135	42.1	225	269	148	56.9	41.3	43.3	161	1010	1150	8470	66.8	72.1	64.8	153	51.9	19.2	47.6	58	29.2	24.7	39.1	16.4	12.5	18	231	861	380	133	NG
Iron (Fe)	16,700	55,000	26,100	34,000	17,400	10,100	9,210	29,600	13,200	16,600	31,500	33,500	88,700	25,700	57,300	22,600	22,500	19,000	33,800	33,000	13,600	28,800	37,500	19,400	16,000	18,100	12,800	20,300	18,100	52,600	53,400	47,400	34,800	41,800
Potassium (K)	1,010	925	1,340	1,420	803	583	683	1,260	2,150	2,150	1,840	2,310	895	975	795	1,960	3,700	1,270	1,180	2,400	1,010	1,950	1,970	1,300	1,250	1,250	1,410	745	814	1,910	1,240	180	951	NG
Magnesium (Mg)	15,600	36,000	21,900	27,700	25,800	8,480	7,970	32,100	11,200	13,900	14,600	15,100	22,000	30,600	27,500	6,790	8,190	15,000	19,100	26,200	18,600	11,000	9,110	25,500	27,700	26,600	19,900	21,400	20,300	14,100	18,000	3,670	25,800	NG
Manganese (Mn)	1,660	3,290	1,310	1,360	1,570	938	973	2,520	1,130	1,170	1,280	1,060	1,380	1,630	1,510	1,210	948	1,190	1,120	1,190	1,220	1,030	1,020	1,620	1,380	1,490	788	1,970	1,630	1,240	1,640	885	1,720	1,290
Molybdenum (Mo)	1.12	4.63	2.61	2.32	1	0.73	0.73	1.75	0.93	1.25	1.99	2.53	7.12	1.85	0.97	1.24	2.05	0.99	1.64	1.5	0.94	1.4	1.66	1.09	1.04	1.15	0.98	0.95	0.83	7.48	6.16	2.09	2.54	NG
Sodium (Na)	510	189	2290	2270	370	697	896	491	306	269	162	360	634	709	315	209	681	889	234	150	515	420	467	822	586	206	256	230	222	319	328	174	411	NG
Nickel (Ni)	15	36.4	21	25.1	14.1	9.8	11.2	24.8	16.1	18.1	22.8	35	82.1	21.2	107	20.8	22.1	31.2	23.4	25.4	19	20.6	20.2	22.7	18.1	16.7	17.2	12.3	12.8	35.7	61.4	22.5	27.9	NG
Lead (Pb)	432	22	1,320	1,320	403	72,100	107,000	1,140	232	663	2,930	9,590	3,220	3,320	45,400	8,380	630	1,890	948	428	75	422	1,090	192	177	232	104	168	287	3,370	1,280	149,000	484	1,170
Selenium (Se)	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.7	0.8	0.5	0.7	0.8	0.3	0.2	0.7	1	0.4	0.6	0.3	0.3	0.7	0.8	0.3	0.3	0.2	0.3	0.1	0.1	0.8	<0.1	0.2	0.2	NG
Tin (Sn)	<4	<4	<4	<4	25	21	4	<4	4	20	99	2320	<4	4	<4	<4	4	<4	<4	<4	<4	<4	4	<4	<4	<4	<4	<4	<4	<4	9	117	<4	NG
Strontium (Sr)	187	77.7	354	320	59.3	30.6	25.8	82.3	126	134	87.1	117	93.8	70.4	51.3	82.7	230	194	70.8	70.3	89.4	143	123	39.9	93.9	73.1	82.2	63.3	65.7	89.1	76.8	35.9	82.4	NG
Titanium (Ti)	169	221	308	368	179	81.5	91.1	209	138	136	133	158	173	179	120	118	155	180	222	576	161	155	134	181	176	155	148	166	165	136	152	65.3	195	NG
Thallium (Tl)	<0.2	1.9	<0.2	<0.2	<0.2	0.6	0.6	0.2	0.2	0.7	0.2	0.3	<0.2	<0.2	0.3	0.3	0.2	0.3	0.3	0.3	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	2.5	<0.2	NG
Uranium (U)	1.08	1.33	1.66	1.59	0.65	0.56	0.39	1	0.87	0.99	0.7	3.83	1.08	0.88	0.67	0.95	1.18	1.3	0.75	0.87	1.06	1.07	0.91	0.79	1.07	0.83	1.03	0.64	0.75	1.01	0.85	0.3	0.87	NG
Vanadium (V)	14.1	15.5	16.8	19.2	12.6	7.48	8.87	16.2	15.4	14.5	15.4	16.2	10.1	13.8	5.76	15	16.6	17.8	17	19	15.2	15.6	15.5	22.4	15.8	15.1	15.3	12.9	12.2	18.7	11.9	4.48	13.4	NG
Zinc (Zn)	209	42	716	793	127	166	165	319	161	333	401	954	595	621	4,030	394	938	319	404	231	71	2,570	2,470	188	111	171	74	67	109	1,280	3,320	1,200	1,080	NG

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).
^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

Notes:
1. All guidelines and results in mg/kg.
2. All samples collected between May 14th and May 15th, 2008.
3. NG - no guideline.

	HHRA metal of concern.
XX	Exceeds applicable guideline.

Table 5. Surface Soil Excavation Laboratory Analytical Results

Sample ID:	5-10B	11-14A	19-22B	31-36C	61-64B	65-96A	65-96G	65-96J	88-90A	ESY-E	ESY-F	ESY-L	HHRA Guideline ^a	MR282/87 Guideline ^b
Metals (mg/kg)														
Aluminum (Al)	6,900	6,300	1,900	4,400	8,300	9,200	7,600	4,100	5,200	8,100	8,200	8,000	NG	NG
Antimony (Sb)	0.6	0.6	0.5	32	1.2	40	20	15	10	16	14	14	15.2	NG
Arsenic (As)	8	15	7	8	9	21	10	10	8	21	12	14	12 ^c	NG
Barium (Ba)	270	240	78	150	220	220	600	150	200	250	540	390	NG	NG
Beryllium (Be)	0.4	0.3	<0.2	<0.2	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.5	NG	NG
Cadmium (Cd)	0.4	0.4	0.3	0.8	0.7	2.4	2.4	1.0	1.0	1.5	4.3	4.2	NG	NG
Calcium (Ca)	61,000	43,000	37,000	45,000	52,000	31,000	48,000	51,000	47,000	33,000	39,000	34,000	NG	NG
Chromium (Cr)	14	14	8	13	16	20	19	18	20	15	19	22	NG	NG
Cobalt (Co)	8.7	11	3.8	5.2	8.4	7.9	7.3	6.3	5.5	6.7	6.7	7.4	NG	NG
Copper (Cu)	28	18	10	37	29	590	91	390	81	52	94	180	NG	NG
Iron (Fe)	18,000	29,000	13,000	15,000	23,000	25,000	31,000	24,000	22,000	18,000	20,000	26,000	41,800	NG
Lead (Pb)	93	17	84	9,400	210	5,500	1,400	1,800	1,800	3,500	3,900	3,100	1,170	NG
Magnesium (Mg)	18,000	16,000	9,000	11,000	12,000	8,200	9,500	17,000	15,000	6,000	7,800	6,300	NG	NG
Manganese (Mn)	1,200	2,900	800	970	1,200	950	1,800	1,300	1,400	1,000	880	930	1,290	NG
Molybdenum (Mo)	1.1	1.5	0.7	1.1	1.3	1.5	2.6	1.7	1.6	1.2	1.8	2.9	NG	NG
Nickel (Ni)	24	27	10	15	22	26	22	21	19	18	22	29	NG	NG
Phosphorus (P)	660	660	500	530	780	720	980	570	850	1,400	1,500	1,900	NG	NG
Potassium (K)	1,500	1,600	370	760	1,900	1,700	1,500	730	1,100	2,200	1,800	2,300	NG	NG
Selenium (Se)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	1.1	0.9	NG	NG
Silver (Ag)	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	0.2	1.1	0.2	<0.2	0.3	0.3	NG	NG
Sodium (Na)	520	400	<100	180	230	510	1,500	750	420	130	500	430	NG	NG
Strontium (Sr)	70	41	31	52	60	48	170	45	68	84	170	140	NG	NG
Thallium (Tl)	0.25	0.33	0.12	0.20	0.24	0.21	0.17	0.17	0.13	0.17	0.19	0.28	NG	NG
Uranium (U)	0.94	0.86	0.60	0.69	0.91	0.70	0.88	0.89	0.87	0.79	1.1	0.98	NG	NG
Vanadium (V)	24	25	12	17	27	26	24	18	20	21	19	19	NG	NG
Zinc (Zn)	120	160	48	190	160	450	620	370	290	250	670	700	NG	NG
Leachable Metals (mg/L)														
Arsenic (As)	-	-	-	<0.2	-	<0.2	-	-	-	-	<0.2	-	NG	5.0
Barium (Ba)	-	-	-	0.9	-	0.6	-	-	-	-	1.1	-	NG	100.0
Boron (B)	-	-	-	0.3	-	0.2	-	-	-	-	0.4	-	NG	500.00
Cadmium (Cd)	-	-	-	<0.05	-	<0.05	-	-	-	-	<0.05	-	NG	0.5
Chromium (Cr)	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	NG	5.0
Lead (Pb)	-	-	-	29.3	-	5.4	-	-	-	-	0.8	-	NG	5.0
Selenium (Se)	-	-	-	<0.2	-	<0.2	-	-	-	-	<0.2	-	NG	1.0
Silver (Ag)	-	-	-	<0.01	-	<0.01	-	-	-	-	<0.01	-	NG	5.0
Uranium (U)	-	-	-	<0.01	-	<0.01	-	-	-	-	<0.01	-	NG	2.0

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b Manitoba Regulation MR282/87 - Leachate Quality Criteria as part of The Dangerous Goods Handling and Transportation Act (C.C.S.M.c. D12)

^c HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

Notes:

1. All guidelines and results in mg/kg except where noted otherwise.
2. All samples collected between October 6th and October 19th, 2008.
3. NG - no guideline.

XX	HHRA metal of concern
XX	Exceeds applicable guideline.

Table 6. Residential Surface Soil Excavation Laboratory Analytical Results

Sample ID:	R1A	R1C	HHRA Guideline ^a
Metals (mg/kg)			
Aluminum (Al)	7,100	6,600	NG
Antimony (Sb)	1.1	1.1	15.2
Arsenic (As)	8	8	12 ^b
Barium (Ba)	300	300	NG
Beryllium (Be)	0.5	0.4	NG
Cadmium (Cd)	0.9	0.8	NG
Calcium (Ca)	57,000	54,000	NG
Chromium (Cr)	13	14	NG
Cobalt (Co)	6.2	5.9	NG
Copper (Cu)	38	32	NG
Iron (Fe)	17,000	17,000	41,800
Lead (Pb)	190	150	1,170
Magnesium (Mg)	10,000	8,600	NG
Manganese (Mn)	1,500	1,600	1,290
Molybdenum (Mo)	1.2	1.2	NG
Nickel (Ni)	19	18	NG
Phosphorus (P)	1,500	1,200	NG
Potassium (K)	2,000	1,700	NG
Selenium (Se)	0.5	<0.5	NG
Silver (Ag)	<0.2	<0.2	NG
Sodium (Na)	330	200	NG
Strontium (Sr)	100	100	NG
Thallium (Tl)	0.16	0.15	NG
Uranium (U)	0.94	0.87	NG
Vanadium (V)	19	19	NG
Zinc (Zn)	200	190	NG

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

Notes:

1. All guidelines and results in mg/kg.
2. All samples collected on October 18th, 2008.
3. NG - no guideline.

	HHRA metal of concern.
XX	Exceeds applicable guideline.

Table 7. Subsurface Excavation Laboratory Analytical Results

Sample ID:	SS-N-WALL-CRNR-1	SS-N-WALL-A1#3	SS-N-WALL-A3	SS-N-WALL-A1B-CRNR#3	SS-N-WALL-B3	SS-N-WALL-C2	SS-N-WALL-D3#2	SS-N-WALL-E1	SS-D-BOT-1	SS-W-WALL-B3	SS-W-WALL-D1	SS-S-WALL-BB	SS-E-WALL-A1	SS-E-WALL-C2	HHRA Guideline ^a	MR282/87 Guideline ^b
Sample Depth (m):	1.0	1.0	3.0	1.0	3.0	2.0	3.0	1.0	4.0	3.0	1.0	4.0	1.0	3.0	mg/kg	mg/L
Metals (mg/kg)																
Aluminum (Al)	7,400	6,700	5,600	5,800	5,900	7,500	5,200	6,600	4,800	32,000	18,000	4,600	8,100	5,800	NG	NG
Antimony (Sb)	2.2	5.8	6.9	6.6	8.2	3.1	6.0	3.8	0.6	2.2	2.5	3.0	3.4	0.5	15.2	NG
Arsenic (As)	9	8	7	9	8	12	15	13	8	10	9	7	10	11	12 ^c	NG
Barium (Ba)	340	250	270	270	240	190	250	310	120	690	660	170	510	180	NG	NG
Beryllium (Be)	0.5	0.4	0.3	0.5	0.3	0.2	<0.2	0.3	0.4	2.0	1.0	0.3	0.5	0.3	NG	NG
Cadmium (Cd)	1.0	1.0	1.3	0.7	0.6	0.6	0.7	1.7	0.4	0.6	0.7	0.4	0.4	0.3	NG	NG
Calcium (Ca)	63,000	58,000	66,000	45,000	60,000	100,000	86,000	77,000	62,000	86,000	71,000	54,000	54,000	84,000	NG	NG
Chromium (Cr)	15	16	12	12	12	12	11	19	11	17	13	10	13	14	NG	NG
Cobalt (Co)	6.9	6.7	4.8	5.6	5.8	4.6	4.2	5.1	6.6	6.0	5.2	5.5	7.3	9.3	NG	NG
Copper (Cu)	41	57	45	46	47	12	22	40	18	41	38	19	49	18	NG	NG
Iron (Fe)	22,000	18,000	13,000	15,000	16,000	9,600	10,000	13,000	14,000	30,000	24,000	13,000	18,000	24,000	41,800	NG
Lead (Pb)	280	900	1,500	1,100	1,700	180	1,100	610	24	340	280	540	460	38	1,170	NG
Magnesium (Mg)	14,000	12,000	15,000	10,000	16,000	18,000	13,000	14,000	22,000	18,000	13,000	10,000	11,000	21,000	NG	NG
Manganese (Mn)	1,300	960	680	630	1,100	440	520	560	260	670	540	570	980	1,300	1,290	NG
Molybdenum (Mo)	1.3	1.3	1.3	1.3	2.3	1.2	1.2	1.1	2.6	3.9	2.6	1.1	1.4	2.0	NG	NG
Nickel (Ni)	20	20	14	15	16	11	12	14	23	20	15	14	22	23	NG	NG
Phosphorus (P)	780	680	490	540	660	360	400	500	560	2,100	1,300	590	890	680	NG	NG
Potassium (K)	1,500	1,400	1,100	910	1,200	810	860	1,100	1,100	1,400	970	880	1,800	1,500	NG	NG
Selenium (Se)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.3	1.0	0.5	<0.5	0.6	0.7	NG	NG
Silver (Ag)	<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	NG	NG
Sodium (Na)	1,500	620	510	460	610	720	520	490	270	5,900	3,500	390	1,300	370	NG	NG
Strontium (Sr)	140	98	97	130	92	140	110	110	52	2,200	1,400	79	280	69	NG	NG
Thallium (Tl)	0.16	0.19	0.14	0.15	0.18	0.07	0.11	0.11	0.21	0.10	0.11	0.14	0.16	0.22	NG	NG
Uranium (U)	0.98	0.84	0.79	0.83	0.83	0.84	0.76	0.81	1.6	5.9	2.9	0.90	1.3	1.4	NG	NG
Vanadium (V)	22	21	20	19	21	31	23	29	24	33	24	16	21	22	NG	NG
Zinc (Zn)	210	230	210	180	160	160	200	380	55	140	180	76	130	51	NG	NG
Leachable Metals (mg/L)																
Arsenic (As)	-	-	<0.2	-	-	-	<0.2	-	-	-	-	-	-	-	NG	5.0
Barium (Ba)	-	-	0.7	-	-	-	0.6	-	-	-	-	-	-	-	NG	100.0
Boron (B)	-	-	0.3	-	-	-	0.4	-	-	-	-	-	-	-	NG	500.00
Cadmium (Cd)	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-	-	NG	0.5
Chromium (Cr)	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	-	NG	5.0
Lead (Pb)	-	-	0.9	-	-	-	2	-	-	-	-	-	-	-	NG	5.0
Selenium (Se)	-	-	<0.2	-	-	-	<0.2	-	-	-	-	-	-	-	NG	1.0
Silver (Ag)	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-	-	NG	5.0
Uranium (U)	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-	-	NG	2.0

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b Manitoba Regulation MR282/87 - Leachate Quality Criteria as part of The Dangerous Goods Handling and Transportation Act (C.C.S.M.c. D12)

^c HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

Notes:

1. All guidelines and results in mg/kg except where noted otherwise.
2. All samples collected between October 14th and October 22nd, 2008.
3. NG - no guideline.

XX	HHRA metal of concern.
XX	Exceeds applicable guideline.

Table 8. Backfill Laboratory Analytical Results

Sample ID:	Pit Run 1	Pit Run 2	HHRA SQG ^a	CCME SQG ^b
Metals (mg/kg)				
Boron (B)	0.04	0.06	NG	NA
Chromium (VI)	<0.2	<0.2	NG	NA
Mercury (Hg)	<0.05	<0.05	NG	NA
Antimony (Sb)	0.2	0.3	15.2	NA
Arsenic (As)	5	6	12 ^c	NA
Barium (Ba)	96	67	NG	NA
Beryllium (Be)	<0.2	<0.2	NG	NA
Cadmium (Cd)	0.1	0.1	NG	NA
Chromium (Cr)	8	8	NG	NA
Cobalt (Co)	4.3	4.6	NG	NA
Copper (Cu)	6.0	6.7	NG	NA
Lead (Pb)	4	5	1,170	NA
Molybdenum (Mo)	<0.5	0.5	NG	NA
Nickel (Ni)	11	11	NG	NA
Selenium (Se)	<0.5	<0.5	NG	NA
Silver (Ag)	<0.2	<0.2	NG	NA
Thallium (Tl)	0.09	0.10	NG	NA
Vanadium (V)	15	13	NG	NA
Zinc (Zn)	25	25	NG	NA
Hydrocarbons (mg/kg)				
Benzene	<0.02	<0.02	NA	0.0068
Toluene	<0.02	<0.02	NA	0.08
Ethylbenzene	<0.02	<0.02	NA	0.018
Xylene	<0.04	<0.04	NA	2.4
F1	<10	<10	NA	170
F2	<10	<10	NA	230
F3	<10	<10	NA	1,700
F4	<10	<10	NA	3,300

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b CCME Tier I Soil Quality Guidelines (SQG) for Commercial Land Use shown for reference pu

^c HHRA guideline for arsenic references CCME SQG of 12 mg/kg.

Notes:

1. All guidelines and results in mg/kg.
2. All samples collected on September 25th, 2008.
3. NG - no guideline.
4. NA - guideline not applicable.

	HHRA metal of concern.
XX	Exceeds applicable guideline.

Table 9. Soil Field Duplicate Sampling Relative Percent Difference Results

Sample ID	Parameter	Results	Duplicate Sample ID	Parameter	Results	RPD (%)	Sample ID	Parameter	Results	Duplicate Sample ID	Parameter	Results	RPD (%)	Sample ID	Parameter	Results	Duplicate Sample ID	Parameter	Results	RPD (%)
E5	Antimony (Sb)	1.36	E35	Antimony (Sb)	1.33	2.2	F1	Antimony (Sb)	131	F31	Antimony (Sb)	146	10.8	J29	Antimony (Sb)	0.88	J39	Antimony (Sb)	2.07	80.7
	Silver (Ag)	<1		Silver (Ag)	<1	NC		Silver (Ag)	<1		NC	Silver (Ag)	<1		NC	Silver (Ag)		<1	NC	
	Aluminum (Al)	8,230		Aluminum (Al)	10,000	19.4		Aluminum (Al)	2,150		9.3	Aluminum (Al)	6,970		2.3	Aluminum (Al)		7,130	2.3	
	Arsenic (As)	9.16		Arsenic (As)	9.93	8.1		Arsenic (As)	35.9		30.9	Arsenic (As)	6.59		42.1	Arsenic (As)		10.1	42.1	
	Boron (B)	38.2		Boron (B)	41.1	7.3		Boron (B)	5.5		15.1	Boron (B)	26.5		20.0	Boron (B)		32.4	20.0	
	Barium (Ba)	656		Barium (Ba)	616	6.3		Barium (Ba)	152		29.4	Barium (Ba)	502		11.8	Barium (Ba)		446	11.8	
	Beryllium (Be)	0.66		Beryllium (Be)	0.63	4.7		Beryllium (Be)	0.15		12.5	Beryllium (Be)	0.46		0.0	Beryllium (Be)		0.46	0.0	
	Bismuth (Bi)	0.26		Bismuth (Bi)	0.24	8.0		Bismuth (Bi)	3.42		13.4	Bismuth (Bi)	0.26		34.9	Bismuth (Bi)		0.37	34.9	
	Calcium (Ca)	79,400		Calcium (Ca)	96,900	19.9		Calcium (Ca)	23,900		9.2	Calcium (Ca)	41,100		3.6	Calcium (Ca)		42,600	3.6	
	Cadmium (Cd)	2.55		Cadmium (Cd)	3.14	20.7		Cadmium (Cd)	1.41		1.4	Cadmium (Cd)	6.15		6.6	Cadmium (Cd)		6.57	6.6	
	Cobalt (Co)	6.7		Cobalt (Co)	7.44	10.5		Cobalt (Co)	3.84		9.2	Cobalt (Co)	6.8		3.8	Cobalt (Co)		7.06	3.8	
	Chromium (Cr)	15.7		Chromium (Cr)	19.6	22.1		Chromium (Cr)	8.3		12.4	Chromium (Cr)	15		15.4	Chromium (Cr)		17.5	15.4	
	Copper (Cu)	108		Copper (Cu)	135	22.2		Copper (Cu)	225		17.8	Copper (Cu)	47.6		19.7	Copper (Cu)		58	19.7	
	Iron (Fe)	26,100		Iron (Fe)	34,000	26.3		Iron (Fe)	10,100		9.2	Iron (Fe)	28,800		26.2	Iron (Fe)		37,500	26.2	
	Potassium (K)	1,340		Potassium (K)	1,420	5.8		Potassium (K)	583		15.8	Potassium (K)	1,950		1.0	Potassium (K)		1,970	1.0	
	Magnesium (Mg)	21,900		Magnesium (Mg)	27,700	23.4		Magnesium (Mg)	8,480		6.2	Magnesium (Mg)	11,000		18.8	Magnesium (Mg)		9,110	18.8	
	Manganese (Mn)	1,310		Manganese (Mn)	1,360	3.7		Manganese (Mn)	938		3.7	Manganese (Mn)	1,030		1.0	Manganese (Mn)		1,020	1.0	
	Molybdenum (Mo)	2.61		Molybdenum (Mo)	2.32	11.8		Molybdenum (Mo)	0.73		0.0	Molybdenum (Mo)	1.4		17.0	Molybdenum (Mo)		1.66	17.0	
	Sodium (Na)	2,290		Sodium (Na)	2,270	0.9		Sodium (Na)	697		25.0	Sodium (Na)	420		10.6	Sodium (Na)		467	10.6	
	Nickel (Ni)	21		Nickel (Ni)	25.1	17.8		Nickel (Ni)	9.8		13.3	Nickel (Ni)	20.6		2.0	Nickel (Ni)		20.2	2.0	
	Lead (Pb)	1,320		Lead (Pb)	1,320	0.0		Lead (Pb)	72,100		39.0	Lead (Pb)	422		88.4	Lead (Pb)		1,090	88.4	
Selenium (Se)	0.2	Selenium (Se)	0.2	0.0	Selenium (Se)	0.2	0.0	Selenium (Se)	0.7	13.3	Selenium (Se)	0.8	13.3							
Tin (Sn)	<4	Tin (Sn)	<4	NC	Tin (Sn)	25	NC	Tin (Sn)	4	NC	Tin (Sn)	<4	NC							
Strontium (Sr)	354	Strontium (Sr)	320	10.1	Strontium (Sr)	30.6	17.0	Strontium (Sr)	143	15.0	Strontium (Sr)	123	15.0							
Titanium (Ti)	308	Titanium (Ti)	368	17.8	Titanium (Ti)	81.5	11.1	Titanium (Ti)	155	14.5	Titanium (Ti)	134	14.5							
Thallium (Tl)	<0.2	Thallium (Tl)	<0.2	NC	Thallium (Tl)	0.6	NC	Thallium (Tl)	0.2	NC	Thallium (Tl)	<0.2	NC							
Uranium (U)	1.66	Uranium (U)	1.59	4.3	Uranium (U)	0.56	35.8	Uranium (U)	1.07	16.2	Uranium (U)	0.91	16.2							
Vanadium (V)	16.8	Vanadium (V)	19.2	13.3	Vanadium (V)	7.48	17.0	Vanadium (V)	15.6	0.6	Vanadium (V)	15.5	0.6							
Zinc (Zn)	716	Zinc (Zn)	793	10.2	Zinc (Zn)	166	0.6	Zinc (Zn)	2,570	4.0	Zinc (Zn)	2,470	4.0							

Notes:

1. All results in mg/kg.
2. NC - not calculated.

Table 10. Historical Hydrocarbon Laboratory Analytical Results

SAMPLE ID	Date	Depth (m)	Headspace (ppm)	Benzene	Toluene	Ethylbenzene	Xylene	F1	F2	F3	F4
Within Proposed Commercial Land Use Limits											
201 @ 18'	2004 06 07	5.5	170	<0.005	<0.01	<0.01	<0.03	<5	<5	10	6
202 @ 24'	2004 06 08	7.3	98	<0.005	<0.01	<0.01	<0.03	<5	<5	<5	<5
203 @ 12.5'	2004 06 08	3.8	143	<0.005	0.01	0.01	<0.03	<5	<5	30	31
206 @ 12.5'	2004 06 08	3.8	90	<0.005	<0.01	<0.01	<0.03	<5	<5	14	18
207 @ 10'	2004 06 07	3.0	7,400	1.3	2	8.3	20	160	2,500	410	23
207 @ 15'	2004 06 07	4.6	180	0.18	0.37	0.21	0.64	<5	<5	<5	<5
CCME Tier I Soil Quality Guidelines (2006) - Surface Soil											
Soil dermal contact				11	790,000	210,000	NA				
Inhalation of indoor air check (slab on grade)				0.03	1,400	630	160				
CCME Tier I Soil Quality Guidelines (2006) - Subsoil											
Soil dermal contact				-	NC	NC	NC				
Inhalation of indoor air check (slab on grade)				0.032	1,500	670	170				
Tier I CWS for Petroleum Hydrocarbons in Soil (updated January 2008) - Surface Soil											
Direct Contact (Ingestion + Dermal Contact)								19,000	10,000	23,000	RES
Vapour Inhalation (Indoor)								320	1,700	NA	NA
Management Limit								700	1,000	3,500	10,000
Tier I CWS for Petroleum Hydrocarbons in Soil (updated January 2008) - Subsoil											
Direct Contact (Ingestion + Dermal Contact)								NA	NA	NA	NA
Vapour Inhalation (Indoor)								320	1,700	NA	NA
Management Limit								700	1,000	3,500	10,000

Notes:

1. All guidelines and results in mg/kg.
2. CCME and CWS guidelines reference Commercial Land Use and coarse-grained soils.

XX	Applicable guideline.
XX	Exceeds applicable guideline.

Appendix A

Site Photographs



Photograph 1. Clearing site debris. Photograph facing west. (September 2008)



Photograph 2. Clearing trees north of scrap yard fence. Photograph facing southeast (September 2008)



Photograph 3. Silt fence installed north of Pacific Avenue prior to construction activities. Photograph facing west. (September 2008)



Photograph 4. Moving soil stockpile north of Pacific Avenue. Photograph facing northeast. (October 2008)



Photograph 5. Air quality monitoring station 1, east of Russell Street. Photograph facing northeast. (October 2008)



Photograph 6. Decontamination pad for vehicles. Photograph facing north. (October 2008)



Photograph 7. Surface soil excavation on west side of Site. Photograph facing north. (October 2008)



Photograph 8. Residential surface soil excavation. Photograph facing northeast. (October 2008)



Photograph 9. Subsurface soil excavation north of Pacific Avenue. Photograph facing south. (October 2008)



Photograph 10. Grading of soil prior to placement of engineered cap. Photograph facing east. (October 2008)



Photograph 11. Installation of GCL (white) and geocomposite drainage layer (black) over impacted soil. Photograph facing north. (October 2008)



Photograph 12. Placement of protective cover material over geocomposite drainage layer. Photograph facing north. (October 2008)



Photograph 13. Adjustment of manhole elevations on Pacific Avenue. Photograph facing west. (October 2008)



Photograph 14. Drainage trench construction along north side of engineered cap. Photograph facing east. (October 2008)



Photograph 15. Placement of walking path base material along north side of engineered cap. Photograph facing east. (November 2008)





Photograph 17. Completed east side of engineered cap, including walking path. Photograph facing north. (November 2008)



Photograph 18. Completed north side of Site, including erosion control and walking path. Photograph facing southeast. (November 2008)

Appendix B

Decommissioned
Monitoring Well Logs

Borehole Number: MW1

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					(ppm)								
					25	75	125	175	225	275			
0.0		Ground Surface											0.000
0.0 - 1.0		Brown Clay Dry brown clay, surface overgrown with vegetation.											
1.0 - 4.0		Fill Dry black organic fill with no odours present.											
4.0 - 6.0		Brown Sand Dry brown sandy gravel with clay. Sand content increases with depth.											
6.0 - 9.0		Clay Dark brown clay with some sand and gravel present (fill material). Auger refusal at 3.05 m below the surface.											
9.0 - 11.0		Clayey Till Dark brown/black clay till. Wet sand present between 3.66 and 4.57 m with increasing sand content below 4.57 m.											
11.0 - 15.0		End of Log											
15.0 - 16.0												Monitoring well decommissioned on August 21, 2008	-5.000
16.0 - 17.0													
17.0 - 18.0													
18.0 - 19.0													
19.0 - 20.0													

Date: August 22, 2002

Time Completed: 10:05 am

Completion Depth: 4.6 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW101
Project Name: 1st and Rosser Site Remediation
Project Number: 100138
Client: City of Brandon
Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 1.0	Topsoil											
1.0 - 8.0	Sand and Gravel	Fine tan sand and gravel mixture with more gravel with depth.										
8.0 - 10.0	Clay Till	Light brown clay till with some small stones present.										
10.0 - 21.0	Sandy Silty Clay	Grey sandy silty clay with some coarse sand below 4.6 m. Colour changing to dark with the coarse sand.										
21.0 - 22.0	Sand and gravel	Wet dark grey sand and gravel.										
22.0 - 23.0	Silty Clay	Dark grey silty clay till.										
23.0 - 25.0		End of Log										
25.0 - 30.0										Monitoring well decommissioned on August 21, 2008		

Date: January 15, 2004
Time Completed: 11:40 am
Completion Depth: 7.6 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Borehole Number: MW103

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 11.0	Sand and Gravel	Tan sand and coarse gravel.									Native Fill		
11.0 - 14.0	Silty Clay	Sandy silty tan clay.									Monitoring well decommissioned and backfilled with bentonite		
14.0 - 17.0	Clay	Dark grey clay.											
17.0		End of Log											
17.0 - 25.0											Monitoring well decommissioned on August 21, 2008		

Date: January 15, 2004

Time Completed: 1:07 pm

Completion Depth: 5.2 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW106

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 13.0		Sand and Gravel Brown sand and coarse gravel.									Native Fill	-1.000	
13.0 - 22.0		Silty Clay Dark grey silty clay. Some coarse sand was encountered at 4.6 m below the ground surface. Some moisture was also encountered below 4.6 m and an odour was noted.									Monitoring well decommissioned and backfilled with bentonite	-4.000	
22.0 - 30.0		Silty Clayey Sand Dark moist grey silty clayey sand. The clay content decreased with depth and the moisture content increased with depth.										-7.000	
30.0 - 35.0		End of Log									Monitoring well decommissioned on August 21, 2008	-10.000	

Date: January 15, 2004

Time Completed: 3:02 pm

Completion Depth: 9.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW15

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0	Fill	Black organic fill material with some stones. Bricks were encountered near 0.46 m below the surface. Note, there was a hydrocarbon odour detected from the soil at approximately 15 cm below the surface.									Native Fill		
1.0 - 3.05	Gravel and Sand	Loose fine brown gravel and sand, becoming more dense below 3.05 m with some clay content.											
3.05 - 4.42	Granular Material	Wet sand and gravel with some clay present below 4.42 m.											
4.42 - 17.0	Till	Stiff grey till.									Monitoring well decommissioned and backfilled with bentonite		
17.0 - 20.0		End of Log											
20.0 - 25.0											Monitoring well decommissioned on August 21, 2008		

Date: August 23, 2002

Time Completed: 10:00 am

Completion Depth: 6.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW20

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 1.0	Fill	Black sand with some organics and metal debris present.									Native Fill	
1.0 - 7.5	Clay and Sand	Dry brown clay and sand with gravel and silt.										
7.5 - 10.0	Sand	Damp fine grained brown sand.										
10.0 - 17.0	Sandy Silt	Damp grey sandy silt.										
17.0 - 20.0	Clay and Silt	Grey clay with grey silt layers.										
20.0		End of Log										
20.0 - 25.0											Monitoring well decommissioned and backfilled with bentonite	
											Monitoring well decommissioned on August 21, 2008	

Date: August 23, 2002

Time Completed: 12:50 pm

Completion Depth: 6.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW206

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 1.0	Fill	A brown-coloured mix of topsoil, sand, and coarse sand.									<p>Native Fill</p> <p>Monitoring well decommissioned and backfilled with bentonite</p>	-1.000
1.0 - 2.1	Silty Sand	Light brown to tan silty sand with some stones less than 1 cm in diameter. Some red oxidation was present and moisture was encountered below 2.1 m BGS.								-2.000		
2.1 - 3.0	Silty Clay	Silty, brown clay with some coarse sand present and becoming grey in colour below 3.0 m.								-3.000		
3.0 - 4.0	Silty Sand	Dry, grey silty sand and fine gravel with stones of less than 1 cm in diameter.								-4.000		
4.0 - 9.1	Silty Clay	Stiff, grey clay with some coarse sand and silt present. Silt and sand content decrease with depth.								-5.000		
9.1 - 10.0		End of Log									-10.000	
10.0 - 35.0										Monitoring well decommissioned on August 21, 2008		

Date: June 8, 2004

Time Completed: 3:30 pm

Completion Depth: 9.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW210

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 10.0		Sand Fine, dry, tan coloured sand with some coarse sand and red oxidation below 1.5 m BGS. Soil becomes wet 2.3 m BGS, and becomes red coarse sand below 2.8 m.									<p>Monitoring well decommissioned and backfilled with bentonite</p>	-1.000	
10.0 - 19.0		Clay Brown clay with some stones and silt.								-2.000			
19.0 - 20.0		Silty Sand Dry, light grey silty sand.								-3.000			
20.0 - 23.0		Sandy Clay Grey clay with some coarse sand and gravel.								-4.000			
23.0 - 25.0		End of Log								-5.000			
25.0 - 30.0										Monitoring well decommissioned on August 21, 2008	-6.000		
											-7.000		
											-8.000		
											-9.000		

Date: June 7, 2004

Time Completed: 6:51 pm

Completion Depth: 9.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW211

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 1.0	Topsoil											
1.0 - 2.0	Sand	Coarse sand with some fine gravel with stones less than 2 cm in diameter.										
2.0 - 3.0												
3.0 - 4.0												
4.0 - 5.0												
5.0 - 6.0												
6.0 - 7.0	Clayey Sand	tan, clayey sand with some gravel with stones less than 3 cm in diameter.										
7.0 - 8.0												
8.0 - 9.0												
9.0 - 10.0												
10.0 - 11.0	Silty Sand	Moist grey silty sand becoming brown after 4 m BGS.										
11.0 - 12.0												
12.0 - 13.0												
13.0 - 14.0												
14.0 - 15.0	Sand	Light grey, dry sand with some gravel with stones less than 1.5 cm in diameter. Soil becomes very moist after 6.1 m.										
15.0 - 16.0												
16.0 - 17.0												
17.0 - 18.0												
18.0 - 19.0												
19.0 - 20.0												
20.0 - 21.0												
21.0 - 22.0												
22.0 - 23.0												
23.0 - 24.0												
24.0 - 25.0												
25.0 - 26.0												
26.0 - 27.0	Silty Clay	Stiff, grey, silty clay with some stones and fine gravel.										
27.0 - 28.0												
28.0 - 29.0												
29.0 - 30.0												
30.0		End of Log										
31.0										Monitoring well decommissioned on August 21, 2008		
32.0												
33.0												
34.0												
35.0												

Date: June 7, 2004

Time Completed: 3:50 pm

Completion Depth: 9.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW212

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0		Sand Brown sand.									<p>Native Fill</p> <p>Monitoring well decommissioned and backfilled with bentonite</p>	-1.000	
1.0 - 2.0		Silty Clay Brown, silty clay with some stones less than 3 cm in diameter.								-2.000			
2.0 - 3.0		Sand Tan sand with stones larger than 3 cm in diameter and some clay after 2.1 m.								-3.000			
3.0 - 5.0		Sand Dry tan sand with some oxidation after 3 m.								-4.000			
5.0 - 6.0		Sand Grey sand until 6.2 m BGS. Becoming tan in colour with sand and gravel below 6.1 m BGS. Moisture and silt content increase beyond 7.9 m.									-5.000		
6.0 - 7.0											-6.000		
7.0 - 8.0											-7.000		
8.0 - 9.0											-8.000		
9.0 - 10.0											-9.000		
10.0 - 11.0											-10.000		
11.0		End of Log									Monitoring well decommissioned on August 21, 2008	-11.000	
12.0												-12.000	

Date: June 7, 2004
Time Completed: 2:30 pm
Completion Depth: 10.1 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Borehole Number: MW214
Project Name: 1st and Rosser Site Remediation
Project Number: 100138
Client: City of Brandon
Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0	Fill/Concrete										Native Fill		
1.0 - 4.0	Sand	Tan sand with some oxidation. After 3.0 m BGS, it becomes brown sand with moisture that increases with depth. There is a fine gravel lens near 4.3 m.									Monitoring well decommissioned and backfilled with bentonite		
4.0 - 5.0													
5.0 - 6.0	Silty Sand	Grey, silty sand with some gravel and some clay lenses near 5.2 m. Coarse grey sand with some silt begins at 6.0 m.											
6.0 - 7.0	Clay	Stiff grey clay with some coarse sand present.											
7.0 - 8.0		End of Log									Monitoring well decommissioned on August 21, 2008		
8.0 - 9.0													
9.0 - 10.0													
10.0 - 11.0													
11.0 - 12.0													
12.0 - 13.0													
13.0 - 14.0													
14.0 - 15.0													
15.0 - 16.0													
16.0 - 17.0													
17.0 - 18.0													
18.0 - 19.0													
19.0 - 20.0													
20.0 - 21.0													
21.0 - 22.0													
22.0 - 23.0													
23.0 - 24.0													
24.0 - 25.0													
25.0 - 26.0													
26.0 - 27.0													
27.0 - 28.0													
28.0 - 29.0													
29.0 - 30.0													

Date: June 8, 2004
Time Completed: 4:54 pm
Completion Depth: 7.6 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Borehole Number: MW216

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0	Fill										Native Fill		
1.0 - 2.0	Topsoil	Fine black topsoil.											
2.0 - 4.0	Sandy Clay	Brown clay with some coarse sand.											
4.0 - 19.0	Sand	Dry tan coarse sand. There is a dry, silty sand layer between 1.3 and 1.7 m BGS, followed by a moist silty sand layer between 1.7 and 2.1 m BGS.									Monitoring well decommissioned and backfilled with bentonite		
19.0 - 25.0	Silty, Sandy Clay	Grey clay with some silt and coarse sand. There is a layer of tan silty clay between 5.8 and 6.0 m BGS.											
25.0 - 26.0		End of Log											
26.0 - 30.0											Monitoring well decommissioned on October 7, 2008	-8.000 -9.000	

Date: June 8, 2004

Time Completed: 3:40 pm

Completion Depth: 7.6 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW22

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		<i>Ground Surface</i>										0.000	
0.0 - 1.0	Fill	Brown sand/gravel fill with some clay content becoming darker with depth.									<p>Native Fill</p> <p>Monitoring well decommissioned and backfilled with bentonite</p>		
1.0 - 4.0	Silty Sand	Brown/yellow oxidized silty sand transitioning to grey silty sand.											
4.0 - 6.0	Sand	Wet brown sand.											
6.0 - 8.0	Silt	Damp tight grey silt with some stiff grey clay near 2.90 m below the ground surface.											
8.0 - 10.0	Sandy Silt	Mixture of wet grey sandy silt changing to a mixture with stiff grey clay.											
10.0 - 15.0	Sandy Clay	Grey sandy clay with some silt.											
15.0 - 20.0		<i>End of Log</i>											
20.0 - 25.0													
											Monitoring well decommissioned on August 21, 2008		

Date: August 23, 2002

Time Completed: 13:50 pm

Completion Depth: 6.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW24

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0	Fill	Black sandy fill.											
1.0 - 2.0	Fill	Grey sandy clay fill.											
2.0 - 10.0	Sandy Clay	Damp yellow/brown oxidized sandy clay and fine gravel becoming increasing grey with depth. Some stones ranging from 2.5 to 5 cm in diameter were encountered below 2.44 m. A layer of brown/grey silty clay is located between 1.22 and 1.52 m below the surface.											
10.0 - 15.0	Gravelly Clay	Grey gravelly clay fill.											
15.0		End of Log											
15.0 - 20.0											Monitoring well decommissioned on August 21, 2008		

Date: August 23, 2002

Time Completed: 2:30 pm

Completion Depth: 4.6 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW303
Project Name: 1st and Rosser Site Remediation
Project Number: 100138
Client: City of Brandon
Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 1.0	Clay Fill	some silt, sand, and fine gravel - portions of red brick brought up on the auger flight									Native Fill	
1.0 - 3.0	Sand	some gravel, tan - red oxidation from 1.5 to 2.4 m									Monitoring well decommissioned and backfilled with bentonite	-1.000
3.0 - 8.0	Sand	black staining strong hydrocarbon odour										-2.000
8.0 - 11.0	Silty Sand	fine sand, tan - moist at 3.8 m										-3.000
11.0 - 14.0	Till	grey										-4.000
14.0 - 20.0		End of Log										-5.000
20.0 - 21.0											Monitoring well decommissioned on August 21, 2008	-6.000
21.0 - 23.0												-7.000
23.0 - 26.0												-8.000
26.0 - 30.0												-9.000

Date: December 6, 2004
Time Completed: 3:30 pm
Completion Depth: 6.1 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Borehole Number: MW308

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0	Fill	sand and gravel									Native Fill		
1.0 - 2.0	Clayey Fill	hydrocarbon odour											
2.0 - 3.0	Clay	black, some sand from 1.4 to 2.0 m									Monitoring well decommissioned and backfilled with bentonite	-1.000	
3.0 - 4.0													
4.0 - 7.0	Sand	tan										-2.000	
7.0 - 10.0												-3.000	
10.0 - 13.0												-4.000	
13.0 - 14.0												-4.000	
14.0 - 15.0	Sand	black staining, coarse, hydrocarbon odour										-5.000	
15.0 - 17.0	Silty Till	some clay and fine gravel										-5.000	
17.0 - 18.0		- sandy below 5.3 m										-6.000	
18.0 - 21.0												-6.000	
21.0 - 22.0												-7.000	
22.0 - 23.0	Sand	some fine gravel, grey, hydrocarbon odour										-7.000	
23.0 - 24.0	Clay Till	some fine gravel										-7.000	
24.0 - 25.0												-8.000	
25.0		End of Log										-8.000	
26.0 - 27.0												-8.000	
27.0 - 28.0												-9.000	
28.0 - 29.0												-9.000	
29.0 - 30.0												-9.000	

Date: December 6, 2004

Time Completed: 3:30 pm

Completion Depth: 7.6 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW311
Project Name: 1st and Rosser Site Remediation
Project Number: 100138
Client: City of Brandon
Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 21.0		Silty Sand, Gravel -silt and moisture increase below 1.5 m									Native Fill	-1.000 -2.000 -3.000 -4.000 -5.000 -6.000 -7.000
21.0 - 25.0		Till grey									Monitoring well decommissioned and backfilled with bentonite	
25.0		End of Log										
26.0 - 30.0											Monitoring well decommissioned on August 21, 2008	-8.000 -9.000

Date: December 6, 2004
Time Completed: 3:30 pm
Completion Depth: 7.6 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Borehole Number: MW313
Project Name: 1st and Rosser Site Remediation
Project Number: 100138
Client: City of Brandon
Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					(ppm)								
					25	75	125	175	225	275			
0.0		Ground Surface											0.000
0.0 - 1.0	Fill	sand, silt, and fine gravel, tan										Native Fill	-1.000
1.0 - 2.0													-2.000
2.0 - 3.0													-3.000
3.0 - 4.0													-4.000
4.0 - 5.0	Sand and Gravel	some silt and fine gravel, brown										Monitoring well decommissioned and backfilled with bentonite	-5.000
5.0 - 6.0													-6.000
6.0 - 7.0													-7.000
7.0 - 8.0													-8.000
8.0 - 9.0	Sand	moist, brown											-9.000
9.0 - 10.0													-10.000
10.0 - 11.0													-11.000
11.0 - 12.0													-12.000
12.0 - 13.0													-13.000
13.0 - 14.0													-14.000
14.0 - 15.0													-15.000
15.0 - 16.0													-16.000
16.0 - 17.0		- more moist and grey staining below 4.3 m											-17.000
17.0 - 18.0													-18.000
18.0 - 19.0		- black staining below 5.2 m											-19.000
19.0 - 20.0													-20.000
20.0 - 21.0	Sand and Gravel	fine to coarse gravel, grey											-21.000
21.0 - 22.0													-22.000
22.0 - 23.0													-23.000
23.0 - 24.0													-24.000
24.0 - 25.0	Sand	black staining, coarse, hydrocarbon odour											-25.000
25.0 - 26.0													-26.000
26.0 - 27.0													-27.000
27.0 - 28.0													-28.000
28.0 - 29.0													-29.000
29.0 - 30.0													-30.000
30.0 - 31.0		End of Log											-31.000
31.0 - 32.0													-32.000
32.0 - 33.0													-33.000
33.0 - 34.0													-34.000
34.0 - 35.0													-35.000

Date: December 6, 2004
Time Completed: 3:30 pm
Completion Depth: 7.6 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Borehole Number: MW318

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 1.0	Fill	fine to coarse sand, fine to coarse gravel, brown, dry, loose									Native Fill		
1.0 - 4.0	Topsoil	some fine to medium sand and fine gravel, trace clay, black, dry, loose											
4.0 - 18.0	Sand	medium to coarse sand, some fine gravel, tan/brown, moist - wet at 4.0 m - black staining with strong hydrocarbon odour from 4.3 to 4.6 m									Monitoring well decommissioned and backfilled with bentonite		
18.0 - 20.0	Clay Till	some silt and sand with some fine gravel, grey/brown											
20.0 - 21.0		End of Log									Monitoring well decommissioned on August 21, 2008		
21.0 - 23.0													
23.0 - 25.0													

Date: December 6, 2004

Time Completed: 3:30 pm

Completion Depth: 6.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW5

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 3.0	Fill	Mixture of black sand, debris, stones, and pieces of plastic. There was a hydrocarbon odour present in the soil.									Native Fill	
3.0 - 7.0	Clay and Sandy Fill	Mixture of dry black clay and sandy fill. The hydrocarbon odour is still present in the soil.										
7.0 - 10.0	Sand and Debris	Mixture of grey sand and debris.										
10.0 - 15.0	Sand and Gravel	Dry dense well graded brown sand and gravel. There are larger stones between 3.05 and 3.35 m below the surface. No odour was encountered at this depth.										
15.0 - 20.0	Clayey Till	Dense brown clayey till with some sand and gravel mixed in. No odours were present in the soil.										
20.0 - 25.0	Clay and Sandy Silt	Grey clay and sandy silt. Moisture was encountered at 7.01 m below the surface.										
25.0 - 30.0	Grey Sand	Wet fine grey sand.										
30.0		End of Log										
30.0 - 35.0										Monitoring well decommissioned and backfilled with bentonite		
										Monitoring well decommissioned on October 7, 2008		
												-10.000

Date: August 22, 2002

Time Completed: 2:25 pm

Completion Depth: 9.1 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW6

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)					Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225			
0.0		Ground Surface										0.000
0.0 - 3.0	Fill	Mixture of black/dark brown sand/clay fill with some organics present.									Native Fill	
3.0 - 7.0	Granular Fill	Light brown sand and fine gravel fill.										
7.0 - 10.0	Clay Fill	Silty clay fill with an increase in clay content and moisture below 2.74 m. Wet silt lenses were encountered below 2.74 m.									Monitoring well decommissioned and backfilled with bentonite	
10.0 - 15.0	Grey Silt	Damp dense grey silt.										
15.0		End of Log										
15.0 - 20.0											Monitoring well decommissioned on August 21, 2008	

Date: August 22, 2002

Time Completed: 3:00 pm

Completion Depth: 4.6 m

Driller: Paddock Drilling

Drill Type: Solid Stem Auger

Reviewed By: SC

Logged By: KP

Borehole Number: MW7

Project Name: 1st and Rosser Site Remediation

Project Number: 100138

Client: City of Brandon

Location: 123 Rosser Avenue E.



Depth ft m	Soil Type	Soil Description	Sample Type	Sample I.D.	Headspace (ppm)						Lab Sample I.D.	Monitoring Well Decommissioning	Elevation (m)
					25	75	125	175	225	275			
0.0		Ground Surface										0.000	
0.0 - 10.0	Granular Fill	Dry, dark brown sand and gravel fill with stones up to 2 cm in diameter. Organics were encountered in the top 15 cm.									<p>Monitoring well decommissioned and backfilled with bentonite</p>		
11.0 - 15.0	Gravel	Fine wet gravel with some sand. There was a hydrocarbon odour present at this depth.											
15.0 - 20.0	Granular Material	Mixture of grey rocks, gravel and sand. No hydrocarbon odour was encountered.											
20.0 - 21.0	Grey Clay Till												
21.0		End of Log											
22.0 - 25.0											Monitoring well decommissioned on August 21, 2008		

Date: August 22, 2002
Time Completed: 4:00 pm
Completion Depth: 6.4 m

Driller: Paddock Drilling
Drill Type: Solid Stem Auger

Reviewed By: SC
Logged By: KP

Appendix C

Waste Manifests

Wesdis© Demo Version
Phone: (604)941-3474
September 25, 2008
TICKET #
149825

Time
In 11:35:34
Out 11:35:39

Vehicle Id: DTF 131
Account: 255 HAZCO ENVIRONMENTAL SERVICE
Origin: COMMERCIAL
To/From: OTHER - LANDFILL
Material: TREES
Charge Rate: EN30/MIXED COMMERCIAL

Gross 19420
Tare 16130

Net Kg 3290 **TOTAL Amount \$1118.44**

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Time

TICKET #
149781

In 09:18:46

September 25, 2008

Out 09:18:53

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 20680
 Tare 16130

Net Kg 4550 TOTAL Amount \$163.80

Payment Method : ON ACCOUNT

Signature _____

Wesdis© Demo Version
 Phone: (604)941-3474
 September 25, 2008
 In 08:12:46
 Out 08:13:10
 TICKET # 149769

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 19170
 Tare 15540

Net Kg 3630 TOTAL Amount \$130.68

Payment Method : ON ACCOUNT
 Signature _____

Signature _____

Payment Method : ON ACCOUNT

Net Kg	7940	TOTAL Amount	\$285.84
Gross	24070		
Tare	16130		
Charge Rate:	EN30/MIXED COMMERCIAL		
Material:	TREES		
To/From:	OTHER - LANDFILL		
Origin:	COMMERCIAL		
Account:	255 HAZCO ENVIRONMENTAL SERVICE		
Vehicle Id:	DTF 131		
September 25, 2008			
Phone: (604)941-3474			
Time	In 10:52:31		
	Out 10:52:44		
TICKET #	149812		

Wesdis© Demo Version

Wesdis© Demo Version

Phone: (604)941-3474

Time

TICKET #

In 10:03:01

149798

September 25, 2008

Out 10:03:02

Vehicle Id:	DTF 131
Account:	255 HAZCO ENVIRONMENTAL SERVICE
Origin:	COMMERCIAL
To/From:	OTHER - LANDFILL
Material:	TREES
Charge Rate:	EN30/MIXED COMMERCIAL

Gross 23020

Tare 16130

Net Kg	6890	TOTAL Amount	\$248.04
---------------	-------------	---------------------	-----------------

Payment Method : ON ACCOUNT

Signature _____

Weddis© Demo Version

Phone: (604)941-3474

Time

TICKET #

In 07:58:53

149958

September 26, 2008

Out 07:59:03

Vehicle Id: DTF 131
Account: 255 HAZCO ENVIRONMENTAL SERVICE
Origin: COMMERCIAL
To/From: LANDFILL
Material: MIXED REFUSE
Charge Rate: EN30/MIXED COMMERCIAL

Gross 19360
Tare 16130

Net Kg 3230

TOTAL Amount

\$116.28

Payment Method : ON ACCOUNT

Signature _____

Wesdis© Demo Version
Phone: (604)941-3474 Time TICKET #
 In 09:31:05 149987
September 26, 2008 Out 09:31:19

Vehicle Id: DTF 131
Account: 255 HAZCO ENVIRONMENTAL SERVICE
Origin: COMMERCIAL
To/From: LANDFILL
Material: LANDFILL
Charge Rate: EN30/MIXED COMMERCIAL

Gross 27770
Tare 16130

Net Kg 11640 TOTAL Amount \$419.04

Payment Method : ON ACCOUNT

Signature _____ ✓

Wesdis© Demo Version
Phone: (604)941-3474 Time TICKET #
 In 08:46:17 149971
September 26, 2008 Out 08:46:24

Vehicle Id: DTF 131
Account: 255 HAZCO ENVIRONMENTAL SERVICE
Origin: COMMERCIAL
To/From: LANDFILL
Material: MIXED REFUSE
Charge Rate: EN30/MIXED COMMERCIAL

Gross 23360
Tare 16130

Net Kg 7230 TOTAL Amount \$260.28

Payment Method : ON ACCOUNT

Signature _____ ✓

Phone: (604)941-3474

Time

TICKET #

In 11:36:33

150023

September 26, 2008

Out 11:36:39

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 18490
 Tare 16130

Net Kg 2360 TOTAL Amount \$84.96

Payment Method : ON ACCOUNT

Signature _____ ✓

Phone: (604)941-3474

Time

TICKET #

In 10:30:38

150003

September 26, 2008

Out 10:30:49

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: LANDFILL
 Material: MIXED REFUSE
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 24750
 Tare 16130

Net Kg 8620 TOTAL Amount \$310.32

Payment Method : ON ACCOUNT

Signature _____ ✓

Signature _____
 Payment Method : ON ACCOUNT
Net Kg 1600 TOTAL Amount \$57.60
 Gross 17730
 Tare 16130
 Charge Rate: EN30/MIXED COMMERCIAL
 Material: TREES
 To/From: OTHER - LANDFILL
 Origin: COMMERCIAL
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Vehicle Id: DTF 131
 September 26, 2008
 Phone: (604)941-3474
 Time In 13:29:10 Out 13:29:16
 Ticket # 150056
 Wesdis© Demo Version

Wesdis© Demo Version
 Phone: (604)941-3474
 September 26, 2008
 Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL
 Gross 17730
 Tare 16130
Net Kg 1600 TOTAL Amount \$57.60
 Payment Method : ON ACCOUNT
 Signature _____

Phone: (604)941-3474

Wesdis© Demo Version
Time

TICKET #
152724

October 10, 2008

In 15:48:26
Out 15:48:34

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 38370
 Tare 16160

Net Kg 22210 **TOTAL Amount \$28.87**

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Wesdis© Demo Version
Time

TICKET #
152735

October 10, 2008

In 16:20:20
Out 16:20:22

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 34550
 Tare 16160

Net Kg 18390 **TOTAL Amount \$23.91**

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Wesdis@ Demo Version

TICKET #
153417

October 15, 2008

Time
In 15:43:44
Out 15:43:46

Vehicle Id: DTF 131
Account: 255 HAZCO ENVIRONMENTAL SERVICE

Origin: COMMERCIAL

To/From: OTHER - LANDFILL

Material: CONCRETE

Charge Rate: EN32/FILL / CONCRETE

Gross 41160

Tare 16160

Net Kg 25000 TOTAL Amount \$32.50

Payment Method : ON ACCOUNT

Signature _____

41869

Phone: (604)941-3474

Time

TICKET #

In 09:42:44

153288

October 15, 2008

Out 09:43:02

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TIRES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 20630
 Tare 16160

Net Kg 4470 TOTAL Amount \$160.92

Payment Method : ON ACCOUNT

Signature _____

✓

41-869

Phone: (604)941-3474

Time

TICKET #

In 15:11:42

153411

October 15, 2008

Out 15:11:48

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 35790
 Tare 16160

Net Kg 19630 TOTAL Amount \$25.52

Payment Method : ON ACCOUNT

Signature _____

✓

41-869

Phone: (604)941-3474

Time

TICKET #

In 08:56:18

153275

October 15, 2008

Out 08:56:24

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 37610
 Tare 16160

Net Kg 21450 TOTAL Amount \$27.89

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 08:04:44

153261

October 15, 2008

Out 08:04:52

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 39270
 Tare 16160

Net Kg 23110 TOTAL Amount \$30.04

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 15:05:22

153194

October 14, 2008

Out 15:05:46

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 20240

Tare 16160

Net Kg 4080 TOTAL Amount \$146.88

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Time

TICKET #

In 14:05:12

153164

October 14, 2008

Out 14:05:24

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 20250

Tare 16160

Net Kg 4090 TOTAL Amount \$147.24

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Time

TICKET #

In 13:14:49

154672

October 21, 2008

Out 13:15:24

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: LANDFILL
 Material: FILL
 Charge Rate: EN32/FILL / CONCRETE

Gross 40340
 Tare 16160

Net Kg 24180 TOTAL Amount \$31.43

Payment Method : ON ACCOUNT

Signature _____



Phone: (604)941-3474

Time

TICKET #

In 11:54:39

154660

October 21, 2008

Out 11:55:09

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 22770
 Tare 16160

Net Kg 6610 TOTAL Amount \$237.96

Payment Method : ON ACCOUNT

Signature _____



Phone: (604)941-3474

Time

TICKET #

In 08:03:17

154598

October 21, 2008

Out 08:03:29

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 41150
 Tare 16160

Net Kg 24990 TOTAL Amount \$32.49

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 08:51:07

154608

October 21, 2008

Out 08:51:15

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 46620
 Tare 16160

Net Kg 30460 TOTAL Amount \$39.60

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 10:07:51

155698

October 27, 2008

Out 10:07:59

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 40550
 Tare 16160

Net Kg 24390 TOTAL Amount \$31.71

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Time

TICKET #

In 09:14:59

155677

October 27, 2008

Out 09:15:13

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 30330
 Tare 16160

Net Kg 14170 TOTAL Amount \$18.42

Payment Method : ON ACCOUNT

Signature _____

✓

Wedis© Demo Version

Phone: (604)941-3474

Time

TICKET #

In 12:16:57

155747

October 27, 2008

Out 12:17:04

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 28020
 Tare 16160

Net Kg 11860 TOTAL Amount \$15.42

Payment Method : ON ACCOUNT

Signature _____

Wedis© Demo Version

Phone: (604)941-3474

Time

TICKET #

In 11:28:48

155734

October 27, 2008

Out 11:28:55

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 35030
 Tare 16160

Net Kg 18870 TOTAL Amount \$24.53

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 16:32:38

155839

October 27, 2008

Out 16:32:47

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 26950
 Tare 16160

Net Kg 10790 TOTAL Amount \$14.03

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 15:46:53

155821

October 27, 2008

Out 15:47:13

Vehicle Id: DTF 131
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TREES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross 21510
 Tare 16160

Net Kg 5350 TOTAL Amount \$192.60

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

In 14:12:54

156797

November 1, 2008

Out 14:18:09

Vehicle Id: BBK158
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: TIRES
 Charge Rate: EN30/MIXED COMMERCIAL

Gross	17420
Tare	14640

Net Kg	2780	TOTAL Amount	\$100.08
---------------	-------------	---------------------	-----------------

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Time

TICKET #

In 12:43:46

156749

November 1, 2008

Out 12:53:55

Vehicle Id: BBK 158
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: NC/NO CHARGE

Gross	34220
Tare	14660

Net Kg	19560	TOTAL Amount
---------------	--------------	---------------------

Payment Method : ON ACCOUNT

Signature _____

✓

Phone: (604)941-3474

Time

TICKET #

November 1, 2008

In 10:32:34

156698

Out 10:37:27

Vehicle Id: BBK 158
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: RESIDENTIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 38970

Tare 14550

Net Kg 24420**TOTAL Amount****\$31.75**

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #

November 1, 2008

In 11:56:24

156722

Out 12:01:04

Vehicle Id: BBK 158
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross 33980

Tare 14540

Net Kg 19440**TOTAL Amount****\$25.27**

Payment Method : ON ACCOUNT

Signature _____

Phone: (604)941-3474

Time

TICKET #
156689

November 1, 2008

In 10:01:25

Out 10:06:32

Vehicle Id: BBK 158
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross	37940
Tare	14690

Net Kg	23250	TOTAL Amount	\$30.23
---------------	--------------	---------------------	----------------

Payment Method : ON ACCOUNT

Signature _____

✓

↑
same ticket

Phone: (604)941-3474

Time

TICKET #
156689

November 1, 2008

In 10:01:25

Out 10:06:32

Vehicle Id: BBK 158
 Account: 255 HAZCO ENVIRONMENTAL SERVICE
 Origin: COMMERCIAL
 To/From: OTHER - LANDFILL
 Material: CONCRETE
 Charge Rate: EN32/FILL / CONCRETE

Gross	37940
Tare	14690

Net Kg	23250	TOTAL Amount	\$30.23
---------------	--------------	---------------------	----------------

Payment Method : ON ACCOUNT

Signature _____

Wesdis© Demo Version

Phone: (604)941-3474

TICKET #
157721

Time

In 10:40:31

Out 10:40:42

November 6, 2008

Vehicle Id: DNW 231
Account: 255 HAZCO ENVIRONMENTAL SERVICE
Origin: COMMERCIAL
To/From: OTHER - LANDFILL
Material: CONCRETE
Charge Rate: EN32/FILL / CONCRETE

Gross	22340
Tare	10040

Net Kg	12300	TOTAL Amount	\$15.99
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Payment Method : ON ACCOUNT

Signature _____

✓



LANDFILL WASTE DOCKET

No. 344351

1. PROJECT INFORMATION (please print)

Generator:	City of Brandon			EUB Operator Code:	
Address:	Brandon		MB		
Waste Description:	Rail ties			Waste Approval Code:	411-869
Generating Location:	1st + Roscoe			Shipping Date:	10/08/08
	Brandon			Est. Quantity Shipped:	
				EUB Code:	

I hereby certify that the aforementioned waste material contains NO FREE LIQUIDS and it has been properly characterized, classified and packaged for shipping as per federal, provincial and local laws and regulatory criteria. I further certify that this waste material is an acceptable waste for the receiving facility below. I understand that it is the sole responsibility of the generator to classify their waste properly.

Certified By:	Brad Keller	Date:	10/08/08	Signature:	
Company Name:	Hazco	Phone No:	204-223-3638	Emergency 24 Hr. Ph. No:	1-800-667-0444

2. TRANSPORTER INFORMATION (please print)

Trucking Company:	David Trucking		Driver's Name:	(Please Print) Dan Dyck	
Address:	Morden MB		Driver's Signature:		
Phone No:	325-2188	Truck No:	LT 179A	Date:	10/08/08
License No:	EU 5900	Truck Ticket No:			

3. LANDFILL DESTINATION (to be completed by Landfill Personnel)

Receiving Facility: (please check one)

Other Mid Canada MB

<input type="checkbox"/> Bonnyville, AB NE 09-061-03W4	<input type="checkbox"/> East Peace, AB SW 02-084-20W5	<input type="checkbox"/> Fox Creek, AB 05-06-062-18W5	<input type="checkbox"/> Janvier, AB SE 1/4 03-081-06W4	<input type="checkbox"/> Judy Creek, AB W1/2 19-63-10W5M	<input type="checkbox"/> La Glace, AB NE 15-073-09W6
<input type="checkbox"/> Medicine Hat, AB 03-013-05W4	<input type="checkbox"/> Mitsue, AB 04-29-072-04W5	<input type="checkbox"/> Newell, AB 01-34-019-15W4	<input type="checkbox"/> Pincher Creek, AB NW 08-07-01W5	<input type="checkbox"/> Rainbow Lake, AB 16-32-110-05W6	<input type="checkbox"/> Rocky Mtn. House, AB 01-12-040-09W5
<input type="checkbox"/> Spirit River, AB SW 31-077-05W6	<input type="checkbox"/> Tower Road, AB NW 27-053-13W5	<input type="checkbox"/> Wabasca, AB SE 1/4 24-082-23W4	<input type="checkbox"/> Northern Rockies, BC Mile 285 Alaska Hwy	<input type="checkbox"/> Silverberry, BC A-18-088-20W6	<input type="checkbox"/> Virden, MB SE 24-011-26W1
<input type="checkbox"/> Gull Lake, SK 13-25-013-19W3	<input type="checkbox"/> Lomond, SK NE 27-005-15W2	<input type="checkbox"/> Marshall, SK SE 21-048-26W3			

Waste Destined For: Treatment Pad Landfill Disposal ADC

Waste Discrepancy:	Rejected:	Reason Rejected:
Scale Ticket No:	Gross:	Tare:
		Net:
Latitude:	Cell:	Grid:
		Elevation:

I hereby certify that to the best of my knowledge, all information in this document is correct and accurate and said material has been received in good order.

Date Received: _____ Authorized Agent: _____ Signature: _____
MM/DD/YY (PRINT NAME)



LANDFILL WASTE DOCKET

No. 344352

1. PROJECT INFORMATION (please print)

Generator:	City of Brandon			EUB Operator Code:	
Address:	Brandon		MB		
Waste Description:	Rail Ties			Waste Approval Code:	41-869
Generating Location:	1st + Rosser		Brandon	MB	
				Shipping Date:	10/08/08
				Est. Quantity Shipped:	
				EUB Code:	

I hereby certify that the aforementioned waste material contains NO FREE LIQUIDS and it has been properly characterized, classified and packaged for shipping as per federal, provincial and local laws and regulatory criteria. I further certify that this waste material is an acceptable waste for the receiving facility below. I understand that it is the sole responsibility of the generator to classify their waste properly.

Certified By:	Brad Kelle	Date:	10/08/08	Signature:	<i>[Signature]</i>
Company Name:	Huzzo	Phone No:	204-223-3638	Emergency 24 Hr. Ph. No:	1-800-667-0444

2. TRANSPORTER INFORMATION (please print)

Trucking Company:	Daniel Trucking			Driver's Name:	(Please Print) Tyson Hofer
Address:	Morden MB			Driver's Signature:	
Phone No:	325-2188	Truck No:	LT 179B	Date:	10/08/08
License No:	EYE H98	Truck Ticket No:			

3. LANDFILL DESTINATION (to be completed by Landfill Personnel)

Receiving Facility: (please check one)

Other *M.d Canada MB*

Bonnyville, AB NE 09-061-03W4	East Peace, AB SW 02-084-20W5	Fox Creek, AB 05-06-062-18W5	Janvier, AB SE 1/4 03-081-06W4	Judy Creek, AB W1/2 19-63-10W5M	La Glace, AB NE 15-073-09W6
Medicine Hat, AB 03-013-05W4	Mitsue, AB 04-29-072-04W5	Newell, AB 01-34-019-15W4	Pincher Creek, AB NW 08-07-01W5	Rainbow Lake, AB 16-32-110-05W6	Rocky Mtn. House, AB 01-12-040-09W5
Spirit River, AB SW 31-077-05W6	Tower Road, AB NW 27-053-13W5	Wabasca, AB SE 1/4 24-082-23W4	Northern Rockies, BC Mile 285 Alaska Hwy	Silverberry, BC A-18-088-20W6	Virder, MB SE 24-011-26W1
Gull Lake, SK 13-25-013-19W3	Lomond, SK NE 27-005-15W2	Marshall, SK SE 21-048-26W3			

Waste Destined For:	Treatment Pad	Landfill Disposal	ADC
Waste Discrepancy:	Rejected:	Reason Rejected:	
Scale			
Weight No:	Gross:	Tare:	Net:
Waste Category:	Cell:	Grid:	Elevation:

I hereby certify that to the best of my knowledge, all information in this document is correct and accurate and said material has been received in good order.

Date Received:	Authorized Agent:	Signature:
M / D / D / Y Y	(PRINT NAME)	

Waste Distribution: **White** (Landfill) **Yellow** (Head Office) **Pink** (Retained for Generator) **Gold** (Transporter) **Green** (Generator Retains at site)

**Conservation**

Operations Division, Environmental Services
Box 46, 200 Saulteaux Crescent
Winnipeg, Manitoba R3J 3W3

October 30, 2008

Mr. George Jago
Environment Officer
City of Brandon
410-9th Street
Brandon, MB R7A 6A2

Dear Mr. Jago:

In response to your application, I hereby authorize the disposal of material containing polychlorinated biphenyls (PCB) from No. 9, 1st Street, Brandon in accordance with Manitoba Regulation 474/88 (PCB Regulation) pursuant to *The Dangerous Goods Handling and Transportation Act*.

As per your application of October 27, 2008, the transporter is to be Hazco Transportation Ltd. and the receiver is to be Envirocare Environmental Services Ltd., 1200 Condie Road, Regina, Saskatchewan.

Pursuant to this authorization, the following information shall be provided to Manitoba Conservation:

1. The manifest copy #1, when the waste is picked up, by fax to (204) 948-2420 (Attention: Raj Rathamanoharan) with a copy to follow by mail.
2. A copy of the Certificate of Destruction following final disposal of the PCB waste.

Should you have any questions regarding this correspondence, you may contact Raj Rathamanoharan at (204) 945-7086.

Yours truly,

Al Beck
Director
Environnemental Services Branch

c: Paulette Ruth, Environment Canada
Peter Crocker, Manitoba Conservation
Hazco Transportation Ltd.

MOVEMENT DOCUMENT / MANIFEST

DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement Document/Manifest conforms to all federal and provincial transport and environmental legislation. Ce document de mouvement/manifeste est conforme aux législations fédérales et provinciales sur l'environnement et le transport.

2461507-2

Movement Document / Manifest Reference No. N° de référence du document de mouvement/manifeste

A Generator / consigneur Producteur / expéditeur		B Carrier Transporteur		C Receiver / consignee Receptionnaire / destinataire	
Company name / Nom de l'entreprise CITY OF KILGORE		Company name / Nom de l'entreprise MAZCO TRANSPORT SERVICES LTD		Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial ABC 2042 MEC 3668	
Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial SAR 000209		Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial SAR 000209		Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial	
Mailing address / Adresse postale City / Ville 1200 CORDIE RD Regina SK S4R4L9		Mailing address / Adresse postale City / Ville 1109 ST JAMES ST Regina SK S4R 0K5		Mailing address / Adresse postale City / Ville () ()	
E-mail / Courriel électronique NA		E-mail / Courriel électronique NA		E-mail / Courriel électronique () ()	
Shipping site address / Adresse du lieu deexpédition City / Ville () ()		Shipping site address / Adresse du lieu deexpédition City / Ville () ()		Shipping site address / Adresse du lieu deexpédition City / Ville () ()	
Intended Receiver / consignee Receptionnaire / destinataire prévu Envirocare		Vehicle / Véhicule Trailer - Rail car No. 1 Z' remorque - wagon		Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire est la même qu'à la Partie A Yes / Oui <input type="checkbox"/> No / complète the box below / Non, remplir la case ci-dessous	
Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial SAR 000209		Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial SAR 000209		Registration No. / Provincial ID No. N° d'immatriculation - dtid provincial SAR 000209	
Mailing address / Adresse postale City / Ville 1200 CORDIE RD Regina SK S4R4L9		Mailing address / Adresse postale City / Ville 1109 ST JAMES ST Regina SK S4R 0K5		Mailing address / Adresse postale City / Ville () ()	
E-mail / Courriel électronique NA		E-mail / Courriel électronique NA		E-mail / Courriel électronique () ()	
Receiving site address / Adresse du lieu de l'expédition City / Ville () ()		Receiving site address / Adresse du lieu de l'expédition City / Ville () ()		Receiving site address / Adresse du lieu de l'expédition City / Ville () ()	
Date received / Date de réception Year / Année Month / Mois Day / Jour () () ()		Date received / Date de réception Year / Année Month / Mois Day / Jour () () ()		Date received / Date de réception Year / Année Month / Mois Day / Jour () () ()	
If waste or recyclable material to be transferred, specify intended company name (i.e. the waste or material recyclables must be transferred, specify the name of the destination) Si des déchets ou des matériaux recyclables doivent être transférés, préciser le nom du destinataire		If waste or recyclable material to be transferred, specify intended company name (i.e. the waste or material recyclables must be transferred, specify the name of the destination) Si des déchets ou des matériaux recyclables doivent être transférés, préciser le nom du destinataire		If waste or recyclable material to be transferred, specify intended company name (i.e. the waste or material recyclables must be transferred, specify the name of the destination) Si des déchets ou des matériaux recyclables doivent être transférés, préciser le nom du destinataire	
Quantity received / Quantité reçue Units / Unités () () ()		Quantity shipped / Quantité expédiée Units / Unités () () ()		Quantity received / Quantité reçue Units / Unités () () ()	
Shipping name / Appellation réglementaire () () ()		Shipping name / Appellation réglementaire () () ()		Shipping name / Appellation réglementaire () () ()	
Notice No. / N° de notification () () ()		Notice No. / N° de notification () () ()		Notice No. / N° de notification () () ()	
D or R code / Code E ou R () () ()		D or R code / Code E ou R () () ()		D or R code / Code E ou R () () ()	
Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE () () ()		Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE () () ()		Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE () () ()	
National code in country of / Code du pays () () ()		National code in country of / Code du pays () () ()		National code in country of / Code du pays () () ()	
Y code / Code Y () () ()		Y code / Code Y () () ()		Y code / Code Y () () ()	
H code / Code H () () ()		H code / Code H () () ()		H code / Code H () () ()	
Customs code(s) / Code(s) de douanes () () ()		Customs code(s) / Code(s) de douanes () () ()		Customs code(s) / Code(s) de douanes () () ()	
Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie) () () () () () ()		Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie) () () () () () ()		Name of authorized person (print) / Nom de l'agent autorisé (caractères d'imprimerie) () () () () () ()	
Signature () () () () () ()		Signature () () () () () ()		Signature () () () () () ()	
Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour () () ()		Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour () () ()		Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour () () ()	
Attached / Ci-joint <input type="checkbox"/> As follows / Ci-dessous <input type="checkbox"/>		Attached / Ci-joint <input type="checkbox"/> As follows / Ci-dessous <input type="checkbox"/>		Attached / Ci-joint <input type="checkbox"/> As follows / Ci-dessous <input type="checkbox"/>	
Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour () () ()		Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour () () ()		Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour () () ()	



LANDFILL WASTE DOCKET

No. 24_744

1. PROJECT INFORMATION (please print)

Generator:	CITY OF EDMONTON			EUB Operator Code:	
Address:	410-9th St. Edmonton				
	City/Town:	Province:	Postal Code:		
Waste Description:	Spent motor oil			Waste Approval Code:	
Generating Location:	91st Street Edmonton			Shipping Date:	11 3 05
				Est. Quantity Shipped:	
	City/Town:	Province:	Postal Code:	EUB Code:	

I hereby certify that the aforementioned waste material contains NO FREE LIQUIDS and it has been properly characterized, classified and packaged for shipping as per federal, provincial and local laws and regulatory criteria. I further certify that this waste material is an acceptable waste for the receiving facility below. I understand that it is the sole responsibility of the generator to classify their waste properly.

Certified By:	S. IS PLANTE	Date:	11 3 05	Signature:	[Signature]
Company Name:	1117-0	Phone No:	781-531-4461	Emergency 24 Hr. Ph. No.:	1-800-667-0911

2. TRANSPORTER INFORMATION (please print)

Trucking Company:	1117-0		Driver's Name:	(Please Print)
Address:	1117-0		Driver's Signature:	[Signature]
	Phone No:	Truck No:	Date:	
License No:	X	Truck Ticket No:		

3. LANDFILL DESTINATION (to be completed by Landfill Personnel)

Receiving Facility: (please check one)

Other 1200-24th St. Regina SK

- | | | | | | |
|---|---|--|---|---|---|
| <input type="checkbox"/> Bonnyville, AB
NE 09-061-03W4 | <input type="checkbox"/> East Peace, AB
SW 02-084-20W5 | <input type="checkbox"/> Fox Creek, AB
05-06-062-18W5 | <input type="checkbox"/> Janvier, AB
SE 1/4 03-081-06W4 | <input type="checkbox"/> Judy Creek, AB
W1/2 19-63-10W5M | <input type="checkbox"/> La Glace, AB
NE 15-073-09W6 |
| <input type="checkbox"/> Medicine Hat, AB
03-013-05W4 | <input type="checkbox"/> Mitsue, AB
04-29-072-04W5 | <input type="checkbox"/> Newell, AB
01-34-019-15W4 | <input type="checkbox"/> Pincher Creek, AB
NW 08-07-01W5 | <input type="checkbox"/> Rainbow Lake, AB
16-32-110-05W6 | <input type="checkbox"/> Rocky Mtn. House, AB
01-12-040-09W5 |
| <input type="checkbox"/> Spirit River, AB
SW 31-077-05W6 | <input type="checkbox"/> Tower Road, AB
NW 27-053-13W5 | <input type="checkbox"/> Northern Rockies, BC
Mile 285 Alaska Hwy | <input type="checkbox"/> Silverberry, BC
A-18-088-20W6 | <input type="checkbox"/> Virden, MB
SE 24-011-26W1 | <input type="checkbox"/> Gull Lake, SK
13-25-013-19W3 |
| <input type="checkbox"/> Lomond, SK
NE 27-005-15W2 | <input type="checkbox"/> Marshall, SK
SE 21-048-26W3 | | | | |

Waste Destined For: Treatment Pad Landfill Disposal ADC

Waste Discrepancy:	Rejected:	Reason Rejected:	
Scale	Gross:	Tare:	Net:
Waste Location:	Cell:	Grid:	Elevation:

I hereby certify that to the best of my knowledge, all information in this document is correct and accurate and said material has been received in good order

Date Received:	Authorized Agent:	Signature:
M M / D D / Y Y	(PRINT NAME)	

Appendix D

Field Density Reports

Table E1. Correlation of Surface Soil Delineation XRF Results

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
A1 ^c	2008 05 15	0	0.00	0	0.00	17,599	20,109	341	439	370	707
A2 ^c	2008 05 15	0	0.00	0	0.00	18,654	21,314	245	317	387	739
A3 ^c	2008 05 15	0	0.00	0	0.00	14,043	16,045	339	437	522	997
A4 ^c	2008 05 15	44	8.01	0	0.00	23,013	26,295	251	324	515	984
A5 ^c	2008 05 15	0	0.00	0	0.00	16,105	18,402	356	459	356	680
A6 ^c	2008 05 15	0	0.00	0	0.00	10,502	12,000	232	300	0	0
A7 ^c	2008 05 15	0	0.00	0	0.00	17,907	20,460	190	246	1,412	2,697
A8 ^{c,**}	2008 05 15	27	7.95	0	0.94	14,375	16,700	310	432	0	1,660
B1	2008 05 15	0	0.00	0	0.00	20,791	23,756	87	113	479	915
B2 ^{**}	2008 05 15	19	28.40	0	0.13	43,952	55,000	22	22	1,395	3,290
B3	2008 05 15	0	0.00	0	0.00	15,007	17,147	0	0	459	877
B4	2008 05 15	0	0.00	0	0.00	24,466	27,955	64	84	718	1,371
B5	2008 05 15	0	0.00	0	0.00	9,243	10,561	367	473	303	579
C1	2008 05 15	0	0.00	0	0.00	18,503	21,141	30	39	0	0
C2	2008 05 15	0	0.00	0	0.00	15,776	18,026	44	58	691	1,320
C3	2008 05 15	0	0.00	0	0.00	19,255	22,001	125	163	435	831
C4	2008 05 15	0	0.00	0	0.00	14,977	17,113	75	98	1,063	2,030
C5	2008 05 15	43	7.83	18	2.43	25,329	28,941	102	133	0	0
D1	2008 05 15	0	0.00	0	0.00	12,284	14,036	42	55	572	1,092
D2	2008 05 15	0	0.00	0	0.00	20,757	23,717	112	146	326	623
D3	2008 05 15	0	0.00	0	0.00	15,369	17,561	94	123	298	569
D4	2008 05 15	0	0.00	0	0.00	20,005	22,858	116	151	589	1,125
D5	2008 05 15	0	0.00	0	0.00	20,040	22,898	96	125	1,034	1,975
E1	2008 05 15	35	6.37	0	0.00	13,598	15,537	662	848	427	816
E2	2008 05 15	0	0.00	0	0.00	20,616	23,556	30	39	744	1,421
E3	2008 05 15	0	0.00	0	0.00	11,347	12,965	26	34	292	558
E4	2008 05 15	0	0.00	0	0.00	14,851	16,969	421	542	0	0
E5 ^{**}	2008 05 15	51	9.16	11	1.36	25,489	26,100	1,195	1,320	1,899	1,310
E6	2008 05 15	29	5.28	17	2.30	33,090	37,809	105	137	0	0
E7	2008 05 15	0	0.00	0	0.00	14,448	16,508	343	442	1,729	3,302
E8	2008 05 15	0	0.00	16	2.16	17,617	20,129	1,466	1,865	717	1,369
E9	2008 05 15	0	0.00	0	0.00	15,569	17,789	386	497	319	609
E10	2008 05 15	0	0.00	0	0.00	18,712	21,380	465	598	740	1,413
E11 ^{**}	2008 05 15	0	4.43	0	0.00	11,535	17,400	263	403	1,225	1,570
F1 ^{**}	2008 05 14	692	35.90	232	131.00	19,687	10,100	38,236	72,100	0	938
F2	2008 05 14	0	0.00	10	1.35	18,881	21,573	896	1,145	789	1,507
F3	2008 05 14	0	0.00	25	3.38	30,899	35,305	2,291	2,904	385	735
F4	2008 05 14	100	18.20	31	4.19	21,641	24,727	2,291	2,904	0	0
F5	2008 05 14	0	0.00	30	4.05	27,312	31,207	2,896	3,663	340	649
F6 ^{**}	2008 05 14	0	10.70	18	2.54	23,334	29,600	1,049	1,140	696	2,520
F7	2008 05 14	0	0.00	0	0.00	12,878	14,714	163	211	516	985
F8	2008 05 14	0	0.00	0	0.00	22,698	25,935	808	1,034	1,119	2,137
F9	2008 05 14	22	4.00	0	0.00	22,590	25,811	213	276	1,445	2,760
F10	2008 05 14	70	12.74	14	1.89	24,104	27,541	1,126	1,436	361	689
F11	2008 05 14	35	6.37	0	0.00	16,199	18,509	511	656	764	1,459
F12	2008 05 14	0	0.00	0	0.00	13,603	15,543	274	354	1,273	2,431
F13	2008 05 14	0	0.00	0	0.00	23,366	26,698	171	222	2,459	4,696
F14	2008 05 14	0	0.00	0	0.00	13,616	15,558	77	101	1,393	2,660
F15	2008 05 14	0	0.00	0	0.00	19,087	21,809	86	112	800	1,528
F16	2008 05 14	0	0.00	0	0.00	16,655	19,030	142	184	1,046	1,998
Guideline											
HHRA ^a			12^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

^{**} Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
1. All samples collected from a depth of 0.0 - 0.15 m below grade.
3. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E1. Correlation of Surface Soil Delineation XRF Results (Cont'd)

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
F17	2008 05 14	0	0.00	0	0.00	17,828	20,370	645	827	573	1,094
F18	2008 05 14	0	0.00	0	0.00	16,847	19,249	371	478	648	1,238
F19	2008 05 14	0	0.00	0	0.00	15,837	18,095	248	320	790	1,509
F20	2008 05 14	0	0.00	0	0.00	12,216	13,958	101	132	426	814
F21 **	2008 05 14	0	6.93	0	0.00	12,335	13,200	208	232	629	1,130
F22	2008 05 14	0	0.00	0	0.00	8,072	9,223	654	838	0	0
F23	2008 05 14	0	0.00	0	0.00	16,935	19,350	553	710	413	789
F24	2008 05 14	0	0.00	0	0.00	13,545	15,476	127	165	301	575
F25	2008 05 14	0	0.00	0	0.00	12,454	14,230	159	206	616	1,176
F26	2008 05 14	0	0.00	0	0.00	18,048	20,622	304	392	411	785
F27	2008 05 14	0	0.00	0	0.00	20,680	23,629	285	368	384	733
F28	2008 05 14	0	0.00	0	0.00	13,339	15,241	323	416	403	770
F29 **	2008 05 14	0	7.05	15	0.39	15,391	16,600	704	663	0	1,170
G1	2008 05 14	18	3.28	0	0.00	9,820	11,220	137	178	1,044	1,994
G2	2008 05 14	0	0.00	36	4.86	34,885	39,859	2,367	2,999	482	921
G19	2008 05 14	0	0.00	0	0.00	15,756	18,003	110	143	630	1,203
G20	2008 05 14	0	0.00	0	0.00	10,315	11,786	65	85	424	810
G21	2008 05 14	20	3.64	0	0.00	13,480	15,402	160	208	518	989
G22	2008 05 14	19	3.46	0	0.00	11,821	13,507	111	144	441	842
G23	2008 05 14	0	0.00	0	0.00	22,724	25,964	152	197	1,871	3,573
G24 **	2008 05 14	0	11.20	0	2.02	17,418	31,500	759	2,930	0	1,280
G25 **	2008 05 14	318	20.90	39	5.51	34,213	33,500	7,353	9,590	0	1,060
G26	2008 05 14	0	0.00	27	3.65	24,261	27,721	4,400	5,546	0	0
G27	2008 05 14	0	0.00	120	16.21	20,836	23,807	28,197	34,969	0	0
G28	2008 05 14	113	20.57	22	2.97	28,132	32,144	3,793	4,787	0	0
G29	2008 05 14	0	0.00	0	0.00	11,314	12,927	443	570	0	0
H1	2008 05 14	80	14.56	39	5.27	21,904	25,027	1,671	2,124	681	1,301
H2	2008 05 14	0	0.00	120	16.21	22,009	25,147	9,358	11,717	0	0
H18.5	2008 05 14	0	0.00	0	0.00	13,496	15,420	68	89	464	886
H19 **	2008 05 14	0	15.90	31	10.90	73,464	88,700	1,487	3,220	0	1,380
H20	2008 05 14	0	0.00	0	0.00	18,267	20,872	152	197	655	1,251
H21	2008 05 14	0	0.00	0	0.00	15,339	17,526	44	58	617	1,178
H22	2008 05 14	0	0.00	0	0.00	17,561	20,065	263	340	444	848
H23	2008 05 14	0	0.00	29	3.92	22,327	25,511	4,114	5,188	460	879
H24	2008 05 14	110	20.02	31	4.19	18,737	21,409	5,437	6,840	0	0
H25	2008 05 14	165	30.03	34	4.59	24,155	27,599	6,142	7,719	0	0
H26	2008 05 14	285	51.88	61	8.24	30,308	34,630	8,841	11,075	931	1,778
H27	2008 05 14	84	15.29	23	3.11	25,618	29,271	3,258	4,117	379	724
H28	2008 05 14	0	0.00	12	1.62	14,833	16,948	2,901	3,670	510	974
H29	2008 05 14	78	14.20	0	0.00	15,890	18,156	1,628	2,070	0	0
I1 **	2008 05 14	0	8.23	13	3.84	18,733	25,700	2,147	3,320	707	1,630
I2 **	2008 05 14	1107	5.64	140	12.40	93,656	57,300	31,538	45,400	0	1,510
I19	2008 05 14	0	0.00	0	0.00	14,632	16,718	791	1,012	527	1,006
I20	2008 05 14	0	0.00	0	0.00	17,901	20,454	122	159	520	993
I21	2008 05 14	0	0.00	0	0.00	10,454	11,945	17	22	403	770
I22	2008 05 14	0	0.00	0	0.00	17,266	19,728	262	338	726	1,387
I23 **	2008 05 14	128	19.90	36	5.15	24,039	22,600	6,641	8,380	1,057	1,210
I24	2008 05 14	0	0.00	9	1.22	22,509	25,719	718	919	366	699
I25	2008 05 14	0	0.00	9	1.22	20,843	23,815	261	337	321	613
I26	2008 05 14	183	33.31	28	3.78	21,232	24,260	6,089	7,653	0	0
Guideline											
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

** Sample submitted for laboratory analysis.

Notes:

- All results and guidelines in mg/kg.
- All samples collected from a depth of 0.0 - 0.15 m below grade.
- XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E1. Correlation of Surface Soil Delineation XRF Results (Cont'd)

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
I27	2008 05 14	0	0.00	18	2.43	18,919	21,617	2,073	2,630	334	638
I28 **	2008 05 14	0	13.20	9	1.11	20,529	22,500	634	630	402	948
I29	2008 05 14	21	3.82	8	1.08	21,883	25,003	162	210	308	588
J1	2008 05 13	0	0.00	0	0.00	12,745	14,562	478	614	486	928
J2	2008 05 13	0	0.00	0	0.00	23,828	27,226	652	836	393	751
J3	2008 05 14	0	0.00	0	0.00	18,234	20,834	380	489	525	1,003
J4 **	2008 05 13	53	8.81	8	4.33	19,578	19,000	1,308	1,890	474	1,190
J5	2008 05 13	0	0.00	0	0.00	11,929	13,630	146	190	547	1,045
J6	2008 05 13	493	89.74	125	16.89	29,879	34,140	12,670	15,823	0	0
J7	2008 05 13	41	7.46	0	0.00	26,039	29,752	408	525	732	1,398
J8 **	2008 05 13	0	11.80	12	1.54	34,239	33,800	1,204	948	623	1,120
J9	2008 05 13	21	3.82	0	0.00	21,768	24,872	164	213	608	1,161
J9.5	2008 05 14	0	0.00	0	0.00	19,657	22,460	74	97	551	1,052
J10	2008 05 14	0	0.00	0	0.00	19,777	22,597	221	286	686	1,310
J11	2008 05 14	159	28.94	123	16.62	56,784	64,881	5,481	6,895	0	0
J12	2008 05 14	0	0.00	0	0.00	16,580	18,944	175	227	489	934
J13	2008 05 14	23	4.19	0	0.00	15,553	17,771	158	205	0	0
J14 **	2008 05 14	0	9.77	0	0.80	37,211	33,000	430	428	0	1,190
J15	2008 05 14	0	0.00	0	0.00	33,337	38,091	189	245	1,003	1,916
J16	2008 05 14	0	0.00	0	0.00	23,156	26,458	177	229	798	1,524
J17	2008 05 14	0	0.00	0	0.00	10,573	12,081	0	0	705	1,346
J18	2008 05 14	0	0.00	0	0.00	16,885	19,293	138	179	607	1,159
J19 **	2008 05 14	17	5.50	0	0.26	13,878	13,600	49	75	647	1,220
J20	2008 05 14	0	0.00	0	0.00	9,229	10,545	24	32	0	0
J21	2008 05 14	0	0.00	0	0.00	16,265	18,584	154	200	447	854
J22	2008 05 14	0	0.00	0	0.00	17,704	20,229	98	128	367	701
J23	2008 05 14	0	0.00	0	0.00	20,733	23,689	165	214	849	1,621
J24	2008 05 14	0	0.00	0	0.00	18,766	21,442	152	197	517	987
J25	2008 05 14	0	0.00	0	0.00	19,027	21,740	371	478	432	825
J26	2008 05 14	0	0.00	0	0.00	25,976	29,680	156	202	0	0
J27	2008 05 14	173	31.49	30	4.05	21,683	24,775	5,036	6,340	429	819
J28	2008 05 14	0	0.00	0	0.00	22,161	25,321	149	193	528	1,008
J29 **	2008 05 14	39	6.59	15	0.88	55,298	28,800	386	422	386	1,030
K1	2008 05 13	0	0.00	0	0.00	13,671	15,620	475	610	511	976
K2	2008 05 13	0	0.00	0	0.00	11,439	13,070	234	303	410	783
K3	2008 05 13	0	0.00	0	0.00	15,660	17,893	547	702	345	659
K4	2008 05 13	0	0.00	0	0.00	18,328	20,941	276	356	563	1,075
K5	2008 05 13	0	0.00	13	1.76	17,328	19,799	1,444	1,838	438	837
K6	2008 05 13	0	0.00	0	0.00	14,389	16,441	188	244	0	0
K7	2008 05 13	0	0.00	0	0.00	13,173	15,051	475	610	0	0
K8	2008 05 13	0	0.00	0	0.00	12,447	14,222	385	496	455	869
K9	2008 05 13	0	0.00	8	1.08	17,578	20,085	524	673	555	1,060
K10	2008 05 14	0	0.00	0	0.00	10,506	12,004	173	224	490	936
K11	2008 05 14	0	0.00	0	0.00	13,828	15,800	123	160	370	707
K12	2008 05 14	0	0.00	0	0.00	12,643	14,446	135	175	0	0
K13	2008 05 14	20	3.64	0	0.00	14,248	16,280	161	209	437	835
K14	2008 05 14	0	0.00	0	0.00	11,572	13,222	160	208	1,139	2,175
K15	2008 05 14	24	4.37	0	0.00	14,320	16,362	215	278	351	670
K16	2008 05 14	0	0.00	0	0.00	12,931	14,775	107	139	0	0
K17	2008 05 14	0	0.00	0	0.00	21,643	24,729	334	431	717	1,369
Guideline											
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

** Sample submitted for laboratory analysis.

Notes:

- All results and guidelines in mg/kg.
- All samples collected from a depth of 0.0 - 0.15 m below grade.
- XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E1. Correlation of Surface Soil Delineation XRF Results (Cont'd)

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
K18	2008 05 14	0	0.00	0	0.00	18,352	20,969	48	63	845	1,614
K19 **	2008 05 14	0	5.78	0	0.16	22,333	19,400	289	192	1,333	1,620
L1	2008 05 13	0	0.00	0	0.00	9,705	11,089	0	0	498	951
L2	2008 05 13	0	0.00	0	0.00	9,911	11,324	0	0	414	791
L3	2008 05 13	0	0.00	0	0.00	9,875	11,283	0	0	477	911
L4	2008 05 13	0	0.00	0	0.00	8,708	9,950	0	0	350	668
L5	2008 05 13	0	0.00	0	0.00	9,051	10,342	0	0	0	0
L6	2008 05 13	0	0.00	0	0.00	12,289	14,041	0	0	1,171	2,236
L7	2008 05 13	0	0.00	0	0.00	13,911	15,895	0	0	326	623
L8	2008 05 13	0	0.00	0	0.00	18,399	21,023	67	88	911	1,740
L9	2008 05 13	0	0.00	0	0.00	14,842	16,958	88	115	0	0
L10 **	2008 05 14	0	6.36	0	0.15	11,127	16,000	88	177	1,421	1,380
L11	2008 05 14	0	0.00	0	0.00	16,536	18,894	430	553	898	1,715
L12	2008 05 14	0	0.00	0	0.00	13,897	15,879	529	679	342	653
L13	2008 05 14	0	0.00	0	0.00	10,482	11,977	156	202	434	829
L14	2008 05 14	0	0.00	0	0.00	12,781	14,604	36	47	500	955
L15	2008 05 14	0	0.00	0	0.00	51,426	58,759	145	188	1,140	2,177
L16	2008 05 14	32	5.82	0	0.00	17,290	19,755	157	204	617	1,178
L17	2008 05 14	0	0.00	0	0.00	9,621	10,993	41	54	772	1,474
L18	2008 05 14	0	0.00	0	0.00	13,430	15,345	109	142	577	1,102
L19	2008 05 14	0	0.00	0	0.00	16,791	19,185	125	163	458	875
M1	2008 05 13	0	0.00	0	0.00	10,024	11,453	0	0	832	1,589
M2	2008 05 13	0	0.00	0	0.00	10,511	12,010	16	21	759	1,450
M3	2008 05 13	0	0.00	0	0.00	10,065	11,500	0	0	0	0
M4	2008 05 13	0	0.00	0	0.00	10,995	12,563	13	17	457	873
M5	2008 05 13	0	0.00	0	0.00	11,816	13,501	0	0	837	1,599
M6	2008 05 13	0	0.00	0	0.00	12,217	13,959	0	0	1,352	2,582
M7	2008 05 13	0	0.00	0	0.00	13,726	15,683	0	0	298	569
M8	2008 05 13	0	0.00	0	0.00	14,538	16,611	155	201	887	1,694
M9	2008 05 13	0	0.00	0	0.00	10,697	12,222	99	129	613	1,171
M10	2008 05 14	0	0.00	0	0.00	12,159	13,893	109	142	513	980
M11	2008 05 14	0	0.00	0	0.00	11,373	12,995	73	95	599	1,144
M12	2008 05 14	0	0.00	0	0.00	16,246	18,563	55	72	0	0
M13	2008 05 14	0	0.00	0	0.00	26,557	30,344	223	288	0	0
M14	2008 05 14	0	0.00	0	0.00	18,459	21,091	52	68	302	577
M15	2008 05 14	0	0.00	0	0.00	15,585	17,807	41	54	317	605
M16	2008 05 14	0	0.00	0	0.00	11,421	13,050	30	39	773	1,476
M17	2008 05 14	0	0.00	0	0.00	13,438	15,354	63	82	457	873
M18	2008 05 14	0	0.00	0	0.00	12,246	13,992	39	51	961	1,835
M19	2008 05 13	0	0.00	0	0.00	13,108	14,977	84	110	694	1,325
N1	2008 05 13	0	0.00	0	0.00	10,587	12,097	231	299	476	909
N2	2008 05 13	0	0.00	0	0.00	9,771	11,164	115	150	410	783
N3	2008 05 13	0	0.00	0	0.00	10,720	12,249	92	120	0	0
N4	2008 05 13	0	0.00	0	0.00	10,725	12,254	139	181	490	936
N5 **	2008 05 13	0	6.97	0	0.21	9,770	18,100	128	232	0	1,490
N6	2008 05 13	0	0.00	0	0.00	26,423	30,191	247	319	0	0
N7	2008 05 13	0	0.00	0	0.00	11,293	12,903	153	199	369	705
N8	2008 05 13	0	0.00	0	0.00	10,862	12,411	88	115	682	1,303
N9	2008 05 13	0	0.00	0	0.00	12,776	14,598	150	195	692	1,322
N10	2008 05 14	0	0.00	0	0.00	12,288	14,040	160	208	977	1,866
Guideline											
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

** Sample submitted for laboratory analysis.

Notes:

- All results and guidelines in mg/kg.
- All samples collected from a depth of 0.0 - 0.15 m below grade.
- XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E1. Correlation of Surface Soil Delineation XRF Results (Cont'd)

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
R3	2008 05 13	0	0.00	0	0.00	13,379	15,287	27	36	1,093	2,087
R4	2008 05 13	0	0.00	0	0.00	12,910	14,751	71	93	454	867
R5	2008 05 13	0	0.00	0	0.00	10,478	11,972	19	25	315	602
R6	2008 05 13	0	0.00	0	0.00	12,993	14,846	43	56	0	0
R7	2008 05 13	0	0.00	0	0.00	12,587	14,382	38	50	414	791
R8	2008 05 13	20	3.64	0	0.00	15,346	17,534	72	94	348	665
R9	2008 05 13	0	0.00	0	0.00	12,190	13,928	90	117	454	867
R10	2008 05 13	0	0.00	0	0.00	12,261	14,009	46	60	439	838
R11	2008 05 13	0	0.00	0	0.00	10,644	12,162	0	0	0	0
N11	2008 05 14	0	0.00	0	0.00	8,330	9,518	54	71	340	649
N12	2008 05 14	0	0.00	0	0.00	15,514	17,726	39	51	569	1,087
N13	2008 05 14	0	0.00	0	0.00	11,179	12,773	36	47	0	0
N14 **	2008 05 14	22	6.53	0	0.09	12,059	12,800	109	104	0	788
N15	2008 05 14	0	0.00	0	0.00	17,114	19,554	14	19	0	0
N16	2008 05 14	0	0.00	0	0.00	10,864	12,413	87	113	391	747
N17	2008 05 14	0	0.00	0	0.00	11,077	12,657	42	55	597	1,140
N18	2008 05 14	0	0.00	0	0.00	8,975	10,255	30	39	0	0
N19	2008 05 14	0	0.00	0	0.00	13,166	15,043	14	19	489	934
P1	2008 05 13	0	0.00	0	0.00	9,517	10,874	269	347	465	888
P2	2008 05 13	0	0.00	0	0.00	14,315	16,356	176	228	441	842
P3	2008 05 13	0	0.00	0	0.00	9,471	10,822	86	112	384	733
P4	2008 05 13	0	0.00	0	0.00	14,604	16,686	194	251	342	653
P5	2008 05 13	0	0.00	0	0.00	11,052	12,628	79	103	285	544
P6	2008 05 13	0	0.00	0	0.00	7,424	8,483	97	126	0	0
P7	2008 05 13	0	0.00	0	0.00	10,525	12,026	111	144	416	794
P8	2008 05 13	0	0.00	0	0.00	12,816	14,644	139	181	529	1,010
P9	2008 05 13	0	0.00	0	0.00	11,740	13,414	138	179	495	945
P9.5	2008 05 14	0	0.00	0	0.00	12,109	13,836	219	283	0	0
P10	2008 05 14	0	0.00	0	0.00	12,669	14,476	46	60	407	777
P11	2008 05 14	0	0.00	0	0.00	12,973	14,823	36	47	460	879
P12	2008 05 14	0	0.00	0	0.00	11,311	12,924	82	107	504	963
P13	2008 05 14	0	0.00	0	0.00	14,497	16,564	163	211	694	1,325
P14	2008 05 14	0	0.00	0	0.00	11,011	12,581	142	184	306	584
P15	2008 05 14	0	0.00	0	0.00	10,602	12,114	46	60	0	0
P16	2008 05 14	0	0.00	0	0.00	10,855	12,403	32	42	0	0
P17	2008 05 14	0	0.00	0	0.00	10,929	12,487	89	116	304	581
P18	2008 05 14	0	0.00	0	0.00	12,830	14,660	70	91	939	1,793
P19	2008 05 14	0	0.00	0	0.00	11,749	13,424	91	119	400	764
Q1	2008 05 13	0	0.00	0	0.00	12,751	14,569	130	169	676	1,291
Q2	2008 05 13	0	0.00	0	0.00	14,486	16,552	135	175	597	1,140
Q3 **	2008 05 13	0	3.89	0	0.15	17,256	20,300	180	168	1,256	1,970
Q4	2008 05 13	0	0.00	0	0.00	14,720	16,819	137	178	880	1,681
Q5	2008 05 13	0	0.00	0	0.00	11,355	12,974	53	69	484	924
Q6	2008 05 13	0	0.00	0	0.00	10,260	11,723	89	116	612	1,169
Q7	2008 05 13	0	0.00	0	0.00	11,460	13,094	76	99	766	1,463
Q8 **	2008 05 13	0	4.46	0	0.45	13,393	18,100	150	287	869	1,630
Q9	2008 05 13	0	0.00	0	0.00	11,903	13,600	93	121	586	1,119
Q10	2008 05 14	18	3.28	0	0.00	12,977	14,827	62	81	381	728
Q11	2008 05 14	0	0.00	0	0.00	16,109	18,406	17	22	568	1,085
Q12	2008 05 14	0	0.00	0	0.00	15,354	17,543	207	268	471	900
Guideline											
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

** Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
1. All samples collected from a depth of 0.0 - 0.15 m below grade.
3. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E1. Correlation of Surface Soil Delineation XRF Results (Cont'd)

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
Q13	2008 05 14	0	0.00	0	0.00	12,550	14,340	64	84	375	716
Q14	2008 05 14	0	0.00	0	0.00	11,400	13,026	122	159	503	961
Q15	2008 05 14	0	0.00	0	0.00	12,717	14,530	170	220	469	896
Q16	2008 05 14	0	0.00	0	0.00	9,675	11,055	76	99	290	554
Q17	2008 05 14	0	0.00	0	0.00	14,100	16,111	21	28	526	1,005
Q18	2008 05 14	0	0.00	0	0.00	9,971	11,393	41	54	0	0
Q19	2008 05 14	0	0.00	0	0.00	14,630	16,716	37	49	0	0
R1	2008 05 13	0	0.00	0	0.00	11,743	13,418	276	356	559	1,068
R2	2008 05 13	0	0.00	0	0.00	12,791	14,615	276	356	0	0
R12	2008 05 13	0	0.00	0	0.00	10,522	12,022	36	47	344	657
R13	2008 05 13	24	4.37	0	0.00	14,298	16,337	228	295	661	1,262
R14	2008 05 13	0	0.00	0	0.00	10,205	11,660	165	214	321	613
R15	2008 05 13	0	0.00	0	0.00	8,718	9,961	24	32	334	638
R16	2008 05 13	0	0.00	0	0.00	8,788	10,041	16	21	0	0
R17	2008 05 13	0	0.00	0	0.00	11,239	12,842	101	132	422	806
R18	2008 05 13	0	0.00	0	0.00	9,532	10,891	50	66	1,434	2,739
R19	2008 05 13	0	0.00	0	0.00	8,320	9,506	48	63	326	623
SYA2 **	2008 05 15	95	16.00	56	3.47	48,622	52,600	3,884	3,370	514	1,240
SYA3	2008 05 15	0	0.00	0	0.00	11,371	12,992	67	88	0	0
SYA4	2008 05 15	541	98.47	228	30.80	49,041	56,034	18,931	23,559	0	0
SYA5	2008 05 15	230	41.87	192	25.94	55,333	63,223	14,965	18,662	0	0
SYA6	2008 05 15	0	0.00	0	0.00	10,905	12,460	149	193	0	0
SYA7	2008 05 15	0	0.00	97	13.10	57,715	65,945	8,164	10,234	0	0
SYA8	2008 05 15	0	0.00	135	18.24	172,762	197,397	4,649	5,857	1,109	2,118
SYA9	2008 05 15	52	9.47	24	3.24	39,399	45,017	621	796	572	1,092
SYA10	2008 05 15	0	0.00	18	2.43	37,012	42,290	743	951	603	1,152
SYA11	2008 05 15	68	12.38	29	3.92	77,340	88,368	1,472	1,873	648	1,238
SYA12	2008 05 15	45	8.19	19	2.57	66,862	76,396	851	1,088	598	1,142
SYA13	2008 05 15	0	0.00	0	0.00	12,133	13,863	87	113	313	598
SYA14	2008 05 15	0	0.00	0	0.00	12,613	14,412	76	99	363	693
SYA15 **	2008 05 15	0	11.00	124	2.40	46,977	53,400	945	1,280	0	1,640
SYA16	2008 05 15	0	0.00	14	1.89	23,993	27,414	633	811	591	1,129
SYA17	2008 05 15	0	0.00	0	0.00	13,813	15,783	207	268	0	0
SYB1	2008 05 15	0	0.00	0	0.00	19,656	22,459	942	1,203	299	571
SYB2	2008 05 15	83	15.11	33	4.46	28,947	33,075	2,185	2,771	604	1,154
SYB3	2008 05 15	254	46.23	61	8.24	47,366	54,120	4,154	5,238	463	884
SYB4	2008 05 15	0	0.00	30	4.05	20,704	23,656	1,290	1,643	2,413	4,608
SYB5	2008 05 15	147	26.76	47	6.35	29,507	33,715	3,150	3,982	540	1,031
SYB6	2008 05 15	0	0.00	86	11.62	35,929	41,052	3,490	4,408	0	0
SYB7	2008 05 15	50	9.10	24	3.24	25,422	29,047	1,381	1,758	649	1,239
SYB8	2008 05 15	0	0.00	79	10.67	60,367	68,975	5,542	6,971	485	926
SYB13	2008 05 15	0	0.00	10	1.35	28,305	32,341	445	572	945	1,805
SYB14	2008 05 15	54	9.83	32	4.32	58,066	66,346	1,214	1,547	780	1,490
SYB15	2008 05 15	0	0.00	0	0.00	24,875	28,422	428	550	580	1,108
SYB16	2008 05 15	0	0.00	0	0.00	18,517	21,157	400	515	777	1,484
SYB16.5	2008 05 15	0	0.00	0	0.00	11,776	13,455	122	159	0	0
SYB17	2008 05 15	0	0.00	12	1.62	24,177	27,625	847	1,083	0	0
SYC3	2008 05 15	0	0.00	0	0.00	12,099	13,824	253	327	381	728
SYC4 **	2008 05 15	8441	72.50	2408	1370.00	102,633	47,400	262,148	149,000	0	885
SYC5	2008 05 15	224	40.77	94	12.70	32,752	37,422	8,795	11,018	0	0
Guideline											
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

** Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
1. All samples collected from a depth of 0.0 - 0.15 m below grade.
3. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E1. Correlation of Surface Soil Delineation XRF Results (Cont'd)

Sample ID:	Date (yyyy/mm/dd)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
		XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
SYC6	2008 05 15	0	0.00	0	0.00	18,847	21,535	128	166	760	1,451
SYC7	2008 05 15	0	0.00	26	3.51	34,128	38,995	1,561	1,985	466	890
SYC8	2008 05 15	44	8.01	17	2.30	34,767	39,725	702	899	351	670
SYC9	2008 05 15	51	9.28	51	6.89	61,399	70,154	506	650	1,127	2,152
SYC10	2008 05 15	0	0.00	78	10.54	110,152	125,859	2,050	2,601	847	1,618
SYC11	2008 05 15	113	20.57	59	7.97	121,311	138,609	2,942	3,721	622	1,188
SYC12	2008 05 15	0	0.00	0	0.00	20,620	23,560	140	182	0	0
SYC13	2008 05 15	0	0.00	28	3.78	49,569	56,637	1,008	1,287	728	1,390
SYC14 **	2008 05 15	0	6.60	13	0.95	32,193	34,800	575	484	705	885
SYC15	2008 05 15	0	0.00	0	0.00	19,367	22,129	256	331	642	1,226
SYC16	2008 05 15	0	0.00	0	0.00	12,367	14,130	89	116	1,440	2,750
SYC17	2008 05 15	0	0.00	12	1.62	25,845	29,530	910	1,163	639	1,220
SYD2	2008 05 15	121	22.02	42	5.67	22,461	25,664	2,166	2,747	0	0
SYD3	2008 05 15	0	0.00	17	2.30	26,200	29,936	1,710	2,173	605	1,155
SYD4	2008 05 15	423	77.00	881	119.01	30,459	34,802	33,144	41,046	0	0
SYD5	2008 05 15	0	0.00	466	62.95	32,587	37,234	8,359	10,477	0	0
SYD6	2008 05 15	394	71.72	205	27.69	63,377	72,414	10,587	13,242	0	0
SYD7	2008 05 15	306	55.70	76	10.27	40,815	46,635	5,120	6,445	0	0
SYD8	2008 05 15	92	16.75	57	7.70	82,612	94,392	2,105	2,670	601	1,148
SYD9	2008 05 15	0	0.00	54	7.29	71,810	82,050	2,497	3,163	384	733
SYD10	2008 05 15	124	22.57	75	10.13	83,108	94,959	2,431	3,080	479	915
SYD11	2008 05 15	0	0.00	23	3.11	23,625	26,994	506	650	0	0
SYD12	2008 05 15	0	0.00	56	7.56	49,138	56,145	1,702	2,163	0	0
SYD13	2008 05 15	0	0.00	14	1.89	36,672	41,901	1,218	1,552	0	0
SYD14	2008 05 15	0	0.00	13	1.76	35,620	40,699	682	874	1,818	3,472
SYD15	2008 05 15	52	9.47	21	2.84	37,562	42,918	1,040	1,327	481	919
SYD16	2008 05 15	0	0.00	0	0.00	9,107	10,406	95	124	0	0
SYD17	2008 05 15	0	0.00	11	1.49	18,322	20,935	638	818	0	0
Guideline											
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

^c Composite soil sample taken from North of Pacific Avenue stockpiles

** Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
1. All samples collected from a depth of 0.0 - 0.15 m below grade.
3. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

Table E2. Correlation of Post-Remediation Surface Soil XRF Results

Sample ID	Date (yyyy/mm/dd)	Sample Depth (m)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
			XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
11-14A**	2008 10 18	0.30	0	0.00	0	0.00	9,966	11,387	0	0	977	1,866
11-14B	2008 10 18	0.30	0	0.00	0	0.00	6,713	7,670	124	161	0	0
1-4A	2008 10 18	0.30	0	0.00	0	0.00	6,230	7,118	81	106	0	0
1-4B	2008 10 18	0.30	0	0.00	0	0.00	7,633	8,721	32	42	0	0
15-18A	2008 10 18	0.30	0	0.00	0	0.00	7,214	8,243	33	43	0	0
15-18B	2008 10 18	0.30	0	0.00	0	0.00	8,698	9,938	0	0	0	0
19-22A	2008 10 18	0.30	0	0.00	0	0.00	7,977	9,114	0	0	0	0
19-22B**	2008 10 18	0.30	0	0.00	0	0.00	7,481	8,548	59	77	0	0
23-30A	2008 10 18	0.30	0	0.00	0	0.00	8,044	9,191	76	99	0	0
23-30B	2008 10 18	0.30	0	0.00	0	0.00	6,414	7,329	40	53	0	0
23-30C	2008 10 18	0.30	0	0.00	0	0.00	6,455	7,375	0	0	0	0
31-36A	2008 10 18	0.30	0	0.00	0	0.00	6,800	7,770	77	101	0	0
31-36B	2008 10 18	0.30	0	0.00	0	0.00	7,053	8,059	37	49	0	0
31-36C**	2008 10 17	0.30	0	0.00	0	0.00	7,141	8,159	2,632	3,332	0	0
37-40A	2008 10 18	0.30	0	0.00	0	0.00	5,925	6,770	0	0	0	0
41-44A	2008 10 18	0.30	0	0.00	0	0.00	10,514	12,013	78	102	0	0
45-48A	2008 10 18	0.30	0	0.00	0	0.00	9,534	10,894	50	66	0	0
49-52A	2008 10 18	0.30	0	0.00	0	0.00	6,346	7,251	0	0	0	0
49-52B	2008 10 18	0.30	0	0.00	0	0.00	9,031	10,319	0	0	0	0
5-10A	2008 10 18	0.30	0	0.00	0	0.00	7,863	8,984	0	0	0	0
5-10B*	2008 10 18	0.30	0	0.00	0	0.00	7,984	9,122	53	69	0	0
5-10C	2008 10 18	0.30	0	0.00	0	0.00	6,608	7,550	0	0	0	0
53-56A	2008 10 18	0.30	0	0.00	0	0.00	7,200	8,227	0	0	0	0
53-56B	2008 10 15	0.30	0	0.00	0	0.00	8,918	10,190	0	0	0	0
57-60A	2008 10 18	0.30	0	0.00	0	0.00	14,607	16,690	43	56	0	0
57-60B	2008 10 18	0.30	0	0.00	0	0.00	14,368	16,417	34	45	0	0
61-64A	2008 10 15	0.30	0	0.00	0	0.00	10,416	11,901	121	157	0	0
61-64B**	2008 10 14	0.30	0	0.00	0	0.00	12,105	13,831	128	166	0	0
65-96A**	2008 10 17	0.30	0	0.00	22	2.97	14,957	17,090	1,869	2,373	0	0
65-96B	2008 10 18	0.30	0	0.00	0	0.00	14,074	16,081	46	60	0	0
65-96C	2008 10 17	0.30	0	0.00	0	0.00	14,075	16,082	486	624	0	0
65-96D	2008 10 17	0.30	0	0.00	0	0.00	13,874	15,852	734	940	0	0
65-96E	2008 10 18	0.30	0	0.00	0	0.00	10,470	11,963	350	451	0	0
65-96F	2008 10 18	0.30	0	0.00	0	0.00	15,583	17,805	96	125	0	0
65-96G**	2008 10 18	0.30	0	0.00	24	3.24	18,655	21,315	1,116	1,423	0	0
65-96-H	2008 10 18	0.30	0	0.00	0	0.00	14,042	16,044	418	538	0	0
65-96-I	2008 10 21	0.30	0	0.00	0	0.00	16,330	18,659	39	51	0	0
65-96-J**	2008 10 21	0.30	0	0.00	0	0.00	10,832	12,377	397	511	0	0
65-96-K	2008 10 21	0.30	0	0.00	0	0.00	9,653	11,029	389	501	0	0
69-76A	2008 10 17	0.30	0	0.00	0	0.00	11,986	13,695	199	258	0	0
69-76B	2008 10 18	0.30	0	0.00	0	0.00	12,315	14,071	332	428	0	0
71-74A	2008 10 18	0.30	0	0.00	0	0.00	14,126	16,140	82	107	0	0
71-74B	2008 10 18	0.30	0	0.00	0	0.00	14,290	16,328	164	213	0	0
88-90A**	2008 10 18	0.30	0	0.00	0	0.00	9,906	11,319	630	808	740	1,413
88-93A	2008 10 18	0.30	0	0.00	0	0.00	11,705	13,374	400	515	0	0
99-105A	2008 10 18	0.30	0	0.00	0	0.00	13,517	15,444	696	891	0	0
99-105B	2008 10 17	0.30	0	0.00	0	0.00	8,012	9,154	67	88	0	0
ESY-A	2008 10 18	0.30	0	0.00	0	0.00	7,024	8,026	0	0	0	0
ESY-B	2008 10 18	0.30	0	0.00	0	0.00	13,938	15,926	0	0	0	0
ESY-C	2008 10 18	0.30	0	0.00	0	0.00	10,340	11,814	449	577	0	0
ESY-D	2008 10 18	0.30	0	0.00	0	0.00	10,492	11,988	0	0	0	0
ESY-E**	2008 10 18	0.30	0	0.00	0	0.00	11,731	13,404	1,795	2,280	0	0
ESY-F**	2008 10 18	0.30	0	0.00	0	0.00	13,053	14,914	1,927	2,446	0	0
ESY-G	2008 10 18	0.30	0	0.00	0	0.00	10,103	11,544	186	241	0	0
ESY-H	2008 10 18	0.30	0	0.00	0	0.00	7,931	9,062	0	0	0	0
ESY-I	2008 10 18	0.30	0	0.00	0	0.00	11,274	12,882	664	851	0	0
ESY-J	2008 10 18	0.30	0	0.00	0	0.00	6,796	7,765	439	565	0	0
ESY-K	2008 10 17	0.30	0	0.00	0	0.00	11,365	12,986	112	146	0	0
ESY-L**	2008 10 17	0.30	0	0.00	20	2.70	24,343	27,814	1,801	2,288	0	0
ESY-M	2008 10 18	0.30	0	0.00	0	0.00	14,165	16,185	548	703	0	0
Guideline												
HHRA ^a			12 ^b		15.2		41,800		1,170		1,290	

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

** Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
2. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

XX Exceeds applicable guideline

Table E3. Correlation of Post-Remediation Residential Surface Soil XRF Results

Sample ID	Date (yyyy/mm/dd)	Sample Depth (m)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
			XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
R1-A **	2008 10 19	0.30	0	0.00	0	0.00	13,775	15,739	89	116	770	1,471
R1-B	2008 10 18	0.30	0	0.00	0	0.00	9,651	11,027	81	106	0	0
R1-C **	2008 10 19	0.30	0	0.00	0	0.00	9,384	10,722	102	133	768	1,467
R1-D	2008 10 18	0.30	0	0.00	0	0.00	13,202	15,085	116	151	0	0
R1-E	2008 10 18	0.30	0	0.00	0	0.00	7,578	8,659	64	84	0	0
R2-A	2008 10 18	0.30	0	0.00	0	0.00	11,334	12,950	84	110	0	0
R2-B	2008 10 18	0.30	0	0.00	0	0.00	9,718	11,104	73	95	0	0
R2-C	2008 10 18	0.30	0	0.00	0	0.00	10,652	12,171	96	125	0	0
R2-D	2008 10 18	0.30	0	0.00	0	0.00	11,051	12,627	87	113	0	0
Guideline												
HHRA ^a				12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

** Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
2. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

XX Exceeds applicable guideline

Table E4. Correlation of Post-Remediation Subsoil XRF Results

Sample ID	Date (yyyy/mm/dd)	Sample Depth (m)	Arsenic (As)		Antimony (Sb)		Iron (Fe)		Lead (Pb)		Manganese (Mn)	
			XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated	XRF	Correlated
SS-E-WALL-A1m **	2008 10 22	1.0	0	0.00	0	0.00	11,369	12,990	345	445	0	0
SS-E-WALL-A1m(dup)	2008 10 22	1.0	0	0.00	0	0.00	10,664	12,185	318	410	0	0
SS-E-WALL-A2m	2008 10 22	2.0	0	0.00	0	0.00	15,409	17,606	158	205	0	0
SS-E-WALL-A3m	2008 10 22	3.0	0	0.00	0	0.00	14,038	16,040	45	59	0	0
SS-E-WALL-AB	2008 10 22	4.0	0	0.00	0	0.00	10,359	11,836	0	0	0	0
SS-E-WALL-B1m	2008 10 21	1.0	0	0.00	0	0.00	11,800	13,483	294	379	0	0
SS-E-WALL-B2m	2008 10 22	2.0	0	0.00	0	0.00	15,637	17,867	43	56	0	0
SS-E-WALL-B3m	2008 10 22	3.0	0	0.00	0	0.00	15,086	17,237	0	0	0	0
SS-E-WALL-B3m (dup)	2008 10 22	3.0	0	0.00	0	0.00	13,262	15,153	0	0	0	0
SS-E-WALL-BB	2008 10 22	4.0	0	0.00	0	0.00	10,825	12,369	0	0	0	0
SS-E-WALL-C1m	2008 10 21	1.0	0	0.00	0	0.00	14,002	15,999	62	81	0	0
SS-E-WALL-C2m **	2008 10 22	2.0	0	0.00	0	0.00	11,536	13,181	0	0	741	1,415
SS-E-WALL-C2m (dup)	2008 10 22	2.0	0	0.00	0	0.00	11,418	13,046	0	0	0	0
SS-E-WALL-C2m (dup2)	2008 10 22	2.0	0	0.00	0	0.00	11,149	12,739	0	0	0	0
SS-E-WALL-C3m	2008 10 21	3.0	0	0.00	0	0.00	12,052	13,771	67	88	0	0
SS-E-WALL-C3m (dup)	2008 10 21	3.0	0	0.00	0	0.00	12,188	13,926	72	94	0	0
SS-E-WALL-CB	2008 10 21	4.0	0	0.00	0	0.00	18,658	21,319	0	0	0	0
SS-N-WALL-A1m	2008 10 16	1.0	0	0.00	0	0.00	8,011	9,153	38	50	0	0
SS-N-WALL-A2m	2008 10 16	2.0	0	0.00	0	0.00	7,793	8,904	1,099	1,402	0	0
SS-N-WALL-A3m **	2008 10 16	3.0	0	0.00	0	0.00	7,459	8,523	615	789	0	0
SS-N-WALL-A1m#2	2008 10 20	1.0	0	0.00	0	0.00	7,965	9,101	103	134	0	0
SS-N-WALL-A1m#3 **	2008 10 21	1.0	0	0.00	0	0.00	13,984	15,978	439	565	0	0
SS-N-WALL-A2m#2 (dup)	2008 10 20	2.0	0	0.00	20	2.70	11,786	13,467	2,872	3,633	0	0
SS-N-WALL-A2m#3	2008 10 21	2.0	0	0.00	0	0.00	11,460	13,094	157	204	0	0
SS-N-WALL-A3m#2	2008 10 20	3.0	0	0.00	0	0.00	12,621	14,421	42	55	0	0
SS-N-WALL-A1B-CRNR#3	2008 10 21	1.0	0	0.00	0	0.00	11,008	12,578	467	600	0	0
SS-N-WALL-A2B-CRNR-1 **	2008 10 21	2.0	0	0.00	0	0.00	5,991	6,845	0	0	0	0
SS-N-WALL-AB#2	2008 10 20	4.0	0	0.00	0	0.00	8,603	9,830	0	0	0	0
SS-N-WALL-AB#3	2008 10 21	4.0	0	0.00	0	0.00	4,068	4,648	0	0	0	0
SS-N-WALL-AB#3 (dup)	2008 10 21	4.0	0	0.00	0	0.00	6,674	7,626	30	39	805	1,537
SS-N-WALL-AB#3 (dup2)	2008 10 21	4.0	0	0.00	0	0.00	6,596	7,537	0	0	0	0
SS-N-WALL-AB#3 (dup3)	2008 10 21	4.0	0	0.00	0	0.00	6,893	7,876	0	0	0	0
SS-N-WALL-B1m	2008 10 19	1.0	0	0.00	0	0.00	7,706	8,805	64	84	0	0
SS-N-WALL-B2m	2008 10 19	2.0	0	0.00	0	0.00	7,811	8,925	62	81	0	0
SS-N-WALL-B3m **	2008 10 19	3.0	0	0.00	0	0.00	9,200	10,512	385	496	0	0
SS-N-WALL-BB	2008 10 19	4.0	0	0.00	0	0.00	7,942	9,074	0	0	0	0
SS-N-WALL-C1m	2008 10 19	1.0	0	0.00	0	0.00	4,723	5,396	143	186	0	0
SS-N-WALL-C2m **	2008 10 19	2.0	0	0.00	0	0.00	5,229	5,975	95	124	0	0
SS-N-WALL-C3m	2008 10 19	3.0	0	0.00	0	0.00	4,856	5,548	161	209	0	0
SS-N-WALL-CB	2008 10 19	4.0	0	0.00	0	0.00	15,208	17,377	73	95	0	0
SS-N-WALL-CRNR-1	2008 10 20	1.0	0	0.00	0	0.00	10,998	12,566	102	133	0	0
SS-N-WALL-CRNR-2	2008 10 20	2.0	0	0.00	0	0.00	10,601	12,113	124	161	0	0
SS-N-WALL-CRNR-3	2008 10 20	3.0	0	0.00	0	0.00	21,523	24,592	0	0	0	0
SS-N-WALL-CRNR-B	2008 10 20	4.0	0	0.00	0	0.00	21,296	24,333	0	0	0	0
SS-N-WALL-D1m	2008 10 19	1.0	0	0.00	0	0.00	4,803	5,488	59	77	0	0
SS-N-WALL-D2m (dup)	2008 10 19	2.0	0	0.00	0	0.00	5,816	6,645	101	132	0	0
SS-N-WALL-D2m (dup)	2008 10 19	2.0	0	0.00	0	0.00	5,785	6,610	87	113	0	0
SS-N-WALL-D3m	2008 10 19	3.0	0	0.00	0	0.00	13,755	15,716	296	382	947	1,809
SS-N-WALL-D3#2 **	2008 10 20	3.0	0	0.00	0	0.00	7,027	8,029	885	1,131	0	0
SS-N-WALL-DB	2008 10 19	4.0	0	0.00	0	0.00	10,479	11,973	1,053	1,344	0	0
SS-N-WALL-DB#2	2008 10 20	4.0	0	0.00	0	0.00	6,241	7,131	0	0	0	0
SS-N-WALL-E1m **	2008 10 19	1.0	0	0.00	0	0.00	11,114	12,699	304	392	0	0
SS-N-WALL-E2m	2008 10 19	2.0	0	0.00	0	0.00	7,801	8,913	437	562	0	0
SS-S-WALL-A1m	2008 10 19	1.0	0	0.00	0	0.00	6,188	7,070	0	0	0	0
SS-S-WALL-A1m (dup)	2008 10 19	1.0	0	0.00	0	0.00	7,433	8,493	38	50	0	0
SS-S-WALL-A2m	2008 10 19	2.0	0	0.00	0	0.00	10,530	12,032	41	54	0	0
SS-S-WALL-A3m	2008 10 19	3.0	0	0.00	0	0.00	9,367	10,703	39	51	0	0
SS-S-WALL-B1m	2008 10 19	1.0	0	0.00	0	0.00	9,086	10,382	41	54	0	0
SS-S-WALL-B2m	2008 10 19	2.0	0	0.00	0	0.00	7,212	8,240	73	95	0	0
SS-S-WALL-B3m	2008 10 19	3.0	0	0.00	0	0.00	7,901	9,028	48	63	0	0
SS-S-WALL-BB **	2008 10 19	4.0	0	0.00	0	0.00	8,999	10,282	138	179	0	0
SS-S-WALL-D3m	2008 10 19	3.0	0	0.00	0	0.00	8,835	10,095	0	0	0	0
SS-W-WALL-A1m	2008 10 15	1.0	0	0.00	0	0.00	9,491	10,844	97	126	0	0
SS-W-WALL-A2m	2008 10 15	2.0	0	0.00	0	0.00	11,287	12,896	155	201	0	0
SS-W-WALL-A2m#2	2008 10 20	2.0	0	0.00	0	0.00	11,255	12,860	1,929	2,449	0	0
SS-W-WALL-A3m	2008 10 15	3.0	0	0.00	0	0.00	10,828	12,372	233	301	0	0
SS-W-WALL-AB	2008 10 19	4.0	0	0.00	0	0.00	11,700	13,368	333	429	0	0
SS-W-WALL-B1m	2008 10 15	1.0	0	0.00	25	3.38	9,557	10,920	0	0	0	0
SS-W-WALL-B2m	2008 10 16	2.0	0	0.00	0	0.00	16,435	18,779	82	107	0	0
SS-W-WALL-B3m**	2008 10 16	3.0	0	0.00	0	0.00	15,078	17,228	187	242	0	0
SS-W-WALL-BB	2008 10 19	4.0	0	0.00	0	0.00	5,435	6,210	0	0	0	0
SS-W-WALL-C1m	2008 10 19	1.0	0	0.00	0	0.00	14,812	16,924	327	422	0	0
SS-W-WALL-C2m	2008 10 19	2.0	0	0.00	0	0.00	11,653	13,315	0	0	0	0
SS-W-WALL-C3m	2008 10 19	3.0	0	0.00	0	0.00	14,189	16,212	36	47	0	0
SS-W-WALL-CB	2008 10 19	4.0	0	0.00	0	0.00	3,008	3,437	0	0	0	0
SS-W-WALL-D1m **	2008 10 19	1.0	0	0.00	0	0.00	12,160	13,894	237	306	0	0
SS-W-WALL-D2m	2008 10 19	2.0	0	0.00	0	0.00	11,638	13,298	46	60	959	1,832
SS-W-WALL-D2m#2	2008 10 20	2.0	0	0.00	0	0.00	14,859	16,978	0	0	0	0
SS-W-WALL-D2m (dup)	2008 10 19	2.0	0	0.00	0	0.00	10,370	11,849	0	0	1,240	2,368
SS-W-WALL-D3m#2	2008 10 20	3.0	0	0.00	0	0.00	14,781	16,889	0	0	0	0
SS-W-WALL-DB	2008 10 19	4.0	0	0.00	0	0.00	9,762	11,154	0	0	0	0
SS-D-BOT-1 **	2008 10 20	4.0	0	0.00	0	0.00	10,645	12,163	0	0	0	0
Guideline												
HHRA ^a				12 ^b		15.2		41,800		1,170		1,290

^a Site Specific HHRA Guidelines (Dillon Consulting Ltd., October 2007).

^b HHRA guideline for arsenic references CCME Soil Quality Guideline of 12 mg/kg.

** Sample submitted for laboratory analysis.

Notes:

1. All results and guidelines in mg/kg.
2. XRF results with concentrations lower than XRF detection limits are shown as zero (0).

XX Exceeds applicable guideline.

M. Block and Associates Ltd.

2484 Ferrier Street
 Winnipeg Manitoba
 R2V 4P6
 (204) 334-5356

Field Density Report

To: Hazco Environmental Services Ltd.
 Fax Number: 832-3203

Attention: Mr. Dave Simpson
 Date Faxed: October 17, 2008
 Page 1 of 1

Client: Hazco Environmental Services Ltd.	Construction Type: Backfill
Project: 1 st & Rosser – Brandon, MB	General Location:
Work Order #: WO 1018	Lift/Elevation: final
Date Tested: October 17, 2008	Material Type: pitrun
Tested By: TV	Proctor/Marshall Value: 1910 kg/m ³ at 11.0 % MC
	Standard <input type="checkbox"/> Modified <input type="checkbox"/> Estimate <input type="checkbox"/>
	Specification: 95 % SPD
	Contractor: Hazco

Test #	Depth (mm)	Elev.	Location	Wet Density	Dry Density	Percent Moisture	Percent Compaction
1	100	Final	2m north & 1m east of south west corner of site #4	2010	1844	9.0	96.5
2	100	Final	1m south & 2m east of north west corner of site #4	1996	1851	7.8	96.9
3	100	Final	1m south & .5m west of north east corner of site #5	2023	1888	7.2	98.8
4	100	Final	2m north & 2m east of south west corner of site #6	2122	1931	9.9	101.1
5	100	Final	3m north & 3m west of south east corner of site #8	1981	1815	9.1	95.0
6	100	Final	3m south & 5m west of north east corner of site #8	2010	1857	8.3	96.2
7	100	Final	2m south & 2m east of north west corner of site #8	2022	1888	7.0	97.8
8	100	Final	2m south & 3m east of north west corner of site #9	2161	2042	5.8	105.8
9	100	Final	8m north & 3m west of south east corner of site #9	2072	1922	7.8	99.5
10	100	Final	3m north & 8m west of south east corner of site #9	2076	1912	8.6	99.0
11	100	Final	2m south & 3m east of north west corner of site #10	2138	2074	3.1	107.4
12	100	Final	3m north & 5m west of south east corner of site #10	2001	1840	8.7	95.3
13	100	Final	8m north & 5m west of south east corner of site #3	1961	1832	7.1	95.0
14	100	Final	4m north & 5m east of south west corner of site #3	2067	1863	10.9	96.5
15	100	Final	3m south & 3m east of north west corner of site #2	2040	1873	8.9	97.0

M. Block and Associates Ltd.

Field Density Report

2484 Ferrier Street
 Winnipeg Manitoba
 R2V 4P6
 (204) 334-5356

Test #	Depth (mm)	Elev.	Location	Wet Density	Dry Density	Percent Moisture	Percent Compaction
16	100	Final	3m north & 2m east of south west corner of site #2	2000	1847	8.3	95.7
17	100	Final	5m north & 4m west of south east corner of site #2	1996	1865	7.0	96.6
18	100	Final	3m south & 2m east of north west corner of site #1	1907	1781	7.1	92.3
19	100	Final	3m north & 2m east of south west corner of site #1	1916	1783	7.5	92.4
20	100	Final	<u>Retest of #18</u> after additional compaction	2094	1944	7.7	101.8
21	100	Final	<u>Retest of #19</u> after additional compaction	2050	1873	9.5	98.0
22	100	Final	3m south & 15m west of north east corner of site #16	2176	2027	7.3	106.2
23	100	Final	5m south & 20m west of north east corner of site #16	2017	1868	7.9	97.8
24	100	Final	5m south & 15m east of north west corner of site #16	2098	1957	7.2	102.5
25	100	Final	1m north & 5m east of south west corner of site 11	2064	1902	8.5	99.6
26	100	Final	2m south & 10m east of north west corner of site 11	2094	1932	8.4	101.2
27	100	Final	3m south & 8m east of north west corner of site 14	2090	1939	7.7	101.6
28	100	Final	7m south & 5m west of north east corner of site 14	2102	1944	8.1	101.8
29	100	Final	10m south & 10m west of north east corner of site 16	2151	1964	9.5	102.9
30	100	Final	10m south & 25m west of north east corner of site 16	2128	1987	7.1	104.0
31	100	Final	10m south & 35m west of north east corner of site 16	2081	1936	7.5	101.4
32	100	Final	5m north & 30m west of south east corner of site 16	2081	1913	8.8	100.2
33	100	Final	5m north & 20m west of south east corner of site 16	1972	1822	8.2	95.4
34	100	Final	5m north & 8m west of south east corner of site 16	2074	1899	9.2	99.4

Comments: All locations met the 98% specification.

Reviewed By:



Gordon Richards
 Materials Manager

M. Block and Associates Ltd.
 2484 Ferrier Street
 Winnipeg Manitoba
 R2V 4P6
 (204) 334-5356

Field Density Report


To: Hazco Environmental Services Ltd.
 Fax Number: 832-3203

Attention: Mr. Dave Simpson
 Date Faxed: November 6, 2008
 Page 1 of 1

Client: Hazco Environmental Services Ltd.	Construction Type: Backfill
Project: 1 st & Rosser – Brandon, MB	General Location:
Work Order #: WO 1108	Lift/Elevation: final
Date Tested: November 5, 2008	Material Type: pitrun
Tested By: GR	Proctor/Marshall Value: 1910 kg/m ³ at 11.0 % MC
	Standard <input type="checkbox"/> Modified <input type="checkbox"/> Estimate <input type="checkbox"/>
	Specification: 100 % SPD
	Contractor: Hazco

Test #	Depth (mm)	Elev.	Location	Wet Density	Dry Density	Percent Moisture	Percent Compaction
1-4 taken top along centre line – south to north equally spaced							
1	100	Final	South end	2090	1954	6.9	102.3
2	100	Final	South quarter	2172	2016	7.7	105.6
3	100	Final	North quarter	2111	1932	9.2	101.2
4	100	Final	North end	2045	1897	7.8	99.3
5-7 taken along east slope about 20m east of centre line – north to south equally spaced							
5	100	Final	North third	2048	1895	8.1	99.2
6	100	Final	Centre	2212	2076	6.6	108.7
7	100	Final	South third	2196	2075	5.8	108.6
8-10 taken along west slope about 15m west of centre line – south to north equally spaced							
8	100	Final	South third	2103	1953	7.7	102.3
9	100	Final	Centre	2113	1953	8.2	102.3
10	100	Final	North third	1948	1815	7.4	95.8

Comments: All locations exceed the 100% SPD except the north most end where new material is still being spread and not fully compacted. Compaction continues.

Reviewed By 
 Gordon Richards

M. Block and Associates Ltd.

2484 Ferrier Street
 Winnipeg Manitoba
 R2V 4P6
 (204) 334-5356

Field Density Report

To: Hazco Environmental Services Ltd.
 Fax Number: 832-3203

Attention: Mr. Dave Simpson
 Date Faxed: November 18, 2008
 Page 1 of 1

Client: Hazco Environmental Services Ltd.	Construction Type: Backfill
Project: 1 st & Rosser – Brandon, MB	General Location: top of berm
Work Order #: WO 1108	Lift/Elevation: after final grading
Date Tested: November 12, 2008	Material Type: pitrun
Tested By: GR	Proctor/Marshall Value: 1910 kg/m ³ at 11.0 % MC
	Standard <input type="checkbox"/> Modified <input type="checkbox"/> Estimate <input type="checkbox"/>
	Specification: 95 % SPD
	Contractor: Hazco

Test #	Depth (mm)	Elev.	Location	Wet Density	Dry Density	Percent Moisture	Percent Compaction
1-4 taken top along south slope – spaced equally west to east							
1	100	Final	West end	1975	1891	8.6	95.2
2	100	Final	West quarter	2018	1879	7.4	98.4
3	100	Final	East quarter	1992	1864	6.9	97.6
4	100	Final	East end	2052	1909	7.5	100.0
5	100	Final	Battery area, north end of site	2015	1866	8.0	97.7
6	100	Final	North end of west strip	1977	1819	8.7	95.2
7	100	Final	South end of west strip	1992	1847	7.8	96.7
A-Base – 2170 kg/m ³ SPD							
8	100	Final	Walking paths NE corner of site	2178	2050	6.2	94.5
9	100	Final	Walking paths east side of site	2325	2180	6.6	100.5
10	100	Final	Walking paths 10m West of NE end of site	2237	2098	6.6	96.7

Comments:

Reviewed by:

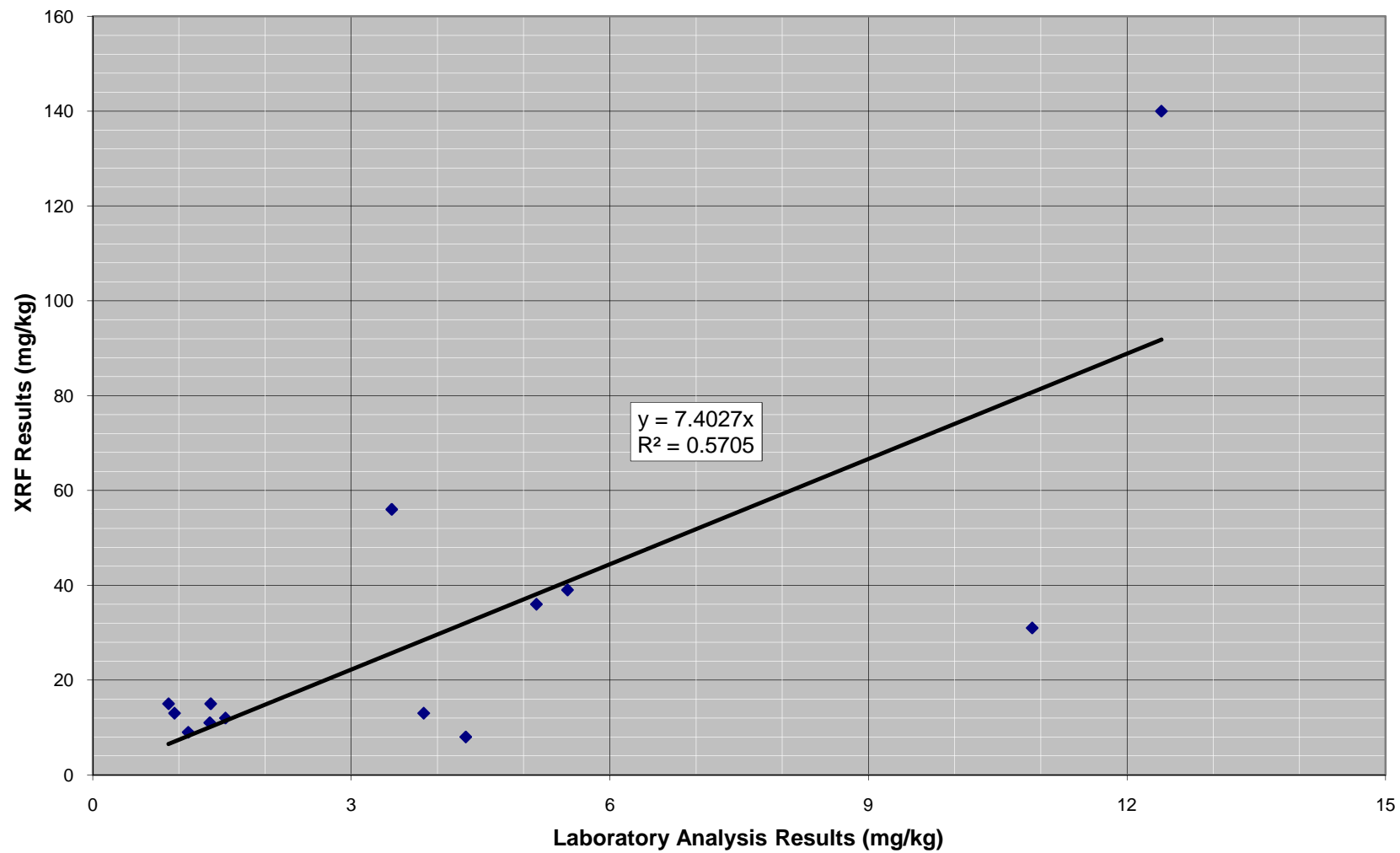


Gordon Richards

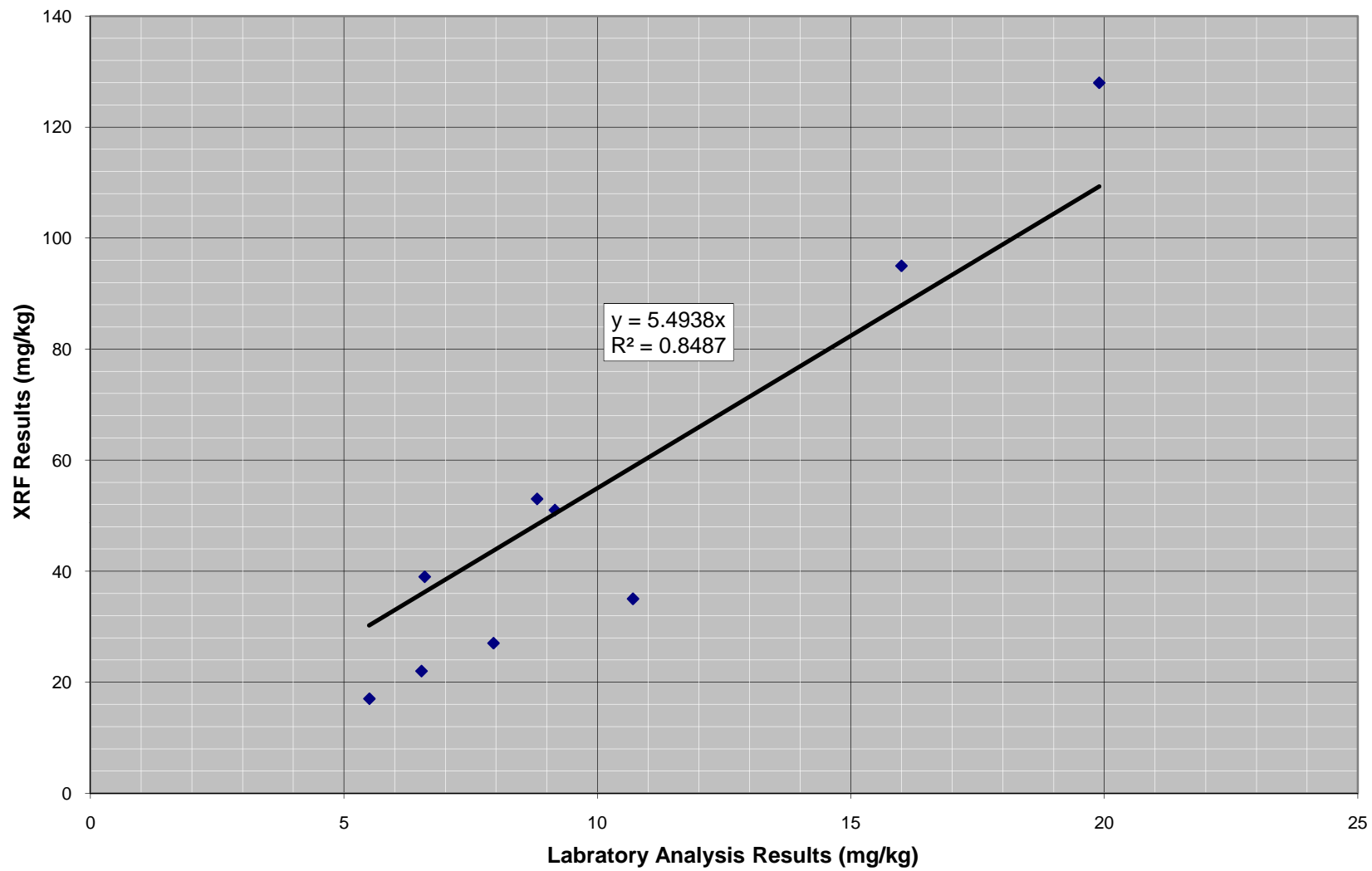
Appendix E

XRF Screening Results

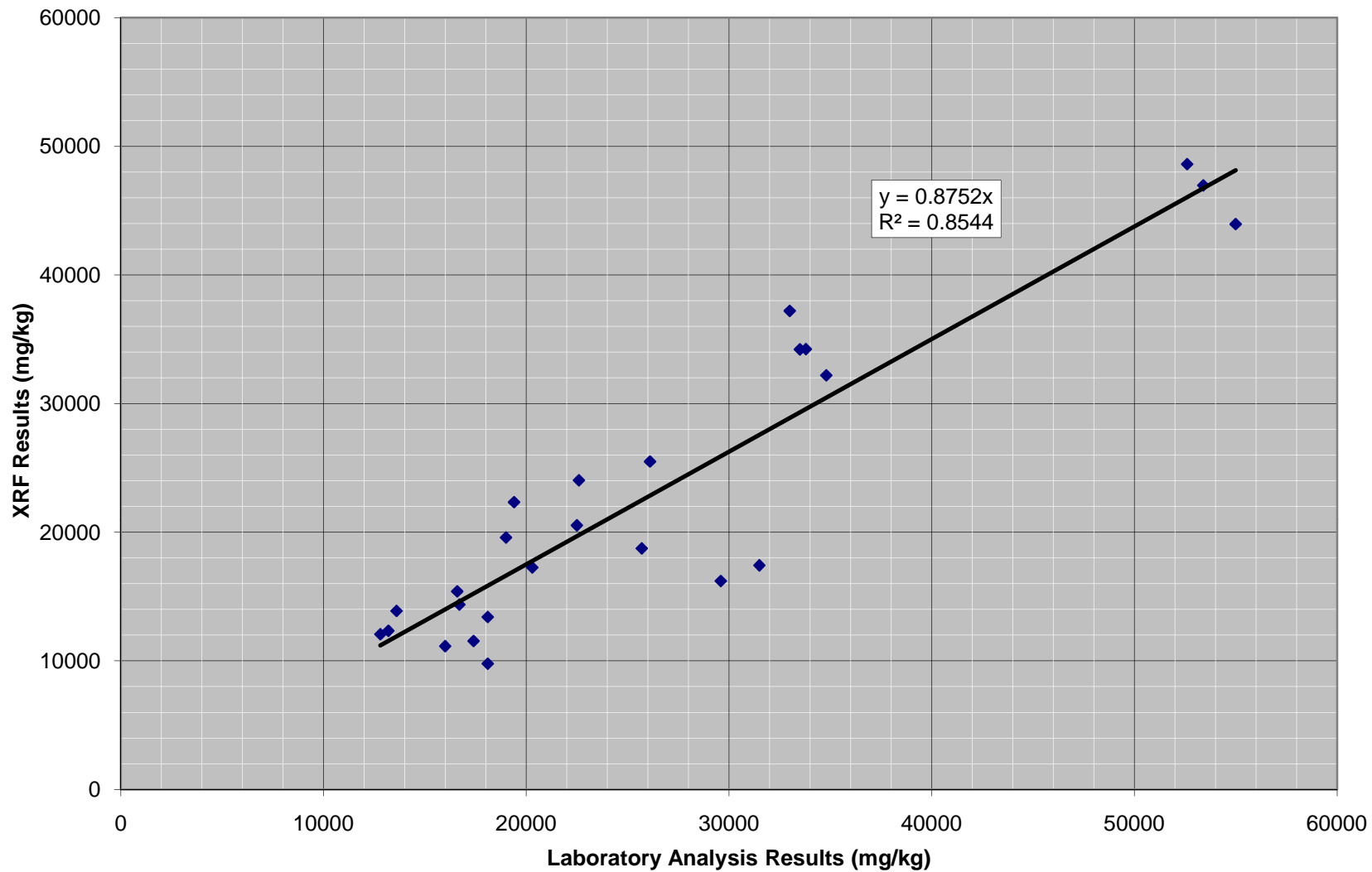
Antimony (Sb) Linear Trendline



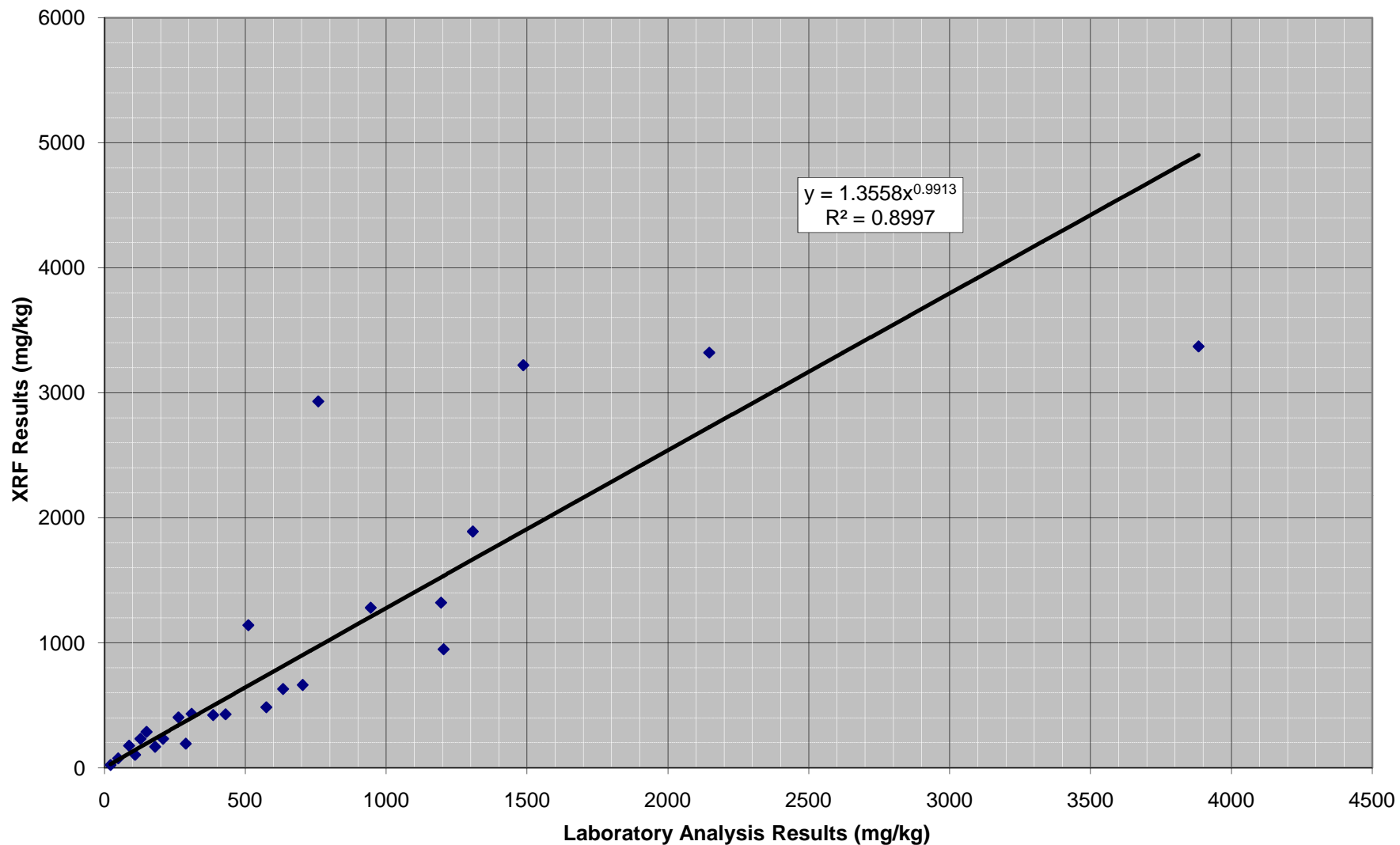
Arsenic (As) Linear Trendline



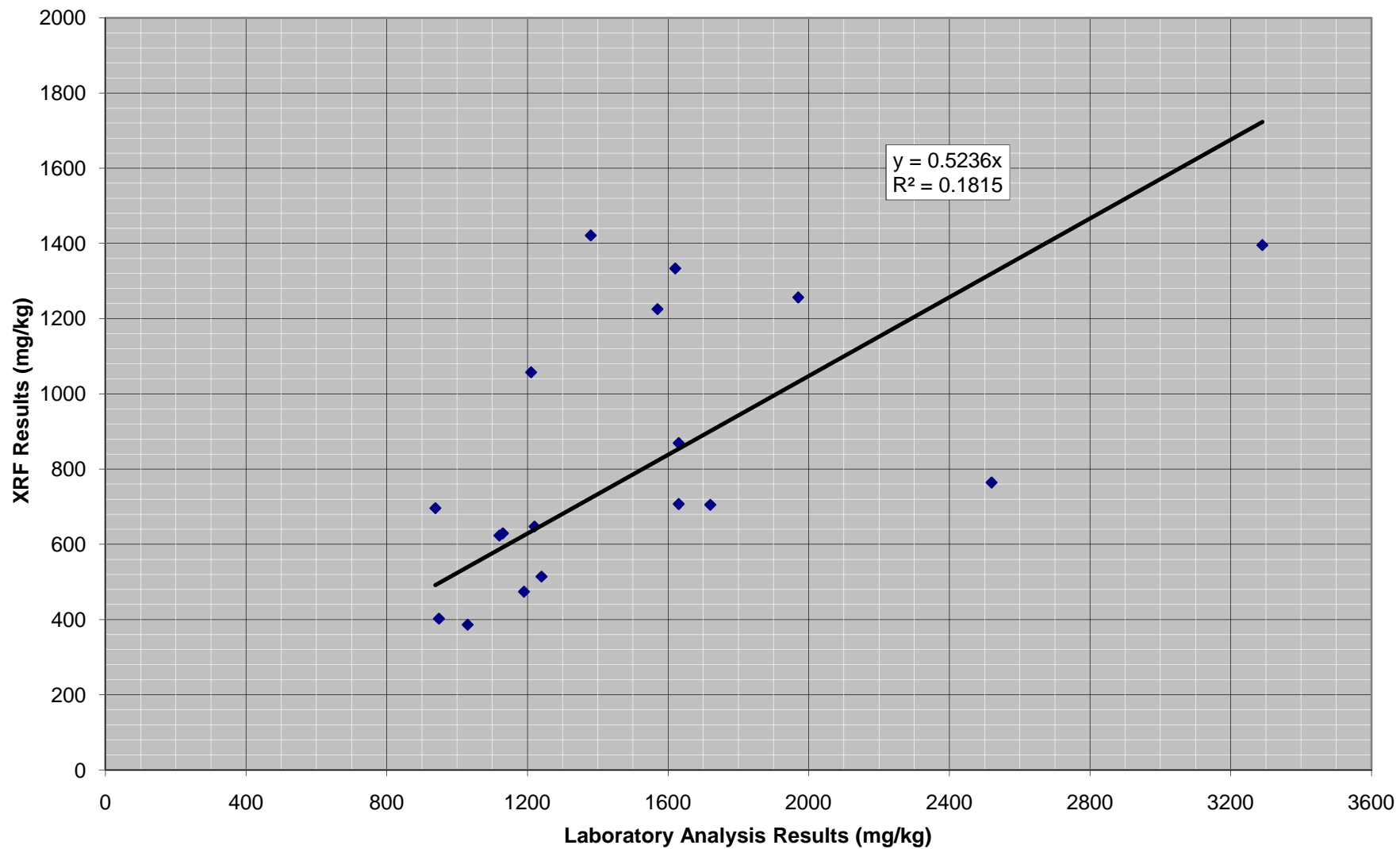
Iron (Fe) Linear Trendline



Lead (Pb) Power Trendline



Manganese (Mn) Linear Trendline



Appendix F

Laboratory Certificates



Your P.O. #: 100138
 Your Project #: 1ST AND ROSSER REMEDIATION
 PO# 100138

Attention: SCOTT CHAPMAN
 EARTH TECH (CANADA) INC
 99 COMMERCE DRIVE
 WINNIPEG, MB
 CANADA R3P 0Y7

Report Date: 2008/10/22

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A855289

Received: 2008/10/15, 11:34

Sample Matrix: Filter
 # Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ICPMS Scan (Filter) 0	6	N/A	2008/10/19	CAL SOP-00003, CAL SOP-00008, CAL SOP-00009	ICP-MS
Mass Determination(ug/filter)	6	N/A	2008/10/20		
Mass Determination (ug/m ³) 0	5	N/A	2008/10/20		
Volume	5	N/A	2008/10/20		

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Calgary
- (2) As per method, results are blank subtracted.

MAXXAM ANALYTICS

LEVI MANCHAK

LM1/lm1
 encl.

Total cover pages: 1

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		M15308	M15355	M15356	M15357	M15358		
Sampling Date		2008/09/25	2008/09/26	2008/09/27	2008/09/28	2008/09/29		
	Units	091301 - 09252008	097998 - 09262008	076985 - 09272008	084365 - 09282008	088962 - 09292008	RDL	QC Batch

.								
Volume	m ³	8.80	9.40	8.70	8.80	9.10	0.01	2665506
PM2.5/10								
Particulate Matter	ug/m3	26.8	13.7	13.0	50.6	42.1	0.1	2665505
Particulate Matter	ug/filter	236	129	113	445	383	1	2665448

RDL = Reportable Detection Limit

Maxxam ID		M15361		
Sampling Date				
	Units	BLANK	RDL	QC Batch

PM2.5/10				
Particulate Matter	ug/filter	5	1	2665448

RDL = Reportable Detection Limit

ELEMENTS BY ATOMIC SPECTROSCOPY (FILTER)

Maxxam ID		M15308	M15355	M15356	M15357		
Sampling Date		2008/09/25	2008/09/26	2008/09/27	2008/09/28		
	Units	091301 - 09252008	097998 - 09262008	076985 - 09272008	084365 - 09282008	RDL	QC Batch

Elements by Extraction							
Total Lead (Pb)	ug	0.036	0.033	0.318	2.71	0.005	2664650

RDL = Reportable Detection Limit

Maxxam ID		M15358	M15361		
Sampling Date		2008/09/29			
	Units	088962 - 09292008	BLANK	RDL	QC Batch

Elements by Extraction					
Total Lead (Pb)	ug	1.04	0.013	0.005	2664650

RDL = Reportable Detection Limit



Maxxam Job #: A855289
Report Date: 2008/10/22

EARTH TECH (CANADA) INC
Client Project #: 1ST AND ROSSER REMEDIATION

Your P.O. #: 100138

General Comments

Results relate only to the items tested.



EARTH TECH (CANADA) INC
Attention: SCOTT CHAPMAN
Client Project #: 1ST AND ROSSER REMEDIATION
P.O. #: 100138
Site Reference:

Quality Assurance Report

Maxxam Job Number: IA855289

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2664650 MB5	Calibration Check	Total Lead (Pb)	2008/10/19		90	%	80 - 107
	SPIKE	Total Lead (Pb)	2008/10/19		81	%	75 - 125
	BLANK	Total Lead (Pb)	2008/10/19	ND, RDL=0.005		ug	
2665448 SS6	Calibration Check	Particulate Matter	2008/10/20		100	%	N/A

ND = Not detected
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

Your P.O. #: 100138
 Your Project #: 100138
 Site Location: 1ST & ROSSER REMEDIATION-BRANOON, MB
 Your C.O.C. #: n/a

Attention: Scott Chapman
 Earth Tech (Canada) Inc
 Winnipeg - Environment Dept
 99 Commerce Dr
 Winnipeg, MB
 R3P 0Y7

Report Date: 2008/11/25

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A8C7139
Received: 2008/10/29, 08:32

Sample Matrix: Filter
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Total Metals on Filter (7300mod) ¶	2	2008/11/11	2008/11/12	BRL SOP-00100	NIOSH 7300mod
Particulates on Filter (M5/315/NJATM1) ¶	2	N/A	2008/11/10	BRL SOP-00109	EPA 5/315/NJATM1

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed in Maxxam Mississauga under Maxxam Burlington SCC Accreditation

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

THERESA STEPHENSON, Project Manager
 Email: Theresa.Stephenson@MaxxamAnalytics.com
 Phone# (905) 817-5763

=====
 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. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A8C7139
 Report Date: 2008/11/25

Earth Tech (Canada) Inc
 Client Project #: 100138
 Project name: 1ST & ROSSER REMEDIATION-BRANOON, MB
 Your P.O. #: 100138

RESULTS OF ANALYSES OF FILTER

Maxxam ID		AX5168	AX5170		
Sampling Date		2008/10/18	2008/10/20		
COC Number		n/a	n/a		
	Units	RP 098796	RP 072297	RDL	QC Batch

Particulate Weight on Filter	mg	0.693	0.501	0.030	1668215

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8C7139
 Report Date: 2008/11/25

Earth Tech (Canada) Inc
 Client Project #: 100138
 Project name: 1ST & ROSSER REMEDIATION-BRANOON, MB
 Your P.O. #: 100138

ELEMENTS BY ICP-AES (FILTER)

Maxxam ID		AX5168	AX5170		
Sampling Date		2008/10/18	2008/10/20		
COC Number		n/a	n/a		
	Units	RP 098796	RP 072297	RDL	QC Batch

Metals					
Total Lead (Pb)	ug	<3.0	<3.0	3.0	1669112

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8C7139
Report Date: 2008/11/25

Earth Tech (Canada) Inc
Client Project #: 100138
Project name: 1ST & ROSSER REMEDIATION-BRANOON, MB
Your P.O. #: 100138

GENERAL COMMENTS

Samples have been corrected for desorption efficiencies if average percent recoveries are less than 80% (does not apply to gravimetric and inorganic analysis).

RESULTS OF ANALYSES OF FILTER

Particulates on Filter (M5/315/NJATM1): Samples were returned to the client. No preweights received.

ELEMENTS BY ICP-AES (FILTER)

Total Metals on Filter (7300mod): Post digestion duplicate and spike was done on sample AX5168.

Results relate only to the items tested.

Earth Tech (Canada) Inc
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #: 100138
 Site Location: 1ST & ROSSER REMEDIATION-BRANOON, MB

Quality Assurance Report

Maxxam Job Number: GA8C7139

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1669112 APT	MATRIX SPIKE						
	[AX5168-01]	Total Lead (Pb)	2008/11/12		111	%	80 - 120
	Spiked Blank	Total Lead (Pb)	2008/11/12		104	%	90 - 110
	RPD	Total Lead (Pb)	2008/11/12	4.7		%	20
	Method Blank	Total Lead (Pb)	2008/11/12	<3.0		ug	
	RPD [AX5168-01]	Total Lead (Pb)	2008/11/12	NC		%	20

NC = Non-calculable
 RPD = Relative Percent Difference
 SPIKE = Fortified sample

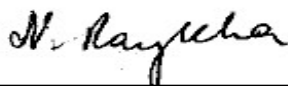
Validation Signature Page

Maxxam Job #: A8C7139

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



FRANK MO, B.Sc., Inorganic Lab. Manager



NAN RAYKHA, C.Chem, Senior Analyst, Metals Lab.

=====

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. SCC and CALA have approved this reporting process and electronic report format.

29-Oct-08 08:32

RENATA SZURSKI



A8C7139

ASR ENV-041

Max

CHAIN OF CUSTODY/ANALYTICAL REQUEST FORM

Page: 1 of 1

T2E 8P2, Ph: (403) 291-3077, Fax: (403) 291-9489, Toll free: (800) 385-7247
IL T6B 2R4, Ph: (780) 458-3500, Fax: (780) 466-3332, Toll free: (800) 385-7247

PO#: 160138
 Project #: 100138
 Quotation #:
 Proj. Name: 1st & ROSSER REMEDIATION
 Location: BRANFORD, MB
 Sampler's initials: KP

Copy of Report To:
 scott.chapman@aecom.com
 kris.plantz@aecom.com
 PC:
 Fax:
 Ph: 204-928-8471

Invoice To:
 Earth Tech
 99 Commerce Drive Avenue
 Winnipeg, MB
 Ph: 204-477-5381
 PC: R3P-DY7
 Fax: 204-284-2040

REGULATORY REQUIREMENTS: (check)
 Alberta Tier 1 Metals
 CCME
 PST
 Canadian Drinking Water
 G50
 Regulatory Limits to appear on Final report
 Other:
 SERVICE REQUESTED:
 RUSH (Please ensure you contact the lab)
 REGULAR Turnaround
 REPORT DISTRIBUTION:
 Mail (automatic)
 Fax
 Email:
 ANALYSIS REQUESTED (Indicate Preferred Method)

Sample Identification	Matrix	Date/Time Sampled	RUSH (Date Rec'd)	Bottle Types	Mass Determination	Lead
RP 051140	Filter	OCT. 17/08		47mm FILTER	X	X
RP 098796		OCT. 18/08			X	X
RP 091294		OCT. 19/08			X	X
RP 072297		OCT. 20/08			X	X
RP 054427		OCT. 21/08			X	X
RP 086156		OCT. 23/08			X	X
RP 089966		OCT. 24/08			X	X

SUBLET TO:
MAXXAM JOB#:

Relinquished By:
 Signature:
 Date/Time:
 Received By: VICKI HOWES
 Signature:
 Date/Time: 08/10/29
 RECD IN WINNIPEG

COMMENTS/SPECIAL BILLING INSTRUCTIONS:
 Naglaa Mikhalil
 08/10/29
 8:32

08 OCT 29 8:32

Your P.O. #: 100138
 Your Project #: 100138
 Site: 1ST 8 ROSSER REMEDIATION
 Your C.O.C. #: n/a

Attention: Scott Chapman
 Earth Tech (Canada) Inc
 Winnipeg - Environment Dept
 99 Commerce Dr
 Winnipeg, MB
 R3P 0Y7

Report Date: 2008/11/25

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A8C7151
Received: 2008/10/29, 08:32

Sample Matrix: Filter
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Total Metals on Filter (7300mod) (0)	2	2008/11/11	2008/11/12	BRL SOP-00100	NIOSH 7300mod
Particulates on Filter (M5/315/NJATM1) (0)	2	N/A	2008/11/10	BRL SOP-00109	EPA 5/315/NJATM1

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed in Maxxam Mississauga under Maxxam Burlington SCC Accreditation

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

THERESA STEPHENSON, Project Manager
 Email: Theresa.Stephenson@MaxxamAnalytics.com
 Phone# (905) 817-5763

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For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A8C7151
 Report Date: 2008/11/25

Earth Tech (Canada) Inc
 Client Project #: 100138
 Project name: 1ST 8 ROSSER REMEDIATION
 Your P.O. #: 100138

RESULTS OF ANALYSES OF FILTER

Maxxam ID		AX5204	AX5210		
Sampling Date		2008/10/05	2008/10/15		
COC Number		n/a	n/a		
	Units	RP 097901	RP 036942	RDL	QC Batch

Particulate Weight on Filter	mg	3.02	1.10	0.030	1668215

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8C7151
 Report Date: 2008/11/25

Earth Tech (Canada) Inc
 Client Project #: 100138
 Project name: 1ST 8 ROSSER REMEDIATION
 Your P.O. #: 100138

ELEMENTS BY ICP-AES (FILTER)

Maxxam ID		AX5204	AX5210		
Sampling Date		2008/10/05	2008/10/15		
COC Number		n/a	n/a		
	Units	RP 097901	RP 036942	RDL	QC Batch

Metals					
Total Lead (Pb)	ug	48	<3.0	3.0	1669112

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8C7151
Report Date: 2008/11/25

Earth Tech (Canada) Inc
Client Project #: 100138
Project name: 1ST 8 ROSSER REMEDATION
Your P.O. #: 100138

GENERAL COMMENTS

Samples have been corrected for desorption efficiencies if average percent recoveries are less than 80% (does not apply to gravimetric and inorganic analysis).

RESULTS OF ANALYSES OF FILTER

Particulates on Filter (M5/315/NJATM1): Samples were returned to the client. No preweights received.

ELEMENTS BY ICP-AES (FILTER)

Total Metals on Filter (7300mod): Post digestion duplicate and spike was done on sample AX5168.

Results relate only to the items tested.

Earth Tech (Canada) Inc
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #: 100138
 Project name: 1ST 8 ROSSER REMEDIATION

Quality Assurance Report
 Maxxam Job Number: GA8C7151

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1669112 APT	MATRIX SPIKE	Total Lead (Pb)	2008/11/12		111	%	80 - 120
	Spiked Blank	Total Lead (Pb)	2008/11/12		104	%	90 - 110
	RPD	Total Lead (Pb)	2008/11/12	4.7		%	20
	Method Blank	Total Lead (Pb)	2008/11/12	<3.0		ug	

RPD = Relative Percent Difference
 SPIKE = Fortified sample

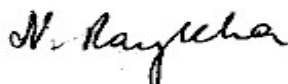
Validation Signature Page

Maxxam Job #: A8C7151

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



FRANK MO, B.Sc., Inorganic Lab. Manager



NAN RAYKHA, C.Chem, Senior Analyst, Metals Lab.

=====

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Environmental Division

Certificate of Analysis

EARTH TECH (AECOM)
ATTN: SCOTT CHAPMAN
99 COMMERCE DRIVE
WINNIPEG MB R3P 0Y7

Reported On: 16-OCT-08 11:04 AM
Revision: 1

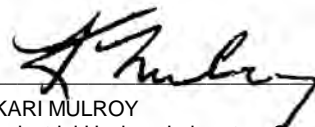
Lab Work Order #: **L690441**

Date Received: **01-OCT-08**

Project P.O. #:
Job Reference: 100138
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:



KARI MULROY
Industrial Hygiene Laboratory Supervisor

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS Canada Ltd. (formerly ETL Chemspec Analytical Ltd.)
Part of the **ALS Laboratory Group**

9936-67 Avenue, Edmonton, AB T6E 0P5
Phone: +1 780 413 5227 Fax: +1 780 437 2311 www.alsglobal.com
A Campbell Brothers Limited Company

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L690441-4 24119-09292008 Sampled By: KP / AEW on 29-SEP-08 Matrix: FILTER Lead (Pb) Particulates Analysis	 0.5 0.3	 	 0.2 0.1	 ug mg	 	 15-OCT-08 09-OCT-08	 SYF PNL	 R741738 R739213
L690441-5 24151-09302008 Sampled By: KP / AEW on 30-SEP-08 Matrix: FILTER Lead (Pb) Particulates Analysis	 2.6 0.2	 	 0.2 0.1	 ug mg	 	 15-OCT-08 09-OCT-08	 SYF PNL	 R741738 R739213
* Refer to Referenced Information for Qualifiers (if any) and Methodology.								

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
AIR VOLUME-ED	Misc.	Air volume (L)		HYGIENE METHOD
NOTE: When air concentrations of analytes are reported, they are based on air sampling information (air volume, sampling time, sampling flow rate) supplied by the client.				
PARTICULATE-0.10-ED	Filter	Particulates Analysis		NIOSH 0500/0600 md-Gravimetric
Method: ALS HSOP 53 (NIOSH 0500/0600 mod., gravimetric)				
Note: For matched weight cassettes detection limit is based on manufacturer's tolerance on matched weights or expected error for preweighed filters. Results are reported as actual difference between matched weight filters or pre and post weighings. If the result is reported below detection limit, use the detection limit to calculate concentrations.				
PB-ED	Filter	Lead (Pb)	EPA 3051	NIOSH 7300

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

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

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
ED	ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA		

GLOSSARY OF REPORT TERMS

Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.

The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L.

mg/kg (units) - unit of concentration based on mass, parts per million.

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

< - Less than.

D.L. - The reporting limit.

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

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

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

UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.

Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.



Environmental Division

Ship to: Unit 12- 1329 Niakwa Road, Winnipeg, Manitoba, R2J 3T4

TRACKING EDM.
L690441

Telephone: (204) 255-9720

Fax: (204) 255-9721

Toll Free: 1-800-607-7555

CHAIN OF CUSTODY/ANALYTICAL REQUEST FORM

Service Requested: Regular _____ Rush _____ Emergency _____

Quotation Number: _____

Project Number: 100138 _____

Sample ID	Sampled By	Date/Time Sampled	Sample Type	Lead	Particulates (PM10)																	
24122 - 09262008	KP/AEW	09/26/08	Filter		X																	
24148 - 09272008	↓	09/27/08	Filter		X																	
24146 - 09282008		09/28/08	Filter		X																	
1 24119 - 09292008	↓	09/29/08	Filter	X	X																	
2 24151 - 09302008	↓	09/30/08	Filter	X	X																	

CLIENT INFORMATION:

REPORT TO
Earth Tech AECOM
99 Commerce Drive
Winnipeg, MB R3P 0Y7

Email: scott.chapman@aecom.com
kris.plantz@aecom.com

INVOICE: same as above

FOR LABORATORY USE ONLY:

SAMPLE CONDITION UPON RECEIPT: FROZEN _____ COLD _____ AMBIENT _____
ACCEPTABLE _____ NON ACCEPTABLE _____

OTHER (BREAKAGE, LEAKAGE, ETC.): _____

NOTES AND CONDITIONS: 1. Hazardous samples must be labelled to comply with WHMIS regulations.
2. ALS's liability limited to cost of analysis. 3. Failure to complete all portions of this form may delay analysis.

Relinquished By: <u>AEW</u>	Date: <u>Sept 30/08</u> Time: <u>19:05</u>	Received By: <u>MM</u>	Date: <u>Oct 01/08</u> Time: <u>9:40</u>
Relinquished By:	Date:	Received By:	Date:
	Time:	ALS Lab:	Time:

COMMENTS: _____

SKC PCXR4 SAMPLE PUMP

Filter Data Sheet

Project Name: 1st and Rosser
Project No: 100138
Personnel Monitored: cab of excavator (operator: George)

Parameter	Data
Filter ID #	24122
Date Installed (dd-mm-yy)	26/09/2008
Time Installed (cst)	8:30
Date Removed (dd-mm-yy)	26/09/2008
Time Removed (cst)	17:00
Inlet Flow Rate (LPM)	2.0 L/min
Ambient Temperature (°C)	average 15.5 °C
Ambient Pressure (atm)	average 735 mmHg
Sampling Time (hr)	520 minutes
Sample Volume (m ³)	1.04 m ³

Comments:

Installed By (Initials): AEW

Collected By (Initials): AEW

SKC PCXR4 SAMPLE PUMP

Filter Data Sheet

Project Name: 1st and Rosser
Project No: 100138
Personnel Monitored: AT SITE OFFICE ENTRANCE

Parameter	Data
Filter ID #	24148
Date Installed (dd-mm-yy)	27/09/08
Time Installed (cst)	8:07
Date Removed (dd-mm-yy)	27/09/08
Time Removed (cst)	7: 16:42
Inlet Flow Rate (LPM)	1.995 L/min
Ambient Temperature (°C)	average 13°C
Ambient Pressure (atm)	average 739 mmHg
Sampling Time (hr)	514 min
Sample Volume (m ³)	1025 L = 1.025 m ³

Comments:

^{9.42}
 1.995 L/min
 514 min

$$\begin{array}{r} 27750 \\ 119950 \\ 997500 \\ \hline 1025230 \end{array}$$

Installed By (Initials): KP

Collected By (Initials): KP

SKC PCXR4 SAMPLE PUMP

Filter Data Sheet

Project Name: 1st and Rosser
Project No: 100138
Personnel Monitored: Cab of Excavator operator is George.

Parameter	Data
Filter ID #	24146
Date Installed (dd-mm-yy)	28/09/2008
Time Installed (cst)	8:30
Date Removed (dd-mm-yy)	28/09/2008
Time Removed (cst)	18:00
Inlet Flow Rate (LPM)	2.03
Ambient Temperature (°C)	average 16.8°C
Ambient Pressure (atm)	average 732 mmHg
Sampling Time (hr)	584 min
Sample Volume (m ³)	1.185 m ³

Comments:

$$\begin{array}{r}
 2.03 \\
 584 \\
 \hline
 812 \\
 16240 \\
 \hline
 10052 \\
 \hline
 1185.52
 \end{array}$$

Installed By (Initials): AEW

Collected By (Initials): AEW

SKC PCXR4 SAMPLE PUMP

Filter Data Sheet

Project Name: 1st and Rosser
Project No: 100138
Personnel Monitored: AM: attached to window of office Trailer

Parameter	Data
Filter ID #	24119
Date Installed (dd-mm-yy)	29/09/2008
Time Installed (cst)	8:10
Date Removed (dd-mm-yy)	29/09/2008
Time Removed (cst)	17:00
Inlet Flow Rate (LPM)	2.02 L/min
Ambient Temperature (°C)	average 13.6°C
Ambient Pressure (atm)	average 738 mHg
Sampling Time (hr)	529 min
Sample Volume (m ³)	1069 L = 1.07 m ³

Comments:

529
 x 2.02

 1058
 0000
 105800

 1068.58

Installed By (Initials): AEW

Collected By (Initials): AEW

SKC PCXR4 SAMPLE PUMP

Filter Data Sheet

Project Name: 1st and Rosser
Project No: 100138
Personnel Monitored: Cab of excavator: operator = George

Parameter	Data
Filter ID #	24151
Date Installed (dd-mm-yy)	30/09/08
Time Installed (cst)	7.50
Date Removed (dd-mm-yy)	30/09/08
Time Removed (cst)	17.45
Inlet Flow Rate (LPM)	2.008
Ambient Temperature (°C)	
Ambient Pressure (atm)	
Sampling Time (hr)	621 min
Sample Volume (m ³)	1.25 m ³

Comments:

Installed By (Initials): KP

Collected By (Initials): KP



Environmental Division

PRELIMINARY RESULTS

EARTH TECH (AECOM)
ATTN: SCOTT CHAPMAN
99 COMMERCE DRIVE
WINNIPEG MB R3P 0Y7

Reported On: 12-NOV-08 03:58 PM

Lab Work Order #: **L702339**

Date Received: **30-OCT-08**

Project P.O. #:
Job Reference: 100138
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

DRAFT

KARI MULROY
Industrial Hygiene Laboratory Supervisor

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS Canada Ltd. (formerly ETL Chemspec Analytical Ltd.)
Part of the **ALS Laboratory Group**

9936-67 Avenue, Edmonton, AB T6E 0P5
Phone: +1 780 413 5227 Fax: +1 780 437 2311 www.alsglobal.com
A Campbell Brothers Limited Company

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L702339-4 24139 Sampled By: KP on 05-OCT-08 Matrix: FILTER Lead (Pb) Particulates Analysis	 0.3 0.9	 	 0.2 0.1	 ug mg	 	 11-NOV-08 04-NOV-08	 MSP PNL	 R755485 R752032
L702339-10 24133 Sampled By: KP on 15-OCT-08 Matrix: FILTER Lead (Pb) Particulates Analysis	 <0.2 <0.1	 	 0.2 0.1	 ug mg	 	 11-NOV-08 04-NOV-08	 MSP PNL	 R755485 R752032
L702339-13 24145 Sampled By: KP on 20-OCT-08 Matrix: FILTER Lead (Pb) Particulates Analysis	 <0.2 0.1	 	 0.2 0.1	 ug mg	 	 11-NOV-08 04-NOV-08	 MSP PNL	 R755485 R752032
* Refer to Referenced Information for Qualifiers (if any) and Methodology.								

DRAFT

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
AIR VOLUME-ED	Misc.	Air volume (L)		HYGIENE METHOD
NOTE: When air concentrations of analytes are reported, they are based on air sampling information (air volume, sampling time, sampling flow rate) supplied by the client.				
PARTICULATE-0.10-ED	Filter	Particulates Analysis		NIOSH 0500/0600 md-Gravimetric
Method: ALS HSOP 53 (NIOSH 0500/0600 mod., gravimetric)				
Note: For matched weight cassettes detection limit is based on manufacturer's tolerance on matched weights or expected error for preweighed filters. Results are reported as actual difference between matched weight filters or pre and post weighings. If the result is reported below detection limit, use the detection limit to calculate concentrations.				
PB-ED	Filter	Lead (Pb)	EPA 3051	EPA 6020

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

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

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
ED	ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA		

GLOSSARY OF REPORT TERMS

Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.

The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L.

mg/kg (units) - unit of concentration based on mass, parts per million.

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

< - Less than.

D.L. - The reporting limit.

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

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

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

UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.

Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.



Environmental Division

CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

Service Requested: Regular Rush _____ Emergency _____

Quotation Number: _____

Project Number: 100138

Ship to: Unit 12-1329 Niakwa Road, Winnipeg, Manitoba, R2J 3T4

TRACKING-EDM
L702339

Telephone: (204) 255-9720

Fax: (204) 255-9721

Toll Free: 1-800-607-7555

Sample ID	Sampled By	Date/Time Sampled	Sample Type	Lead	Particulates (PM10)															
24109	KP	OCT 1/08	Filter		X															
24135		OCT 2/08			X															
24124		OCT 3/08			X															
24139		OCT 5/08		X	X															
24157		OCT 7/08			X															
24120		OCT 8/08			X															
24147		OCT. 9/08			X															
24129		OCT. 10/08			X															

CLIENT INFORMATION:

REPORT TO

Earth Tech AECOM

99 Commerce Drive

Winnipeg, MB R3P 0Y7

Email: scott.chapman@aecom.com

kris.plantz@aecom.com

INVOICE: same as above

FOR LABORATORY USE ONLY:
SAMPLE CONDITION UPON RECEIPT: FROZEN _____ COLD _____ AMBIENT _____
ACCEPTABLE _____ NON ACCEPTABLE _____
OTHER (BREAKAGE, LEAKAGE, ETC.):

NOTES AND CONDITIONS: 1. Hazardous samples must be labelled to comply with WHMIS regulations.
2. ALS's liability limited to cost of analysis. 3. Failure to complete all portions of this form may delay analysis.

Relinquished By: <u>AZ</u>	Date: <u>OCT 29/08</u>	Received By: <u>[Signature]</u>	Date: <u>09/30/08</u>
Relinquished By: <u>AECOM</u>	Date: <u>12/14/08</u>	Received By: <u>[Signature]</u>	Date: <u>01/20/09</u>

COMMENTS: Page 1/2 - COC

Environmental Division



Ship to: Unit 12- 1329 Niakwa Road, Winnipeg, Manitoba, R2J 3T4
Telephone: (204) 255-9720
Fax: (204) 255-9721
Toll Free: 1-800-607-7555

CHAIN OF CUSTODY/ANALYTICAL REQUEST FORM

Service Requested: Regular Rush _____ Emergency _____

Quotation Number:

Project Number: 100138

Lead	Particulates (PM10)	Hold																		

Sample ID	Sampled By	Date/Time Sampled	Sample Type																			
24158	KP	OCT 14/08	Filter			X																
24133	↓	OCT 15/08	↓	X	X	X																
24131		OCT 16/08		X																		
24128		OCT 17/08		X																		
24145		OCT 20/08		X	X																	
24153	↓	OCT 21/08	↓			X																

CLIENT INFORMATION:
REPORT TO
Earth Tech AECOM
99 Commerce Drive
Winnipeg, MB R3P 0Y7

Email: scott.chapman@aecom.com
kris.plantz@aecom.com

INVOICE: same as above

FOR LABORATORY USE ONLY:
SAMPLE CONDITION UPON RECEIPT: FROZEN _____ COLD _____ AMBIENT _____
ACCEPTABLE _____ NON ACCEPTABLE _____
OTHER (BREAKAGE, LEAKAGE, ETC.):

NOTES AND CONDITIONS: 1. Hazardous samples must be labelled to comply with WHMIS regulations.
2. ALS's liability limited to cost of analysis. 3. Failure to complete all portions of this form may delay analysis.

Relinquished By: AZ AECOM	Date: Oct 29 2008 Time: 17:45	Received By: [Signature]	Date: Oct 30 2008 Time: 8:30
Relinquished By:	Date:	Received By:	Date:
	Time:	ALS Lab:	Time:

COMMENTS: page 2/2 - coc



Environmental Division

ANALYTICAL REPORT

EARTH TECH CANADA
ATTN: SCOTT CHAPMAN
1000 WAVERLEY
WINNIPEG MB R3T 0P3

Reported On: 19-JUN-08 12:23 PM

Lab Work Order #: L640321

Date Received: 10-JUN-08

Project P.O. #:
Job Reference: 100138
Legal Site Desc: 1ST & ROSSER - BRANDON
CofC Numbers:

Other Information:

Comments:

APPROVED BY: _____

GAIL HILL

Project Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-1	5YC4								
Sampled By:	KP / AZ on 15-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	1370		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	1400		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	72.5		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	11.0		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	2.63	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.09		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	7.00		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	19400	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	1.81	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	7.17		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	19.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	380	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	47400		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	180	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	3670	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	885		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	2.09		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	174	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	22.5		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	149000	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.2		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	117		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	35.9	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	65.3	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	2.5		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	0.30		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	4.48		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	1200		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-2	F1								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	131		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	2150		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	35.9		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	5.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	152	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.15		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	3.42		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	23900	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	1.41	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	3.84		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	8.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	225	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	10100		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	583	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	8480	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-4	SYA2								
Sampled By:	KP / AZ on 15-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	3.47		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	7180		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	16.0		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	19.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	460	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.44		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.42		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	44300	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	6.19	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	9.64		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	41.9		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	231	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	52600		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1910	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	14100	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	1240		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	7.48		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	319	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	35.7		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	3370	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.8		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	89.1	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	136	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	0.3		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	1.01		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	18.7		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	1280		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-5	J4								
Sampled By:	KP / AZ on 13-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	4.33		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	7610		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	8.81		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	38.4		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	518	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.60		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.28		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	49300	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	2.33	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	5.74		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	11.9		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	64.8	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	19000		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1270	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	15000	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-7	J29								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.88		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	6970		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	6.59		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	26.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	502	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.46		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.26		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	41100	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	6.15	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	6.80		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	15.0		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	47.6	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	28800		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1950	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	11000	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	1030		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	1.40		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	420	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	20.6		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	422	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.7		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	143	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	155	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	1.07		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	15.6		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	2570		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-8	A8								
Sampled By:	KP / AZ on 15-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.94		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	5640		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	7.95		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	21.4		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	400	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.39		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.13		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	64400	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	1.77	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	5.07		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	12.0		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	120	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	16700		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1010	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	15600	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-10	B2								
Sampled By:	KP / AZ on 15-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.13		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	4100		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	28.4		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	6.8		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	266	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.23		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.05		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	108000	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	0.33	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	11.1		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	10.1		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	20.7	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	55000		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	925	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	36000	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	3290		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	4.63		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	189	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	36.4		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	22.3	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	77.7	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	221	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	1.9		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	1.33		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	15.5		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	42		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-11	J19								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.26		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	4480		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	5.50		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	9.2		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	224	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.30		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.12		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	62400	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	0.37	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	5.88		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	10.7		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	19.2	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	13600		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1010	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	18600	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-13	E11								
Sampled By:	KP / AZ on 15-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.47		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	3760		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	4.43		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	9.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	134	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.21		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.08		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	77500	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	0.73	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	4.44		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	15.6		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	42.1	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	17400		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	803	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	25800	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	1570		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	1.00		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	370	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	14.1		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	403	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.1		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	59.3	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	179	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	<0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	0.65		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	12.6		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	127		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-14	H19								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	10.9		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	7800		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	15.9		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	79.2		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	898	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.21		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.76		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	63400	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	15.6	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	15.1		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	89.9		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	1010	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	88700		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	895	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	22000	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-16 Q3 Sampled By: KP / AZ on 13-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	0.15		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	3510		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	3.89		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	7.1		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	141	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.22		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	0.05		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	64600	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	0.37	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	4.07		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	11.1		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	12.5	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	20300		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	745	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	21400	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Manganese (Mn)-Total	1970		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Molybdenum (Mo)-Total	0.95		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Sodium (Na)-Total	230	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Nickel (Ni)-Total	12.3		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Lead (Pb)-Total	168	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Selenium (Se)-Total	0.1		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Strontium (Sr)-Total	63.3	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Titanium (Ti)-Total	166	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Thallium (Tl)-Total	<0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Uranium (U)-Total	0.64		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Vanadium (V)-Total	12.9		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Zinc (Zn)-Total	67		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-17 SYA15 Sampled By: KP / AZ on 15-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	2.40		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	18300		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	11.0		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	86.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	380	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.23		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	1.05		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	55700	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	13.4	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	11.9		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	56.7		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	861	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	53400		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	1240	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	18000	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-19 I28 Sampled By: KP / AZ on 14-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	1.11		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	8430		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	13.2		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	47.2		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	612	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.51		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	0.77		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	46000	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	30.5	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	6.70		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	21.5		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	72.1	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	22500		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	3700	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	8190	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Manganese (Mn)-Total	948		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Molybdenum (Mo)-Total	2.05		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Sodium (Na)-Total	681	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Nickel (Ni)-Total	22.1		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Lead (Pb)-Total	630	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Selenium (Se)-Total	1.0		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Tin (Sn)-Total	4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Strontium (Sr)-Total	230	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Titanium (Ti)-Total	155	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Thallium (Tl)-Total	0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Uranium (U)-Total	1.18		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Vanadium (V)-Total	16.6		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Zinc (Zn)-Total	938		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-20 G24 Sampled By: KP / AZ on 14-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	2.02		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	5130		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	11.2		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	15.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	224	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.32		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	0.20		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	61500	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	3.46	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	6.98		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	17.6		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	43.3	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	31500		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	1840	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	14600	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-22	F21								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.39		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	6260		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	6.93		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	28.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	326	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.42		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.12		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	62300	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	0.70	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	5.54		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	11.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	56.9	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	13200		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	2150	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	11200	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	1130		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	0.93		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	306	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	16.1		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	232	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.7		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	126	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	138	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	0.87		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	15.4		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	161		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-23	L10								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	0.15		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	5080		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	6.36		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	12.7		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	192	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.30		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.09		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	88400	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	0.56	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	6.14		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	13.9		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	24.7	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	16000		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1250	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	27700	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-25 J14 Sampled By: KP / AZ on 14-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	0.80		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	7370		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	9.77		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	13.5		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	215	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.34		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	0.12		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	83100	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	1.48	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	9.80		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	21.9		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	51.9	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	33000		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	2400	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	26200	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Manganese (Mn)-Total	1190		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Molybdenum (Mo)-Total	1.50		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Sodium (Na)-Total	150	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Nickel (Ni)-Total	25.4		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Lead (Pb)-Total	428	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Selenium (Se)-Total	0.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Strontium (Sr)-Total	70.3	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Titanium (Ti)-Total	576	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Thallium (Tl)-Total	0.3		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Uranium (U)-Total	0.87		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Vanadium (V)-Total	19.0		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Zinc (Zn)-Total	231		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-26 K19 Sampled By: KP / AZ on 14-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	0.16		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	4970		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	5.78		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	8.8		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	139	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.30		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	0.09		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	57100	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	0.81	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	7.37		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	14.1		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	29.2	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	19400		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	1300	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	25500	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-28	F6								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	2.54		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	5210		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	10.7		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	14.3		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	243	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.33		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.19		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	89100	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	2.38	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	6.90		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	15.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	148	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	29600		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1260	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	32100	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	2520		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	1.75		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	491	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	24.8		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	1140	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	82.3	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	209	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	1.00		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	16.2		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	319		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-29	I2								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	12.4		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	2		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	5260		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	5.64		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	35.7		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	223	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.17		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	7.82		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	79900	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	13.5	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	7.66		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	56.3		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	8470	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	57300		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	795	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	27500	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

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Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-31	F31								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	146		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	2360		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	49.0		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	6.4		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	113	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.17		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	3.91		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	21800	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	1.43	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	4.21		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	9.4		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	269	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	9210		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	683	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	7970	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Manganese (Mn)-Total	973		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Molybdenum (Mo)-Total	0.73		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Sodium (Na)-Total	896	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Nickel (Ni)-Total	11.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Lead (Pb)-Total	107000	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Selenium (Se)-Total	0.2		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Tin (Sn)-Total	21		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Strontium (Sr)-Total	25.8	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Titanium (Ti)-Total	91.1	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Thallium (Tl)-Total	0.6		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Uranium (U)-Total	0.39		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Vanadium (V)-Total	8.87		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Zinc (Zn)-Total	165		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-32	J39								
Sampled By:	KP / AZ on 14-MAY-08								
Matrix:	SOIL								
Metals	Antimony (Sb)-Total	2.07		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Aluminum (Al)-Total	7130		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Arsenic (As)-Total	10.1		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Boron (B)-Total	32.4		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Barium (Ba)-Total	446	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Beryllium (Be)-Total	0.46		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Bismuth (Bi)-Total	0.37		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Calcium (Ca)-Total	42600	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cadmium (Cd)-Total	6.57	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Cobalt (Co)-Total	7.06		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Chromium (Cr)-Total	17.5		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Copper (Cu)-Total	58.0	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Iron (Fe)-Total	37500		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Potassium (K)-Total	1970	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
	Magnesium (Mg)-Total	9110	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L640321-32 J39 Sampled By: KP / AZ on 14-MAY-08 Matrix: SOIL								
Metals								
Manganese (Mn)-Total	1020		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Molybdenum (Mo)-Total	1.66		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Sodium (Na)-Total	467	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Nickel (Ni)-Total	20.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Lead (Pb)-Total	1090	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Selenium (Se)-Total	0.8		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Strontium (Sr)-Total	123	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Titanium (Ti)-Total	134	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Thallium (Tl)-Total	<0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Uranium (U)-Total	0.91		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Vanadium (V)-Total	15.5		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Zinc (Zn)-Total	2470		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
L640321-33 E35 Sampled By: KP / AZ on 15-MAY-08 Matrix: SOIL								
Metals								
Antimony (Sb)-Total	1.33		0.07	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Silver (Ag)-Total	<1		1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Aluminum (Al)-Total	10000		3	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Arsenic (As)-Total	9.93		0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Boron (B)-Total	41.1		0.6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Barium (Ba)-Total	616	RAMB	0.04	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Beryllium (Be)-Total	0.63		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Bismuth (Bi)-Total	0.24		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Calcium (Ca)-Total	96900	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cadmium (Cd)-Total	3.14	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Cobalt (Co)-Total	7.44		0.01	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Chromium (Cr)-Total	19.6		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Copper (Cu)-Total	135	RAMB	0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Iron (Fe)-Total	34000		6	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Potassium (K)-Total	1420	RAMB	7	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Magnesium (Mg)-Total	27700	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Manganese (Mn)-Total	1360		0.09	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Molybdenum (Mo)-Total	2.32		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Sodium (Na)-Total	2270	RAMB	2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Nickel (Ni)-Total	25.1		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Lead (Pb)-Total	1320	RAMB	0.05	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Selenium (Se)-Total	0.2		0.1	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Tin (Sn)-Total	<4		4	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Strontium (Sr)-Total	320	RAMB	0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Titanium (Ti)-Total	368	RAMB	0.03	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Thallium (Tl)-Total	<0.2		0.2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Uranium (U)-Total	1.59		0.02	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Vanadium (V)-Total	19.2		0.06	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
Zinc (Zn)-Total	793		2	mg/kg	13-JUN-08	18-JUN-08	DAG	R682167
* Refer to Referenced Information for Qualifiers (if any) and Methodology.								

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
RAMB	Result Adjusted For Method Blank

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
METAL-LOW-EXD-WP	Soil	Metals		EPA SW846 3050B Rev 2 1996

Metals in Soils by ICP-MS

The submitted sample is homogenized, dried at <50° Celcius, and sieved through an 80 mesh sieve. Analysis is carried out using sample preparation procedures adapted from U.S. EPA Test Methods for Evaluating Solid Waste SW846 Method 3050B for sample digestion and procedures adapted from U.S. EPA Method 200.8 for analysis by inductively coupled - mass spectrometry.

Method limitation: This method is not a total digestion technique. It is a very strong acid digestion intended to dissolve those metals that may become "environmentally available". By design, elements bound in silicate structures are not normally dissolved by this procedure and they are not usually mobile in the environment.

SB-LOW-WP	Soil	Antimony (Sb)-Total		EPA 200.8 Rev 5.4 May 1994
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** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

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

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WP	ALS LABORATORY GROUP - WINNIPEG, MANITOBA, CANADA		

GLOSSARY OF REPORT TERMS

Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.

The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L.

mg/kg (units) - unit of concentration based on mass, parts per million.

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

< - Less than.

D.L. - The reporting limit.

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

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

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

UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.

Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.



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COMPANY: EARTH TECH		STANDARD _____ OTHER _____			<input checked="" type="checkbox"/> REGULAR SERVICE (DEFAULT)															
CONTACT: SCOTT CHAPMAN		PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> CUSTOM _____ FAX _____			RUSH SERVICE (2-3 DAYS)															
ADDRESS: 99 COMMERCE DRIVE		EMAIL 1: SCOTT.CHAPMAN@EARTHTECH.CA			PRIORITY SERVICE (1 DAY or ASAP)															
WINNIPEG, MB		EMAIL 2: KRIS.PLANTZ@EARTHTECH.CA			EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS															
PHONE: 477-5381 FAX: 284-2040		ANALYSIS REQUEST																		
INVOICE TO: SAME AS REPORT? YES/NO		INDICATE BOTTLES: FILTERED / PRESERVED (F/P)																		
COMPANY:		CLIENT / PROJECT INFORMATION:			METAL - LOW-EXP + ANTIMONY HAZARDOUS? HIGHLY CONTAMINATED? NUMBER OF CONTAINERS															
CONTACT:		JOB #: 100138																		
ADDRESS:		PO / AFE:																		
PHONE: _____ FAX: _____		Legal Site Description: 1ST & ROSSER-BRANDON																		
Lab Work Order # (lab use only)		QUOTE #: Q17375																		
		SAMPLER (Initials): KP/AZ																		
Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE																
1	SCY4 SYC4	MAY 15/08	—	SOIL	X															
2	F1	MAY 14/08	—		X															
3	I23	MAY 14/08	—		X															
4	SYA2	MAY 15/08	—		X															
5	J4	MAY 13/08	—		X															
6	E5	MAY 15/08	—		X															
7	J29	MAY 14/08	—		X															
8	A8	MAY 15/08	—		X															
9	N14	MAY 14/08	—		X															
10	BQ	MAY 15/08	—		X															
GUIDELINES / REGULATIONS					SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS															
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY . By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.																				
RELINQUISHED BY:	DATE & TIME: JUNE 10/08	RECEIVED BY:	DATE & TIME: June 10/08	SAMPLE CONDITION (lab use only)																
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME: 11 50	TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION? YES / NO (if no provide details)															



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REPORT TO:		REPORT FORMAT / DISTRIBUTION			SERVICE REQUESTED												
COMPANY: EARTH TECH		STANDARD _____ OTHER _____			<input checked="" type="checkbox"/> REGULAR SERVICE (DEFAULT) <input type="checkbox"/> RUSH SERVICE (2-3 DAYS) <input type="checkbox"/> PRIORITY SERVICE (1 DAY or ASAP) <input type="checkbox"/> EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS												
CONTACT: SCOTT CHAPMAN		PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> CUSTOM _____ FAX _____															
ADDRESS: 99 COMMERCE DRIVE WINNIPEG, MB		EMAIL 1: SCOTT.CHAPMAN@EARTHTECH.CA															
PHONE: 477-5381 FAX: 284-2040		EMAIL 2: KRIS.PLANTZ@EARTHTECH.CA															
INVOICE TO: SAME AS REPORT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		INDICATE BOTTLES: FILTERED / PRESERVED (F/P) . . .			ANALYSIS REQUEST												
COMPANY:		CLIENT / PROJECT INFORMATION:			METAL - LOW - EXD + ANTIMONY HAZARDOUS ? HIGHLY CONTAMINATED ? NUMBER OF CONTAINERS												
CONTACT:		JOB #: 100138															
ADDRESS:		PO / AFE:															
PHONE: _____ FAX: _____		Legal Site Description: 1st & ROSSER - BRANDON															
Lab Work Order # (lab use only)		QUOTE #: Q17375															
		SAMPLER (Initials): KP/AZ															
Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE													
11	J19	MAY 14/08	—	SOIL	X												
12	Q8	MAY 13/08	—	↓	X												
13	E11	MAY 15/08	—		X												
14	H19	MAY 14/08	—		X												
15	J8	MAY 13/08	—		X												
16	Q3	MAY 13/08	—		X												
17	SYA15	MAY 15/08	—		X												
18	SYC14	MAY 15/08	—		X												
19	I28	MAY 14/08	—		X												
20	G24	MAY 14/08	—		X												
GUIDELINES / REGULATIONS					SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS												
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY . By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.																	
RELINQUISHED BY:		DATE & TIME: JUNE 10/08		RECEIVED BY:		DATE & TIME: June 10/08		SAMPLE CONDITION (lab use only) TEMPERATURE _____ SAMPLES RECEIVED IN GOOD CONDITION? YES / NO (If no provide details)									
RELINQUISHED BY:		DATE & TIME:		RECEIVED BY:		DATE & TIME: 11:50											



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COMPANY: EARTH TECH		STANDARD _____ OTHER _____		<input checked="" type="checkbox"/> REGULAR SERVICE (DEFAULT)			
CONTACT: SCOTT CHAPMAN		PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> CUSTOM _____ FAX _____		RUSH SERVICE (2-3 DAYS)			
ADDRESS: 99 Commerce Drive		EMAIL 1: SCOTT.CHAPMAN@EARTHTECH.CA		PRIORITY SERVICE (1 DAY or ASAP)			
WINNIPEG, MB		EMAIL 2: KRIS.PLANTZ@EARTHTECH.CA		EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS			
PHONE: 477-5381 FAX: 204-2040		ANALYSIS REQUEST					
INVOICE TO: SAME AS REPORT? (YES) NO		INDICATE BOTTLES: FILTERED / PRESERVED (F/P)					
COMPANY:		CLIENT / PROJECT INFORMATION:		METAL - LOW-EXP + ANTIMONY			
CONTACT:		JOB #: 100138					
ADDRESS:		PO / AFE:					
PHONE: _____ FAX: _____		Legal Site Description: ST & ROSSER - BRANDON					
Lab Work Order # (lab use only)		QUOTE #: Q17375					
SAMPLER (Initials): KP/AZ							
Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
21	F29	MAY 14/08	---	SOIL	X		1
22	F21	MAY 14/08	---	↓	X		1
23	L10	MAY 14/08	---		X		1
24	I1	MAY 14/08	---		X		1
25	J14	MAY 14/08	---		X		1
26	K19	MAY 14/08	---		X		1
27	N5	MAY 13/08	---		X		1
28	F6	MAY 14/08	---		X		1
29	I2	MAY 14/08	---		X		1
30	G25	MAY 14/08	---		X		1
GUIDELINES / REGULATIONS					SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS		
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.							
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	SAMPLE CONDITION (lab use only)			
<i>[Signature]</i>	JUN 5 10/08	<i>[Signature]</i>	JUN 10/08	TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION? YES / NO		
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	(If no provide details)			
			11:50				



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REPORT TO:		REPORT FORMAT / DISTRIBUTION			SERVICE REQUESTED					
COMPANY: EARTH TECH		STANDARD _____ OTHER _____			<input checked="" type="checkbox"/> REGULAR SERVICE (DEFAULT)					
CONTACT: SCOTT CHAPMAN		PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> CUSTOM _____ FAX _____			RUSH SERVICE (2-3 DAYS)					
ADDRESS: 99 COMMERCE DRIVE		EMAIL 1: SCOTT.CHAPMAN@EARTHTECH.CA			PRIORITY SERVICE (1 DAY or ASAP)					
WINNIPEG, MB		EMAIL 2: KRIS.PLANTZ@EARTHTECH.CA			EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS					
PHONE 477-5381 FAX: 284-2040		ANALYSIS REQUEST								
INVOICE TO: SAME AS REPORT? (YES) NO		INDICATE BOTTLES: FILTERED / PRESERVED (F/P)			METAL - LOW - EXD + ANTIMONY HAZARDOUS ? HIGHLY CONTAMINATED ? NUMBER OF CONTAINERS					
COMPANY:		CLIENT / PROJECT INFORMATION:								
CONTACT:		JOB #: 100138								
ADDRESS:		PO / AFE:								
PHONE: _____ FAX: _____		Legal Site Description: 1ST & ROSSER - BRANDON								
Lab Work Order # (lab use only)		QUOTE #: Q-7375		SAMPLER (Initials): KP/AZ						
Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE						
31	F31	MAY 14/08	—	SOIL	X					
32	J39	MAY 14/08	—	↓	X					
33	E35	MAY 15/08	—	↓	X					
GUIDELINES / REGULATIONS					SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS					
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY . By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.										
RELINQUISHED BY: <i>[Signature]</i>		DATE & TIME: JUNE 10/08		RECEIVED BY: <i>[Signature]</i>			DATE & TIME: June 10/08		SAMPLE CONDITION (lab use only)	
RELINQUISHED BY:		DATE & TIME:		RECEIVED BY:			DATE & TIME: 11:50		TEMPERATURE: _____ SAMPLES RECEIVED IN GOOD CONDITION? YES / NO (If no provide details)	

Your Project #: 100138
 Site: 1ST 7 ROSSER, BRANDON,OM
 Your C.O.C. #: N/A

Attention: Scott Chapman
 EARTH TECH (CANADA) INC
 Winnipeg - Environment Dept
 99 Commerce Dr
 Winnipeg, MB
 R3P 0Y7

Report Date: 2008/10/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A8B1066
Received: 2008/09/26, 10:05

Sample Matrix: Soil
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	2	2008/10/02	2008/10/02	CAM SOP-00408	EPA 3050B
Chromium (VI) in Soil	2	2008/09/30	2008/10/01	CAM SOP-00420	EPA 3060A
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2008/09/27	2008/09/28	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	2	2008/09/28	2008/09/30	CAM SOP-00316	CCME CWS
Mercury in Soil by CVAA	2	2008/10/02	2008/10/02	CAM SOP-00453	EPA 7470
Acid Extr. Metals (aqua regia) by ICPMS	2	2008/10/02	2008/10/02	CAM SOP-00447	EPA 6020
MOISTURE	2	N/A	2008/09/29	CAM SOP-00445	McKeague 2nd ed 1978

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

RENATA SZURSKI, Project Manager
 Email: Renata.Szurski@maxxamanalytics.com
 Phone# (905) 817-5700 Ext:5818

=====
 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. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A8B1066
 Report Date: 2008/10/02

EARTH TECH (CANADA) INC
 Client Project #: 100138
 Project name: 1ST 7 ROSSER, BRANDON,OM

RESULTS OF ANALYSES OF SOIL

Maxxam ID		AP4633	AP4634		
Sampling Date		2008/09/25	2008/09/25		
COC Number		N/A	N/A		
	Units	PIT RUN 1	PIT RUN 2	RDL	QC Batch

Inorganics					
Moisture	%	4.4	3.6	0.2	1627813

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8B1066
 Report Date: 2008/10/02

EARTH TECH (CANADA) INC
 Client Project #: 100138
 Project name: 1ST 7 ROSSER, BRANDON,OM

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		AP4633	AP4634		
Sampling Date		2008/09/25	2008/09/25		
COC Number		N/A	N/A		
	Units	PIT RUN 1	PIT RUN 2	RDL	QC Batch

Metals					
Hot Water Ext. Boron (B)	ug/g	0.04	0.06	0.01	1631710
Chromium (VI)	ug/g	<0.2	<0.2	0.2	1628782
Acid Extractable Mercury (Hg)	ug/g	<0.05	<0.05	0.05	1631718
Acid Extractable Antimony (Sb)	ug/g	0.2	0.3	0.2	1631717
Acid Extractable Arsenic (As)	ug/g	5	6	1	1631717
Acid Extractable Barium (Ba)	ug/g	96	67	0.5	1631717
Acid Extractable Beryllium (Be)	ug/g	<0.2	<0.2	0.2	1631717
Acid Extractable Cadmium (Cd)	ug/g	0.1	0.1	0.1	1631717
Acid Extractable Chromium (Cr)	ug/g	8	8	1	1631717
Acid Extractable Cobalt (Co)	ug/g	4.3	4.6	0.1	1631717
Acid Extractable Copper (Cu)	ug/g	6.0	6.7	0.5	1631717
Acid Extractable Lead (Pb)	ug/g	4	5	1	1631717
Acid Extractable Molybdenum (Mo)	ug/g	<0.5	0.5	0.5	1631717
Acid Extractable Nickel (Ni)	ug/g	11	11	0.5	1631717
Acid Extractable Selenium (Se)	ug/g	<0.5	<0.5	0.5	1631717
Acid Extractable Silver (Ag)	ug/g	<0.2	<0.2	0.2	1631717
Acid Extractable Thallium (Tl)	ug/g	0.09	0.10	0.05	1631717
Acid Extractable Vanadium (V)	ug/g	15	13	5	1631717
Acid Extractable Zinc (Zn)	ug/g	25	25	5	1631717

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8B1066
 Report Date: 2008/10/02

EARTH TECH (CANADA) INC
 Client Project #: 100138
 Project name: 1ST 7 ROSSER, BRANDON,OM

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		AP4633	AP4634		
Sampling Date		2008/09/25	2008/09/25		
COC Number		N/A	N/A		
	Units	PIT RUN 1	PIT RUN 2	RDL	QC Batch

BTEX & F1 Hydrocarbons					
Benzene	ug/g	<0.02	<0.02	0.02	1627281
Toluene	ug/g	<0.02	<0.02	0.02	1627281
Ethylbenzene	ug/g	<0.02	<0.02	0.02	1627281
o-Xylene	ug/g	<0.02	<0.02	0.02	1627281
p+m-Xylene	ug/g	<0.04	<0.04	0.04	1627281
Total Xylenes	ug/g	<0.04	<0.04	0.04	1627281
F1 (C6-C10)	ug/g	<10	<10	10	1627281
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	1627281
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	1627404
F3 (C16-C34 Hydrocarbons)	ug/g	<10	<10	10	1627404
F4 (C34-C50 Hydrocarbons)	ug/g	<10	<10	10	1627404
Reached Baseline at C50	ug/g	Yes	Yes		1627404
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	101	107		1627281
4-Bromofluorobenzene	%	99	97		1627281
D10-Ethylbenzene	%	100	104		1627281
D4-1,2-Dichloroethane	%	100	98		1627281
o-Terphenyl	%	66	73		1627404

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8B1066
Report Date: 2008/10/02

EARTH TECH (CANADA) INC
Client Project #: 100138
Project name: 1ST 7 ROSSER, BRANDON,OM

GENERAL COMMENTS

Results relate only to the items tested.

EARTH TECH (CANADA) INC
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #:
 Project name: 1ST 7 ROSSER, BRANDON,OM

Quality Assurance Report
 Maxxam Job Number: MA8B1066

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits		
1627281 AAI	MATRIX SPIKE	1,4-Difluorobenzene	2008/09/28		101	%	60 - 140		
		4-Bromofluorobenzene	2008/09/28		100	%	60 - 140		
		D10-Ethylbenzene	2008/09/28		103	%	30 - 130		
		D4-1,2-Dichloroethane	2008/09/28		102	%	60 - 140		
		Benzene	2008/09/28		92	%	60 - 140		
		Toluene	2008/09/28		93	%	60 - 140		
		Ethylbenzene	2008/09/28		100	%	60 - 140		
		o-Xylene	2008/09/28		98	%	60 - 140		
		p+m-Xylene	2008/09/28		98	%	60 - 140		
		F1 (C6-C10)	2008/09/28		115	%	60 - 140		
		Spiked Blank	1,4-Difluorobenzene	2008/09/28		100	%	60 - 140	
			4-Bromofluorobenzene	2008/09/28		98	%	60 - 140	
			D10-Ethylbenzene	2008/09/28		98	%	30 - 130	
			D4-1,2-Dichloroethane	2008/09/28		101	%	60 - 140	
			Benzene	2008/09/28		92	%	60 - 140	
			Toluene	2008/09/28		92	%	60 - 140	
			Ethylbenzene	2008/09/28		98	%	60 - 140	
	o-Xylene		2008/09/28		96	%	60 - 140		
	p+m-Xylene		2008/09/28		97	%	60 - 140		
	F1 (C6-C10)		2008/09/28		110	%	60 - 140		
	Method Blank		1,4-Difluorobenzene	2008/09/28		100	%	60 - 140	
			4-Bromofluorobenzene	2008/09/28		98	%	60 - 140	
			D10-Ethylbenzene	2008/09/28		100	%	30 - 130	
			D4-1,2-Dichloroethane	2008/09/28		103	%	60 - 140	
			Benzene	2008/09/28	<0.02			ug/g	
			Toluene	2008/09/28	<0.02			ug/g	
		Ethylbenzene	2008/09/28	<0.02			ug/g		
		o-Xylene	2008/09/28	<0.02			ug/g		
		p+m-Xylene	2008/09/28	<0.04			ug/g		
		Total Xylenes	2008/09/28	<0.04			ug/g		
		F1 (C6-C10)	2008/09/28	<10			ug/g		
		RPD	F1 (C6-C10) - BTEX	2008/09/28	<10			ug/g	
			Benzene	2008/09/28	NC			%	50
Toluene			2008/09/28	NC			%	50	
Ethylbenzene			2008/09/28	NC			%	50	
o-Xylene	2008/09/28		NC			%	50		
p+m-Xylene	2008/09/28		NC			%	50		
Total Xylenes	2008/09/28		NC			%	50		
F1 (C6-C10)	2008/09/28		NC			%	50		
F1 (C6-C10) - BTEX	2008/09/28		NC			%	50		
1627404 JKA	MATRIX SPIKE	o-Terphenyl	2008/09/30		85	%	30 - 130		
		F2 (C10-C16 Hydrocarbons)	2008/09/30		83	%	60 - 130		
		F3 (C16-C34 Hydrocarbons)	2008/09/30		83	%	60 - 130		
		F4 (C34-C50 Hydrocarbons)	2008/09/30		83	%	60 - 130		
	Spiked Blank	o-Terphenyl	2008/09/30		75	%	30 - 130		
		F2 (C10-C16 Hydrocarbons)	2008/09/30		66	%	60 - 130		
		F3 (C16-C34 Hydrocarbons)	2008/09/30		66	%	60 - 130		
		F4 (C34-C50 Hydrocarbons)	2008/09/30		66	%	60 - 130		
	Method Blank	o-Terphenyl	2008/09/30		69	%	30 - 130		
		F2 (C10-C16 Hydrocarbons)	2008/09/30	<10			ug/g		
		F3 (C16-C34 Hydrocarbons)	2008/09/30	<10			ug/g		
		F4 (C34-C50 Hydrocarbons)	2008/09/30	<10			ug/g		
	RPD	F2 (C10-C16 Hydrocarbons)	2008/09/30		NC		%	50	
		F3 (C16-C34 Hydrocarbons)	2008/09/30		NC		%	50	
		F4 (C34-C50 Hydrocarbons)	2008/09/30		NC		%	50	

EARTH TECH (CANADA) INC
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #:
 Project name: 1ST 7 ROSSER, BRANDON,OM

Quality Assurance Report (Continued)

Maxxam Job Number: MA8B1066

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1627813 FOT	RPD	Moisture	2008/09/29	0.8		%	50
1628782 VRO	MATRIX SPIKE	Chromium (VI)	2008/10/01		102	%	75 - 125
	QC STANDARD	Chromium (VI)	2008/10/01		100	%	85 - 115
	Spiked Blank	Chromium (VI)	2008/10/01		101	%	75 - 125
	Method Blank	Chromium (VI)	2008/10/01	<0.2		ug/g	
	RPD	Chromium (VI)	2008/10/01	NC (f)		%	35
1631710 ADA	QC STANDARD	Hot Water Ext. Boron (B)	2008/10/02		102	%	77 - 121
	Method Blank	Hot Water Ext. Boron (B)	2008/10/02	<0.01		ug/g	
1631717 VIV	MATRIX SPIKE	Acid Extractable Antimony (Sb)	2008/10/02		92	%	75 - 125
		Acid Extractable Arsenic (As)	2008/10/02		98	%	75 - 125
		Acid Extractable Barium (Ba)	2008/10/02		NC (2)	%	75 - 125
		Acid Extractable Beryllium (Be)	2008/10/02		90	%	75 - 125
		Acid Extractable Cadmium (Cd)	2008/10/02		102	%	75 - 125
		Acid Extractable Chromium (Cr)	2008/10/02		99	%	75 - 125
		Acid Extractable Cobalt (Co)	2008/10/02		94	%	75 - 125
		Acid Extractable Copper (Cu)	2008/10/02		NC (2)	%	75 - 125
		Acid Extractable Lead (Pb)	2008/10/02		91	%	75 - 125
		Acid Extractable Molybdenum (Mo)	2008/10/02		98	%	75 - 125
		Acid Extractable Nickel (Ni)	2008/10/02		97	%	75 - 125
		Acid Extractable Selenium (Se)	2008/10/02		97	%	75 - 125
		Acid Extractable Silver (Ag)	2008/10/02		104	%	75 - 125
		Acid Extractable Thallium (Tl)	2008/10/02		83	%	75 - 125
		Acid Extractable Vanadium (V)	2008/10/02		100	%	75 - 125
		Acid Extractable Zinc (Zn)	2008/10/02		NC (2)	%	75 - 125
	QC STANDARD	Acid Extractable Antimony (Sb)	2008/10/02		102	%	75 - 125
		Acid Extractable Arsenic (As)	2008/10/02		103	%	75 - 125
		Acid Extractable Barium (Ba)	2008/10/02		92	%	75 - 125
		Acid Extractable Beryllium (Be)	2008/10/02		88	%	75 - 125
		Acid Extractable Cadmium (Cd)	2008/10/02		101	%	75 - 125
		Acid Extractable Chromium (Cr)	2008/10/02		90	%	75 - 125
		Acid Extractable Cobalt (Co)	2008/10/02		89	%	75 - 125
		Acid Extractable Copper (Cu)	2008/10/02		94	%	75 - 125
		Acid Extractable Lead (Pb)	2008/10/02		94	%	75 - 125
		Acid Extractable Molybdenum (Mo)	2008/10/02		102	%	75 - 125
		Acid Extractable Nickel (Ni)	2008/10/02		88	%	75 - 125
		Acid Extractable Selenium (Se)	2008/10/02		79	%	50 - 150
		Acid Extractable Silver (Ag)	2008/10/02		86	%	75 - 125
		Acid Extractable Thallium (Tl)	2008/10/02		87	%	75 - 125
		Acid Extractable Vanadium (V)	2008/10/02		93	%	75 - 125
		Acid Extractable Zinc (Zn)	2008/10/02		95	%	75 - 125
	Method Blank	Acid Extractable Antimony (Sb)	2008/10/02	<0.2		ug/g	
		Acid Extractable Arsenic (As)	2008/10/02	<1		ug/g	
		Acid Extractable Barium (Ba)	2008/10/02	<0.5		ug/g	
		Acid Extractable Beryllium (Be)	2008/10/02	<0.2		ug/g	
		Acid Extractable Cadmium (Cd)	2008/10/02	<0.1		ug/g	
		Acid Extractable Chromium (Cr)	2008/10/02	<1		ug/g	
		Acid Extractable Cobalt (Co)	2008/10/02	<0.1		ug/g	
		Acid Extractable Copper (Cu)	2008/10/02	<0.5		ug/g	
		Acid Extractable Lead (Pb)	2008/10/02	<1		ug/g	
		Acid Extractable Molybdenum (Mo)	2008/10/02	<0.5		ug/g	
		Acid Extractable Nickel (Ni)	2008/10/02	<0.5		ug/g	
		Acid Extractable Selenium (Se)	2008/10/02	<0.5		ug/g	
		Acid Extractable Silver (Ag)	2008/10/02	<0.2		ug/g	
		Acid Extractable Thallium (Tl)	2008/10/02	<0.05		ug/g	
		Acid Extractable Vanadium (V)	2008/10/02	<5		ug/g	

EARTH TECH (CANADA) INC
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #:
 Project name: 1ST 7 ROSSER, BRANDON,OM

Quality Assurance Report (Continued)
 Maxxam Job Number: MA8B1066

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1631717 VIV	Method Blank	Acid Extractable Zinc (Zn)	2008/10/02	<5		ug/g	
		RPD					
	RPD	Acid Extractable Antimony (Sb)	2008/10/02	NC		%	35
		Acid Extractable Arsenic (As)	2008/10/02	NC		%	35
		Acid Extractable Barium (Ba)	2008/10/02	0.7		%	35
		Acid Extractable Beryllium (Be)	2008/10/02	NC		%	35
		Acid Extractable Cadmium (Cd)	2008/10/02	NC		%	35
		Acid Extractable Chromium (Cr)	2008/10/02	0.7		%	35
		Acid Extractable Cobalt (Co)	2008/10/02	1.3		%	35
		Acid Extractable Copper (Cu)	2008/10/02	1.3		%	35
		Acid Extractable Lead (Pb)	2008/10/02	2.6		%	35
		Acid Extractable Molybdenum (Mo)	2008/10/02	NC		%	35
		Acid Extractable Nickel (Ni)	2008/10/02	3.8		%	35
		Acid Extractable Selenium (Se)	2008/10/02	NC		%	35
		Acid Extractable Silver (Ag)	2008/10/02	NC		%	35
		Acid Extractable Thallium (Tl)	2008/10/02	NC		%	35
		Acid Extractable Vanadium (V)	2008/10/02	NC		%	35
1631718 MC	MATRIX SPIKE	Acid Extractable Zinc (Zn)	2008/10/02	3.6		%	35
		Acid Extractable Mercury (Hg)	2008/10/02		88	%	75 - 125
	QC STANDARD	Acid Extractable Mercury (Hg)	2008/10/02		101	%	75 - 125
		Method Blank	Acid Extractable Mercury (Hg)	2008/10/02	<0.05		ug/g
RPD	Acid Extractable Mercury (Hg)	2008/10/02	NC		%	35	

NC = Non-calculable
 RPD = Relative Percent Difference
 QC Standard = Quality Control Standard
 SPIKE = Fortified sample
 (1) Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.
 (2) The recovery in the matrix spike was not calculated (NC). Spiked concentration was less than 2x that native to the sample.

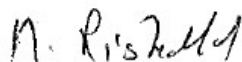
Validation Signature Page

Maxxam Job #: A8B1066

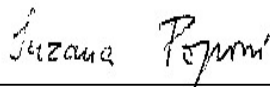
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist



MEDHAT RISKALLAH, Manager, Hydrocarbon Department



SUZANA POPOVIC, Supervisor, Hydrocarbons

=====
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Calgary 2021-41st Ave. NE, T2E 6P2. Ph: (403) 291-3077, Fax: (403) 291-9468, Toll free: (800) 386-7247
 Edmonton: 9331 - 48th Street, T6B 2R4. Ph: (780) 468-3500, Fax: (780) 466-3332, Toll free: (800) 386-7247

CHAIN OF CUSTODY/

26-Sep-08 10:05

RENATA SZURSKI



A8B1066

NMI

ENV-174

Invoice To:
Company Name: Earth Tech
Contact Name:
Address: 99 Commerce Drive Avenue
 Winnipeg, MB PC: R3P 0Y7
Phone / Fax#: Ph: 204-477-5381 Fax: 204-284-2040

Copy of Report To:
 scott.chapman@aecom.com
 kris.plantz@aecom.com

PO#:
Project #: 100138
Quotation #:
Proj. Name: 1st + Rosser
Location: Brandon,
Sampler's Initials: AEW

REGULATORY REQUIREMENTS: (check)
 Alberta Tier 1 Metals
 CCME
 PST
 Canadian Drinking Water
 G50
 Regulatory Limits to appear on Final report
 Other: _____

SERVICE REQUESTED:
 RUSH (Please ensure you contact the lab)
 REGULAR Turnaround

REPORT DISTRIBUTION:
 Mail (automatic)
 Fax
 Email: _____

ANALYSIS REQUESTED (Indicate Preferred Method)

Metals-Determination	Legend:																			
		BTEX/FI-F4	metals CCME																	

SUBLET TO:
MAXXAM JOB#:

Sample Identification	Matrix	Date/Time Sampled	RUSH (Date Req'd)	Bottle Types																		
	filter																					
Pit Run 1	soil	Sept 25/08		jar																		
Pit Run 2	soil	Sept 25/08		jar																		

26 SEP 26 10:05
 8/8/08

Relinquished By: Amarda Wolfe
Signature: Amarda Wolfe
Date/Time:

Received By: NUSRAT
Signature: NUSRAT
Date/Time: 08/08/20 10:05

COMMENTS/SPECIAL BILLING INSTRUCTIONS:

Your Project #: 100138
 Site: 1ST & ROSSER, BRANDON,MB
 Your C.O.C. #: EW233208

Attention: Scott Chapman
 AECOM Canada Ltd
 Winnipeg - Environment Dept
 99 Commerce Dr
 Winnipeg, MB
 R3P 0Y7

Report Date: 2009/01/22

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A8E5826

Received: 2008/12/04, 16:00

Sample Matrix: Soil
 # Samples Received: 28

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Mercury (TCLP Leachable) (mg/L)	5	N/A	2008/12/10	CAM SOP-00453	EPA 7470
Acid Extr. Metals (aqua regia) by ICPMS	28	2008/12/11	2008/12/11	CAM SOP-00447	EPA 6020
Total Metals in TCLP Leachate by ICPMS	5	2008/12/10	2008/12/10	CAM SOP-00447	EPA 6020
TCLP - % Solids	5	2008/12/10	2008/12/10	CAM SOP-00401	EPA 1311 (TCLP)
TCLP - EXTRACTION FLUID	5	N/A	2008/12/10	CAM SOP-00401	EPA 1311
TCLP-INITIAL AND FINAL PH	5	N/A	2008/12/10	CAM SOP-00401	EPA 1311

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

RENATA SZURSKI, Project Manager
 Email: Renata.Szurski@maxxamanalytics.com
 Phone# (905) 817-5700 Ext:5818

=====
 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. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

RESULTS OF ANALYSES OF SOIL

Maxxam ID		BG6570		BG6574		
Sampling Date						
COC Number		EW233208		EW233208		
	Units	SS-N-WALL-A3	QC Batch	SS-N-WALL-D3#2	RDL	QC Batch

Inorganics						
Final pH	pH	6.14	1696773	5.60		1696774
Initial pH	pH	9.35	1696773	9.27		1696774
TCLP - % Solids	%	100	1696765	100	0.2	1696765
TCLP Extraction Fluid	N/A	FLUID1	1696772	FLUID2		1696772
Metals						
Leachable Mercury (Hg)	mg/L	<0.001	1696731	<0.001	0.001	1696731
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		BG6582	BG6583	BG6586		
Sampling Date						
COC Number		EW233208	EW233208	EW233208		
	Units	31-36C	65-96A	ESY-F	RDL	QC Batch

Inorganics						
Final pH	pH	5.60	5.90	5.88		1696773
Initial pH	pH	9.14	8.52	8.68		1696773
TCLP - % Solids	%	100	100	100	0.2	1696765
TCLP Extraction Fluid	N/A	FLUID1	FLUID1	FLUID1		1696772
Metals						
Leachable Mercury (Hg)	mg/L	<0.001	<0.001	<0.001	0.001	1696731
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

 AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6568	BG6569	BG6570		
Sampling Date						
COC Number		EW233208	EW233208	EW233208		
	Units	SS-N-WALL-CRNR-1	SS-N-WALL-A1#3	SS-N-WALL-A3	RDL	QC Batch

Metals						
Leachable Arsenic (As)	mg/L			<0.2	0.2	1696727
Leachable Barium (Ba)	mg/L			0.7	0.2	1696727
Leachable Boron (B)	mg/L			0.3	0.1	1696727
Leachable Cadmium (Cd)	mg/L			<0.05	0.05	1696727
Leachable Chromium (Cr)	mg/L			<0.1	0.1	1696727
Leachable Lead (Pb)	mg/L			0.9	0.1	1696727
Leachable Selenium (Se)	mg/L			<0.2	0.2	1696727
Leachable Silver (Ag)	mg/L			<0.01	0.01	1696727
Leachable Uranium (U)	mg/L			<0.01	0.01	1696727
Acid Extractable Aluminum (Al)	ug/g	7400	6700	5600	50	1698175
Acid Extractable Antimony (Sb)	ug/g	2.2	5.8	6.9	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	9	8	7	1	1698175
Acid Extractable Barium (Ba)	ug/g	340	250	270	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	0.5	0.4	0.3	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	1.0	1.0	1.3	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	63000	58000	66000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	15	16	12	1	1698175
Acid Extractable Cobalt (Co)	ug/g	6.9	6.7	4.8	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	41	57	45	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	22000	18000	13000	50	1698175
Acid Extractable Lead (Pb)	ug/g	280	900	1500	1	1698175
Acid Extractable Magnesium (Mg)	ug/g	14000	12000	15000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	1300	960	680	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	1.3	1.3	1.3	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	20	20	14	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	780	680	490	50	1698175
Acid Extractable Potassium (K)	ug/g	1500	1400	1100	200	1698175
Acid Extractable Selenium (Se)	ug/g	<0.5	<0.5	<0.5	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	<0.2	0.2	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	1500	620	510	100	1698175
Acid Extractable Strontium (Sr)	ug/g	140	98	97	1	1698175
Acid Extractable Thallium (Tl)	ug/g	0.16	0.19	0.14	0.05	1698175

 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6568	BG6569	BG6570		
Sampling Date						
COC Number		EW233208	EW233208	EW233208		
	Units	SS-N-WALL-CRNR-1	SS-N-WALL-A1#3	SS-N-WALL-A3	RDL	QC Batch

Acid Extractable Uranium (U)	ug/g	0.98	0.84	0.79	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	22	21	20	5	1698175
Acid Extractable Zinc (Zn)	ug/g	210	230	210	5	1698175

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6571	BG6572	BG6573		
Sampling Date						
COC Number		EW233208	EW233208	EW233208		
	Units	SS-N-WALL-A1B-CRNR#3	SS-N-WALL-B3	SS-N-WALL-C2	RDL	QC Batch
Metals						
Acid Extractable Aluminum (Al)	ug/g	5800	5900	7500	50	1698175
Acid Extractable Antimony (Sb)	ug/g	6.6	8.2	3.1	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	9	8	12	1	1698175
Acid Extractable Barium (Ba)	ug/g	270	240	190	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	0.5	0.3	0.2	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	0.7	0.6	0.6	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	45000	60000	100000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	12	12	12	1	1698175
Acid Extractable Cobalt (Co)	ug/g	5.6	5.8	4.6	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	46	47	12	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	15000	16000	9600	50	1698175
Acid Extractable Lead (Pb)	ug/g	1100	1700	180	1	1698175
Acid Extractable Magnesium (Mg)	ug/g	10000	16000	18000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	630	1100	440	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	1.3	2.3	1.2	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	15	16	11	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	540	660	360	50	1698175
Acid Extractable Potassium (K)	ug/g	910	1200	810	200	1698175
Acid Extractable Selenium (Se)	ug/g	<0.5	<0.5	<0.5	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	<0.2	<0.2	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	460	610	720	100	1698175
Acid Extractable Strontium (Sr)	ug/g	130	92	140	1	1698175
Acid Extractable Thallium (Tl)	ug/g	0.15	0.18	0.07	0.05	1698175
Acid Extractable Uranium (U)	ug/g	0.83	0.83	0.84	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	19	21	31	5	1698175
Acid Extractable Zinc (Zn)	ug/g	180	160	160	5	1698175
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

 AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6574	BG6575	BG6576		
Sampling Date						
COC Number		EW233208	EW233208	EW233208		
	Units	SS-N-WALL-D3#2	SS-N-WALL-E1	SS-D-BOT-1	RDL	QC Batch
Metals						
Leachable Arsenic (As)	mg/L	<0.2			0.2	1696727
Leachable Barium (Ba)	mg/L	0.6			0.2	1696727
Leachable Boron (B)	mg/L	0.4			0.1	1696727
Leachable Cadmium (Cd)	mg/L	<0.05			0.05	1696727
Leachable Chromium (Cr)	mg/L	<0.1			0.1	1696727
Leachable Lead (Pb)	mg/L	2.0			0.1	1696727
Leachable Selenium (Se)	mg/L	<0.2			0.2	1696727
Leachable Silver (Ag)	mg/L	<0.01			0.01	1696727
Leachable Uranium (U)	mg/L	<0.01			0.01	1696727
Acid Extractable Aluminum (Al)	ug/g	5200	6600	4800	50	1698175
Acid Extractable Antimony (Sb)	ug/g	6.0	3.8	0.6	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	15	13	8	1	1698175
Acid Extractable Barium (Ba)	ug/g	250	310	120	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	<0.2	0.3	0.4	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	0.7	1.7	0.4	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	86000	77000	62000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	11	19	11	1	1698175
Acid Extractable Cobalt (Co)	ug/g	4.2	5.1	6.6	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	22	40	18	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	10000	13000	14000	50	1698175
Acid Extractable Lead (Pb)	ug/g	1100	610	24	1	1698175
Acid Extractable Magnesium (Mg)	ug/g	13000	14000	22000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	520	560	260	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	1.2	1.1	2.6	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	12	14	23	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	400	500	560	50	1698175
Acid Extractable Potassium (K)	ug/g	860	1100	1100	200	1698175
Acid Extractable Selenium (Se)	ug/g	<0.5	<0.5	2.3	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	<0.2	<0.2	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	520	490	270	100	1698175
Acid Extractable Strontium (Sr)	ug/g	110	110	52	1	1698175
Acid Extractable Thallium (Tl)	ug/g	0.11	0.11	0.21	0.05	1698175
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6574	BG6575	BG6576		
Sampling Date						
COC Number		EW233208	EW233208	EW233208		
	Units	SS-N-WALL-D3#2	SS-N-WALL-E1	SS-D-BOT-1	RDL	QC Batch
Acid Extractable Uranium (U)	ug/g	0.76	0.81	1.6	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	23	29	24	5	1698175
Acid Extractable Zinc (Zn)	ug/g	200	380	55	5	1698175
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6577		BG6578		
Sampling Date						
COC Number		EW233208		EW233208		
	Units	SS-W-WALL-B3	RDL	SS-W-WALL-D1	RDL	QC Batch

Metals						
Acid Extractable Aluminum (Al)	ug/g	32000	250	18000	50	1698175
Acid Extractable Antimony (Sb)	ug/g	2.2	0.2	2.5	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	10	1	9	1	1698175
Acid Extractable Barium (Ba)	ug/g	690	0.5	660	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	2.0	0.2	1.0	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	0.6	0.1	0.7	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	86000	50	71000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	17	1	13	1	1698175
Acid Extractable Cobalt (Co)	ug/g	6.0	0.1	5.2	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	41	0.5	38	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	30000	50	24000	50	1698175
Acid Extractable Lead (Pb)	ug/g	340	1	280	1	1698175
Acid Extractable Magnesium (Mg)	ug/g	18000	50	13000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	670	1	540	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	3.9	0.5	2.6	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	20	0.5	15	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	2100	50	1300	50	1698175
Acid Extractable Potassium (K)	ug/g	1400	200	970	200	1698175
Acid Extractable Selenium (Se)	ug/g	1.0	0.5	0.5	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	<0.2	0.2	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	5900	100	3500	100	1698175
Acid Extractable Strontium (Sr)	ug/g	2200	5	1400	5	1698175
Acid Extractable Thallium (Tl)	ug/g	0.10	0.05	0.11	0.05	1698175
Acid Extractable Uranium (U)	ug/g	5.9	0.05	2.9	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	33	5	24	5	1698175
Acid Extractable Zinc (Zn)	ug/g	140	5	180	5	1698175
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6579	BG6580		
Sampling Date					
COC Number		EW233208	EW233208		
	Units	SS-S-WALL-BB	SS-E-WALL-A1	RDL	QC Batch

Metals					
Acid Extractable Aluminum (Al)	ug/g	4600	8100	50	1698175
Acid Extractable Antimony (Sb)	ug/g	3.0	3.4	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	7	10	1	1698175
Acid Extractable Barium (Ba)	ug/g	170	510	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	0.3	0.5	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	0.4	0.4	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	54000	54000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	10	13	1	1698175
Acid Extractable Cobalt (Co)	ug/g	5.5	7.3	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	19	49	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	13000	18000	50	1698175
Acid Extractable Lead (Pb)	ug/g	540	460	1	1698175
Acid Extractable Magnesium (Mg)	ug/g	10000	11000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	570	980	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	1.1	1.4	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	14	22	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	590	890	50	1698175
Acid Extractable Potassium (K)	ug/g	880	1800	200	1698175
Acid Extractable Selenium (Se)	ug/g	<0.5	0.6	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	<0.2	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	390	1300	100	1698175
Acid Extractable Strontium (Sr)	ug/g	79	280	1	1698175
Acid Extractable Thallium (Tl)	ug/g	0.14	0.16	0.05	1698175
Acid Extractable Uranium (U)	ug/g	0.90	1.3	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	16	21	5	1698175
Acid Extractable Zinc (Zn)	ug/g	76	130	5	1698175

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6581			BG6582		
Sampling Date							
COC Number		EW233208			EW233208		
	Units	SS-E-WALL-C2	RDL	QC Batch	31-36C	RDL	QC Batch

Metals							
Leachable Arsenic (As)	mg/L		0.2	1696727	<0.2	0.2	1696727
Leachable Barium (Ba)	mg/L		0.2	1696727	0.9	0.2	1696727
Leachable Boron (B)	mg/L		0.1	1696727	0.3	0.1	1696727
Leachable Cadmium (Cd)	mg/L		0.05	1696727	<0.05	0.05	1696727
Leachable Chromium (Cr)	mg/L		0.1	1696727	<0.1	0.1	1696727
Leachable Lead (Pb)	mg/L		0.1	1696727	29.3	0.1	1696727
Leachable Selenium (Se)	mg/L		0.2	1696727	<0.2	0.2	1696727
Leachable Silver (Ag)	mg/L		0.01	1696727	<0.01	0.01	1696727
Leachable Uranium (U)	mg/L		0.01	1696727	<0.01	0.01	1696727
Acid Extractable Aluminum (Al)	ug/g	5800	50	1698163	4400	50	1698175
Acid Extractable Antimony (Sb)	ug/g	0.5	0.2	1698163	32	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	11	1	1698163	8	1	1698175
Acid Extractable Barium (Ba)	ug/g	180	0.5	1698163	150	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	0.3	0.2	1698163	<0.2	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	0.3	0.1	1698163	0.8	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	84000	50	1698163	45000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	14	1	1698163	13	1	1698175
Acid Extractable Cobalt (Co)	ug/g	9.3	0.1	1698163	5.2	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	18	0.5	1698163	37	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	24000	50	1698163	15000	50	1698175
Acid Extractable Lead (Pb)	ug/g	38	1	1698163	9400	5	1698175
Acid Extractable Magnesium (Mg)	ug/g	21000	50	1698163	11000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	1300	1	1698163	970	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	2.0	0.5	1698163	1.1	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	23	0.5	1698163	15	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	680	50	1698163	530	50	1698175
Acid Extractable Potassium (K)	ug/g	1500	200	1698163	760	200	1698175
Acid Extractable Selenium (Se)	ug/g	0.7	0.5	1698163	<0.5	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	<0.2	0.2	1698163	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	370	100	1698163	180	100	1698175
Acid Extractable Strontium (Sr)	ug/g	69	1	1698163	52	1	1698175
Acid Extractable Thallium (Tl)	ug/g	0.22	0.05	1698163	0.20	0.05	1698175

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6581			BG6582		
Sampling Date							
COC Number		EW233208			EW233208		
	Units	SS-E-WALL-C2	RDL	QC Batch	31-36C	RDL	QC Batch
Acid Extractable Uranium (U)	ug/g	1.4	0.05	1698163	0.69	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	22	5	1698163	17	5	1698175
Acid Extractable Zinc (Zn)	ug/g	51	5	1698163	190	5	1698175
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6583			BG6584		
Sampling Date							
COC Number		EW233208			EW233208		
	Units	65-96A	RDL	QC Batch	65-96G	RDL	QC Batch

Metals							
Leachable Arsenic (As)	mg/L	<0.2	0.2	1696727		0.2	1696727
Leachable Barium (Ba)	mg/L	0.6	0.2	1696727		0.2	1696727
Leachable Boron (B)	mg/L	0.2	0.1	1696727		0.1	1696727
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	1696727		0.05	1696727
Leachable Chromium (Cr)	mg/L	<0.1	0.1	1696727		0.1	1696727
Leachable Lead (Pb)	mg/L	5.4	0.1	1696727		0.1	1696727
Leachable Selenium (Se)	mg/L	<0.2	0.2	1696727		0.2	1696727
Leachable Silver (Ag)	mg/L	<0.01	0.01	1696727		0.01	1696727
Leachable Uranium (U)	mg/L	<0.01	0.01	1696727		0.01	1696727
Acid Extractable Aluminum (Al)	ug/g	9200	50	1698175	7600	50	1698163
Acid Extractable Antimony (Sb)	ug/g	40	0.2	1698175	20	0.2	1698163
Acid Extractable Arsenic (As)	ug/g	21	1	1698175	10	1	1698163
Acid Extractable Barium (Ba)	ug/g	220	0.5	1698175	600	0.5	1698163
Acid Extractable Beryllium (Be)	ug/g	0.4	0.2	1698175	0.4	0.2	1698163
Acid Extractable Cadmium (Cd)	ug/g	2.4	0.1	1698175	2.4	0.1	1698163
Acid Extractable Calcium (Ca)	ug/g	31000	50	1698175	48000	50	1698163
Acid Extractable Chromium (Cr)	ug/g	20	1	1698175	19	1	1698163
Acid Extractable Cobalt (Co)	ug/g	7.9	0.1	1698175	7.3	0.1	1698163
Acid Extractable Copper (Cu)	ug/g	590	0.5	1698175	91	0.5	1698163
Acid Extractable Iron (Fe)	ug/g	25000	50	1698175	31000	50	1698163
Acid Extractable Lead (Pb)	ug/g	5500	5	1698175	1400	1	1698163
Acid Extractable Magnesium (Mg)	ug/g	8200	50	1698175	9500	50	1698163
Acid Extractable Manganese (Mn)	ug/g	950	1	1698175	1800	1	1698163
Acid Extractable Molybdenum (Mo)	ug/g	1.5	0.5	1698175	2.6	0.5	1698163
Acid Extractable Nickel (Ni)	ug/g	26	0.5	1698175	22	0.5	1698163
Acid Extractable Phosphorus (P)	ug/g	720	50	1698175	980	50	1698163
Acid Extractable Potassium (K)	ug/g	1700	200	1698175	1500	200	1698163
Acid Extractable Selenium (Se)	ug/g	<0.5	0.5	1698175	<0.5	0.5	1698163
Acid Extractable Silver (Ag)	ug/g	0.5	0.2	1698175	0.2	0.2	1698163
Acid Extractable Sodium (Na)	ug/g	510	100	1698175	1500	100	1698163
Acid Extractable Strontium (Sr)	ug/g	48	1	1698175	170	1	1698163
Acid Extractable Thallium (Tl)	ug/g	0.21	0.05	1698175	0.17	0.05	1698163

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6583			BG6584		
Sampling Date							
COC Number		EW233208			EW233208		
	Units	65-96A	RDL	QC Batch	65-96G	RDL	QC Batch

Acid Extractable Uranium (U)	ug/g	0.70	0.05	1698175	0.88	0.05	1698163
Acid Extractable Vanadium (V)	ug/g	26	5	1698175	24	5	1698163
Acid Extractable Zinc (Zn)	ug/g	450	5	1698175	620	5	1698163

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

 AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6585	BG6586		BG6587		
Sampling Date							
COC Number		EW233208	EW233208		EW233208		
	Units	ESY-E	ESY-F	QC Batch	ESY-L	RDL	QC Batch
Metals							
Leachable Arsenic (As)	mg/L		<0.2	1696727		0.2	1696727
Leachable Barium (Ba)	mg/L		1.1	1696727		0.2	1696727
Leachable Boron (B)	mg/L		0.4	1696727		0.1	1696727
Leachable Cadmium (Cd)	mg/L		<0.05	1696727		0.05	1696727
Leachable Chromium (Cr)	mg/L		<0.1	1696727		0.1	1696727
Leachable Lead (Pb)	mg/L		0.8	1696727		0.1	1696727
Leachable Selenium (Se)	mg/L		<0.2	1696727		0.2	1696727
Leachable Silver (Ag)	mg/L		<0.01	1696727		0.01	1696727
Leachable Uranium (U)	mg/L		<0.01	1696727		0.01	1696727
Acid Extractable Aluminum (Al)	ug/g	8100	8200	1698175	8000	50	1698163
Acid Extractable Antimony (Sb)	ug/g	16	14	1698175	14	0.2	1698163
Acid Extractable Arsenic (As)	ug/g	21	12	1698175	14	1	1698163
Acid Extractable Barium (Ba)	ug/g	250	540	1698175	390	0.5	1698163
Acid Extractable Beryllium (Be)	ug/g	0.4	0.5	1698175	0.5	0.2	1698163
Acid Extractable Cadmium (Cd)	ug/g	1.5	4.3	1698175	4.2	0.1	1698163
Acid Extractable Calcium (Ca)	ug/g	33000	39000	1698175	34000	50	1698163
Acid Extractable Chromium (Cr)	ug/g	15	19	1698175	22	1	1698163
Acid Extractable Cobalt (Co)	ug/g	6.7	6.7	1698175	7.4	0.1	1698163
Acid Extractable Copper (Cu)	ug/g	52	94	1698175	180	0.5	1698163
Acid Extractable Iron (Fe)	ug/g	18000	20000	1698175	26000	50	1698163
Acid Extractable Lead (Pb)	ug/g	3500	3900	1698175	3100	5	1698163
Acid Extractable Magnesium (Mg)	ug/g	6000	7800	1698175	6300	50	1698163
Acid Extractable Manganese (Mn)	ug/g	1000	880	1698175	930	1	1698163
Acid Extractable Molybdenum (Mo)	ug/g	1.2	1.8	1698175	2.9	0.5	1698163
Acid Extractable Nickel (Ni)	ug/g	18	22	1698175	29	0.5	1698163
Acid Extractable Phosphorus (P)	ug/g	1400	1500	1698175	1900	50	1698163
Acid Extractable Potassium (K)	ug/g	2200	1800	1698175	2300	200	1698163
Acid Extractable Selenium (Se)	ug/g	0.8	1.1	1698175	0.9	0.5	1698163
Acid Extractable Silver (Ag)	ug/g	<0.2	0.3	1698175	0.3	0.2	1698163
Acid Extractable Sodium (Na)	ug/g	130	500	1698175	430	100	1698163
Acid Extractable Strontium (Sr)	ug/g	84	170	1698175	140	1	1698163
Acid Extractable Thallium (Tl)	ug/g	0.17	0.19	1698175	0.28	0.05	1698163
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6585	BG6586		BG6587		
Sampling Date							
COC Number		EW233208	EW233208		EW233208		
	Units	ESY-E	ESY-F	QC Batch	ESY-L	RDL	QC Batch
Acid Extractable Uranium (U)	ug/g	0.79	1.1	1698175	0.98	0.05	1698163
Acid Extractable Vanadium (V)	ug/g	21	19	1698175	19	5	1698163
Acid Extractable Zinc (Zn)	ug/g	250	670	1698175	700	5	1698163
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6588			BG6589		
Sampling Date							
COC Number		EW233208			EW233208		
	Units	88-90A	RDL	QC Batch	11-14A	RDL	QC Batch

Metals							
Acid Extractable Aluminum (Al)	ug/g	5200	50	1697990	6300	50	1697990
Acid Extractable Antimony (Sb)	ug/g	10	0.2	1697990	0.6	0.2	1697990
Acid Extractable Arsenic (As)	ug/g	8	1	1697990	15	1	1697990
Acid Extractable Barium (Ba)	ug/g	200	0.5	1697990	240	0.5	1697990
Acid Extractable Beryllium (Be)	ug/g	0.3	0.2	1697990	0.3	0.2	1697990
Acid Extractable Cadmium (Cd)	ug/g	1.0	0.1	1697990	0.4	0.1	1697990
Acid Extractable Calcium (Ca)	ug/g	47000	50	1697990	43000	50	1697990
Acid Extractable Chromium (Cr)	ug/g	20	1	1697990	14	1	1697990
Acid Extractable Cobalt (Co)	ug/g	5.5	0.1	1697990	11	0.1	1697990
Acid Extractable Copper (Cu)	ug/g	81	0.5	1697990	18	0.5	1697990
Acid Extractable Iron (Fe)	ug/g	22000	50	1697990	29000	50	1697990
Acid Extractable Lead (Pb)	ug/g	1800	1	1697990	17	1	1697990
Acid Extractable Magnesium (Mg)	ug/g	15000	50	1697990	16000	50	1697990
Acid Extractable Manganese (Mn)	ug/g	1400	1	1697990	2900	10	1725134
Acid Extractable Molybdenum (Mo)	ug/g	1.6	0.5	1697990	1.5	0.5	1697990
Acid Extractable Nickel (Ni)	ug/g	19	0.5	1697990	27	0.5	1697990
Acid Extractable Phosphorus (P)	ug/g	850	50	1697990	660	50	1697990
Acid Extractable Potassium (K)	ug/g	1100	200	1697990	1600	200	1697990
Acid Extractable Selenium (Se)	ug/g	<0.5	0.5	1697990	<0.5	0.5	1697990
Acid Extractable Silver (Ag)	ug/g	0.2	0.2	1697990	<0.2	0.2	1697990
Acid Extractable Sodium (Na)	ug/g	420	100	1697990	400	100	1697990
Acid Extractable Strontium (Sr)	ug/g	68	1	1697990	41	1	1697990
Acid Extractable Thallium (Tl)	ug/g	0.13	0.05	1697990	0.33	0.05	1697990
Acid Extractable Uranium (U)	ug/g	0.87	0.05	1697990	0.86	0.05	1697990
Acid Extractable Vanadium (V)	ug/g	20	5	1697990	25	5	1697990
Acid Extractable Zinc (Zn)	ug/g	290	5	1697990	160	5	1697990

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

 AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6590	BG6591	BG6592	BG6593		
Sampling Date							
COC Number		EW233208	EW233208	EW233208	EW233208		
	Units	R1A	R1C	5-10B	61-64B	RDL	QC Batch

Metals							
Acid Extractable Aluminum (Al)	ug/g	7100	6600	6900	8300	50	1698163
Acid Extractable Antimony (Sb)	ug/g	1.1	1.1	0.6	1.2	0.2	1698163
Acid Extractable Arsenic (As)	ug/g	8	8	8	9	1	1698163
Acid Extractable Barium (Ba)	ug/g	300	300	270	220	0.5	1698163
Acid Extractable Beryllium (Be)	ug/g	0.5	0.4	0.4	0.4	0.2	1698163
Acid Extractable Cadmium (Cd)	ug/g	0.9	0.8	0.4	0.7	0.1	1698163
Acid Extractable Calcium (Ca)	ug/g	57000	54000	61000	52000	50	1698163
Acid Extractable Chromium (Cr)	ug/g	13	14	14	16	1	1698163
Acid Extractable Cobalt (Co)	ug/g	6.2	5.9	8.7	8.4	0.1	1698163
Acid Extractable Copper (Cu)	ug/g	38	32	28	29	0.5	1698163
Acid Extractable Iron (Fe)	ug/g	17000	17000	18000	23000	50	1698163
Acid Extractable Lead (Pb)	ug/g	190	150	93	210	1	1698163
Acid Extractable Magnesium (Mg)	ug/g	10000	8600	18000	12000	50	1698163
Acid Extractable Manganese (Mn)	ug/g	1500	1600	1200	1200	1	1698163
Acid Extractable Molybdenum (Mo)	ug/g	1.2	1.2	1.1	1.3	0.5	1698163
Acid Extractable Nickel (Ni)	ug/g	19	18	24	22	0.5	1698163
Acid Extractable Phosphorus (P)	ug/g	1500	1200	660	780	50	1698163
Acid Extractable Potassium (K)	ug/g	2000	1700	1500	1900	200	1698163
Acid Extractable Selenium (Se)	ug/g	0.5	<0.5	<0.5	<0.5	0.5	1698163
Acid Extractable Silver (Ag)	ug/g	<0.2	<0.2	<0.2	<0.2	0.2	1698163
Acid Extractable Sodium (Na)	ug/g	330	200	520	230	100	1698163
Acid Extractable Strontium (Sr)	ug/g	100	100	70	60	1	1698163
Acid Extractable Thallium (Tl)	ug/g	0.16	0.15	0.25	0.24	0.05	1698163
Acid Extractable Uranium (U)	ug/g	0.94	0.87	0.94	0.91	0.05	1698163
Acid Extractable Vanadium (V)	ug/g	19	19	24	27	5	1698163
Acid Extractable Zinc (Zn)	ug/g	200	190	120	160	5	1698163

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
 Report Date: 2009/01/22

 AECOM Canada Ltd
 Client Project #: 100138
 Project name: 1ST & ROSSER, BRANDON, MB

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BG6594		BG6595		
Sampling Date						
COC Number		EW233208		EW233208		
	Units	65-96J	QC Batch	19-22B	RDL	QC Batch

Metals						
Acid Extractable Aluminum (Al)	ug/g	4100	1697990	1900	50	1698175
Acid Extractable Antimony (Sb)	ug/g	15	1697990	0.5	0.2	1698175
Acid Extractable Arsenic (As)	ug/g	10	1697990	7	1	1698175
Acid Extractable Barium (Ba)	ug/g	150	1697990	78	0.5	1698175
Acid Extractable Beryllium (Be)	ug/g	0.3	1697990	<0.2	0.2	1698175
Acid Extractable Cadmium (Cd)	ug/g	1.0	1697990	0.3	0.1	1698175
Acid Extractable Calcium (Ca)	ug/g	51000	1697990	37000	50	1698175
Acid Extractable Chromium (Cr)	ug/g	18	1697990	8	1	1698175
Acid Extractable Cobalt (Co)	ug/g	6.3	1697990	3.8	0.1	1698175
Acid Extractable Copper (Cu)	ug/g	390	1697990	10	0.5	1698175
Acid Extractable Iron (Fe)	ug/g	24000	1697990	13000	50	1698175
Acid Extractable Lead (Pb)	ug/g	1800	1697990	84	1	1698175
Acid Extractable Magnesium (Mg)	ug/g	17000	1697990	9000	50	1698175
Acid Extractable Manganese (Mn)	ug/g	1300	1697990	800	1	1698175
Acid Extractable Molybdenum (Mo)	ug/g	1.7	1697990	0.7	0.5	1698175
Acid Extractable Nickel (Ni)	ug/g	21	1697990	10	0.5	1698175
Acid Extractable Phosphorus (P)	ug/g	570	1697990	500	50	1698175
Acid Extractable Potassium (K)	ug/g	730	1697990	370	200	1698175
Acid Extractable Selenium (Se)	ug/g	<0.5	1697990	<0.5	0.5	1698175
Acid Extractable Silver (Ag)	ug/g	1.1	1697990	<0.2	0.2	1698175
Acid Extractable Sodium (Na)	ug/g	750	1697990	<100	100	1698175
Acid Extractable Strontium (Sr)	ug/g	45	1697990	31	1	1698175
Acid Extractable Thallium (Tl)	ug/g	0.17	1697990	0.12	0.05	1698175
Acid Extractable Uranium (U)	ug/g	0.89	1697990	0.60	0.05	1698175
Acid Extractable Vanadium (V)	ug/g	18	1697990	12	5	1698175
Acid Extractable Zinc (Zn)	ug/g	370	1697990	48	5	1698175

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: A8E5826
Report Date: 2009/01/22

AECOM Canada Ltd
Client Project #: 100138
Project name: 1ST & ROSSER, BRANDON, MB

GENERAL COMMENTS

Results relate only to the items tested.

AECOM Canada Ltd
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #:
 Project name: 1ST & ROSSER, BRANDON,MB

Quality Assurance Report
 Maxxam Job Number: MA8E5826

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits		
1696727 GBU	MATRIX SPIKE [BG6570-01]	Leachable Arsenic (As)	2008/12/10		103	%	75 - 125		
		Leachable Barium (Ba)	2008/12/10		NC (1)	%	75 - 125		
		Leachable Boron (B)	2008/12/10		NC (1)	%	75 - 125		
		Leachable Cadmium (Cd)	2008/12/10		103	%	75 - 125		
		Leachable Chromium (Cr)	2008/12/10		104	%	75 - 125		
		Leachable Lead (Pb)	2008/12/10		NC (1)	%	75 - 125		
		Leachable Selenium (Se)	2008/12/10		96	%	75 - 125		
		Leachable Silver (Ag)	2008/12/10		97	%	75 - 125		
		Leachable Uranium (U)	2008/12/10		108	%	75 - 125		
		LEACH. BLANK	Leachable Arsenic (As)	2008/12/10	<0.2			mg/L	
	Leachable Barium (Ba)		2008/12/10	<0.2			mg/L		
	Leachable Boron (B)		2008/12/10	<0.1			mg/L		
	Leachable Cadmium (Cd)		2008/12/10	<0.05			mg/L		
	Leachable Chromium (Cr)		2008/12/10	<0.1			mg/L		
	Leachable Lead (Pb)		2008/12/10	<0.1			mg/L		
	Leachable Selenium (Se)		2008/12/10	<0.2			mg/L		
	Leachable Silver (Ag)		2008/12/10	<0.01			mg/L		
	Leachable Uranium (U)		2008/12/10	<0.01			mg/L		
	Spiked Blank		Leachable Arsenic (As)	2008/12/10			96	%	86 - 119
		Leachable Barium (Ba)	2008/12/10			99	%	83 - 115	
		Leachable Boron (B)	2008/12/10			107	%	78 - 133	
		Leachable Cadmium (Cd)	2008/12/10			99	%	85 - 116	
		Leachable Chromium (Cr)	2008/12/10			101	%	76 - 120	
		Leachable Lead (Pb)	2008/12/10			101	%	80 - 123	
		Leachable Selenium (Se)	2008/12/10			95	%	82 - 118	
		Leachable Silver (Ag)	2008/12/10			94	%	75 - 125	
		Leachable Uranium (U)	2008/12/10			105	%	82 - 124	
		Method Blank	Leachable Arsenic (As)	2008/12/10	<0.2			mg/L	
	Leachable Barium (Ba)		2008/12/10	<0.2			mg/L		
	Leachable Boron (B)		2008/12/10	<0.1			mg/L		
	Leachable Cadmium (Cd)		2008/12/10	<0.05			mg/L		
	Leachable Chromium (Cr)		2008/12/10	<0.1			mg/L		
	Leachable Lead (Pb)		2008/12/10	<0.1			mg/L		
	Leachable Selenium (Se)		2008/12/10	<0.2			mg/L		
	Leachable Silver (Ag)		2008/12/10	<0.01			mg/L		
	Leachable Uranium (U)		2008/12/10	<0.01			mg/L		
	RPD [BG6570-01]		Leachable Arsenic (As)	2008/12/10		NC		%	25
			Leachable Barium (Ba)	2008/12/10		NC		%	25
			Leachable Boron (B)	2008/12/10		NC		%	25
			Leachable Cadmium (Cd)	2008/12/10		NC		%	25
			Leachable Chromium (Cr)	2008/12/10		NC		%	25
			Leachable Lead (Pb)	2008/12/10		5.9		%	25
		Leachable Selenium (Se)	2008/12/10		NC		%	25	
		Leachable Silver (Ag)	2008/12/10		NC		%	25	
		Leachable Uranium (U)	2008/12/10		NC		%	25	
1696731 KCO		MATRIX SPIKE [BG6582-01]	Leachable Mercury (Hg)	2008/12/10		91	%	75 - 125	
	LEACH. BLANK		2008/12/10	<0.001		mg/L			
	Spiked Blank	Leachable Mercury (Hg)	2008/12/10			93	%	84 - 113	
		Method Blank	2008/12/10	<0.001			mg/L		
		RPD [BG6582-01]	2008/12/10		NC		%	25	
1696765 LYA	RPD	TCLP - % Solids	2008/12/10	0		%	35		
		1697990 VIV	MATRIX SPIKE [BG6589-01]	Acid Extractable Aluminum (Al)	2008/12/11		NC	%	75 - 125

AECOM Canada Ltd
 Attention: Scott Chapman
 Client Project #: 100138
 P.O. #:
 Project name: 1ST & ROSSER, BRANDON, MB

Quality Assurance Report (Continued)

Maxxam Job Number: MA8E5826

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits	
1697990 VIV	MATRIX SPIKE [BG6589-01]	Acid Extractable Antimony (Sb)	2008/12/11		100	%	75 - 125	
		Acid Extractable Arsenic (As)	2008/12/11		97	%	75 - 125	
		Acid Extractable Barium (Ba)	2008/12/11		NC (1)	%	75 - 125	
		Acid Extractable Beryllium (Be)	2008/12/11		106	%	75 - 125	
		Acid Extractable Cadmium (Cd)	2008/12/11		104	%	75 - 125	
		Acid Extractable Calcium (Ca)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Chromium (Cr)	2008/12/11		104	%	75 - 125	
		Acid Extractable Cobalt (Co)	2008/12/11		96	%	75 - 125	
		Acid Extractable Copper (Cu)	2008/12/11		98	%	75 - 125	
		Acid Extractable Iron (Fe)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Lead (Pb)	2008/12/11		108	%	75 - 125	
		Acid Extractable Magnesium (Mg)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Manganese (Mn)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Molybdenum (Mo)	2008/12/11		103	%	75 - 125	
		Acid Extractable Nickel (Ni)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Phosphorus (P)	2008/12/11		NC	%	80 - 120	
		Acid Extractable Potassium (K)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Selenium (Se)	2008/12/11		99	%	75 - 125	
		Acid Extractable Silver (Ag)	2008/12/11		96	%	75 - 125	
		Acid Extractable Sodium (Na)	2008/12/11		94	%	75 - 125	
		Acid Extractable Strontium (Sr)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Thallium (Tl)	2008/12/11		103	%	75 - 125	
		Acid Extractable Uranium (U)	2008/12/11		104	%	75 - 125	
		Acid Extractable Vanadium (V)	2008/12/11		110	%	75 - 125	
		Acid Extractable Zinc (Zn)	2008/12/11		NC	%	75 - 125	
		QC STANDARD	Acid Extractable Aluminum (Al)	2008/12/11		115	%	75 - 125
			Acid Extractable Antimony (Sb)	2008/12/11		89	%	75 - 125
			Acid Extractable Arsenic (As)	2008/12/11		101	%	75 - 125
			Acid Extractable Barium (Ba)	2008/12/11		99	%	75 - 125
			Acid Extractable Beryllium (Be)	2008/12/11		112	%	75 - 125
			Acid Extractable Cadmium (Cd)	2008/12/11		95	%	75 - 125
			Acid Extractable Calcium (Ca)	2008/12/11		104	%	75 - 125
			Acid Extractable Chromium (Cr)	2008/12/11		98	%	75 - 125
Acid Extractable Cobalt (Co)	2008/12/11			96	%	75 - 125		
Acid Extractable Copper (Cu)	2008/12/11			107	%	75 - 125		
Acid Extractable Iron (Fe)	2008/12/11			103	%	75 - 125		
Acid Extractable Lead (Pb)	2008/12/11			107	%	75 - 125		
Acid Extractable Magnesium (Mg)	2008/12/11			103	%	75 - 125		
Acid Extractable Manganese (Mn)	2008/12/11			107	%	75 - 125		
Acid Extractable Molybdenum (Mo)	2008/12/11			101	%	75 - 125		
Acid Extractable Nickel (Ni)	2008/12/11			94	%	75 - 125		
Acid Extractable Phosphorus (P)	2008/12/11			100	%	75 - 125		
Acid Extractable Potassium (K)	2008/12/11			100	%	75 - 125		
Acid Extractable Selenium (Se)	2008/12/11			112	%	50 - 150		
Acid Extractable Silver (Ag)	2008/12/11			88	%	75 - 125		
Acid Extractable Sodium (Na)	2008/12/11			96	%	75 - 125		
Acid Extractable Strontium (Sr)	2008/12/11			100	%	75 - 125		
Acid Extractable Thallium (Tl)	2008/12/11			101	%	75 - 125		
Acid Extractable Uranium (U)	2008/12/11			85	%	75 - 125		
Acid Extractable Vanadium (V)	2008/12/11			107	%	75 - 125		
Acid Extractable Zinc (Zn)	2008/12/11			97	%	75 - 125		
Method Blank	Acid Extractable Aluminum (Al)		2008/12/11		<50		ug/g	
	Acid Extractable Antimony (Sb)		2008/12/11		<0.2		ug/g	
	Acid Extractable Arsenic (As)		2008/12/11		<1		ug/g	

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1697990	VIV Method Blank	Acid Extractable Barium (Ba)	2008/12/11	<0.5		ug/g	
		Acid Extractable Beryllium (Be)	2008/12/11	<0.2		ug/g	
		Acid Extractable Cadmium (Cd)	2008/12/11	<0.1		ug/g	
		Acid Extractable Calcium (Ca)	2008/12/11	<50		ug/g	
		Acid Extractable Chromium (Cr)	2008/12/11	<1		ug/g	
		Acid Extractable Cobalt (Co)	2008/12/11	<0.1		ug/g	
		Acid Extractable Copper (Cu)	2008/12/11	<0.5		ug/g	
		Acid Extractable Iron (Fe)	2008/12/11	<50		ug/g	
		Acid Extractable Lead (Pb)	2008/12/11	<1		ug/g	
		Acid Extractable Magnesium (Mg)	2008/12/11	<50		ug/g	
		Acid Extractable Manganese (Mn)	2008/12/11	<1		ug/g	
		Acid Extractable Molybdenum (Mo)	2008/12/11	<0.5		ug/g	
		Acid Extractable Nickel (Ni)	2008/12/11	<0.5		ug/g	
		Acid Extractable Phosphorus (P)	2008/12/11	<50		ug/g	
		Acid Extractable Potassium (K)	2008/12/11	<200		ug/g	
		Acid Extractable Selenium (Se)	2008/12/11	<0.5		ug/g	
		Acid Extractable Silver (Ag)	2008/12/11	<0.2		ug/g	
		Acid Extractable Sodium (Na)	2008/12/11	<100		ug/g	
		Acid Extractable Strontium (Sr)	2008/12/11	<1		ug/g	
		Acid Extractable Thallium (Tl)	2008/12/11	<0.05		ug/g	
		Acid Extractable Uranium (U)	2008/12/11	<0.05		ug/g	
		Acid Extractable Vanadium (V)	2008/12/11	<5		ug/g	
		Acid Extractable Zinc (Zn)	2008/12/11	<5		ug/g	
	RPD [BG6589-01]	Acid Extractable Aluminum (Al)	2008/12/11	5.8		%	35
		Acid Extractable Antimony (Sb)	2008/12/11	NC		%	35
		Acid Extractable Arsenic (As)	2008/12/11	3.3		%	35
		Acid Extractable Barium (Ba)	2008/12/11	8.2		%	35
		Acid Extractable Beryllium (Be)	2008/12/11	NC		%	35
		Acid Extractable Cadmium (Cd)	2008/12/11	NC		%	35
		Acid Extractable Calcium (Ca)	2008/12/11	14.7		%	35
		Acid Extractable Chromium (Cr)	2008/12/11	5.2		%	35
		Acid Extractable Cobalt (Co)	2008/12/11	12.8		%	35
		Acid Extractable Copper (Cu)	2008/12/11	16.0		%	35
		Acid Extractable Iron (Fe)	2008/12/11	10.7		%	35
		Acid Extractable Lead (Pb)	2008/12/11	15.4		%	35
		Acid Extractable Magnesium (Mg)	2008/12/11	21.7		%	35
		Acid Extractable Molybdenum (Mo)	2008/12/11	NC		%	35
		Acid Extractable Nickel (Ni)	2008/12/11	12.8		%	35
		Acid Extractable Phosphorus (P)	2008/12/11	13.6		%	35
		Acid Extractable Potassium (K)	2008/12/11	5.9		%	35
		Acid Extractable Selenium (Se)	2008/12/11	NC		%	35
		Acid Extractable Silver (Ag)	2008/12/11	NC		%	35
		Acid Extractable Sodium (Na)	2008/12/11	NC		%	35
		Acid Extractable Strontium (Sr)	2008/12/11	10.4		%	35
		Acid Extractable Thallium (Tl)	2008/12/11	26.3		%	35
		Acid Extractable Uranium (U)	2008/12/11	18.0		%	25
		Acid Extractable Vanadium (V)	2008/12/11	NC		%	35
		Acid Extractable Zinc (Zn)	2008/12/11	5.9		%	35
1698163	VIV MATRIX SPIKE	Acid Extractable Aluminum (Al)	2008/12/11		NC	%	75 - 125
		Acid Extractable Antimony (Sb)	2008/12/11		94	%	75 - 125
		Acid Extractable Arsenic (As)	2008/12/11		106	%	75 - 125
		Acid Extractable Barium (Ba)	2008/12/11		NC (1)	%	75 - 125
		Acid Extractable Beryllium (Be)	2008/12/11		106	%	75 - 125
		Acid Extractable Cadmium (Cd)	2008/12/11		105	%	75 - 125
		Acid Extractable Calcium (Ca)	2008/12/11		NC	%	75 - 125

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits	
1698163 VIV	MATRIX SPIKE	Acid Extractable Chromium (Cr)	2008/12/11		107	%	75 - 125	
		Acid Extractable Cobalt (Co)	2008/12/11		102	%	75 - 125	
		Acid Extractable Copper (Cu)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Iron (Fe)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Lead (Pb)	2008/12/11		99	%	75 - 125	
		Acid Extractable Magnesium (Mg)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Manganese (Mn)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Molybdenum (Mo)	2008/12/11		104	%	75 - 125	
		Acid Extractable Nickel (Ni)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Phosphorus (P)	2008/12/11		NC	%	80 - 120	
		Acid Extractable Potassium (K)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Selenium (Se)	2008/12/11		103	%	75 - 125	
		Acid Extractable Silver (Ag)	2008/12/11		97	%	75 - 125	
		Acid Extractable Sodium (Na)	2008/12/11		96	%	75 - 125	
		Acid Extractable Strontium (Sr)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Thallium (Tl)	2008/12/11		100	%	75 - 125	
		Acid Extractable Uranium (U)	2008/12/11		93	%	75 - 125	
		Acid Extractable Vanadium (V)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Zinc (Zn)	2008/12/11		NC	%	75 - 125	
		QC STANDARD	Acid Extractable Aluminum (Al)	2008/12/11		105	%	75 - 125
			Acid Extractable Antimony (Sb)	2008/12/11		85	%	75 - 125
			Acid Extractable Arsenic (As)	2008/12/11		95	%	75 - 125
			Acid Extractable Barium (Ba)	2008/12/11		92	%	75 - 125
			Acid Extractable Beryllium (Be)	2008/12/11		91	%	75 - 125
			Acid Extractable Cadmium (Cd)	2008/12/11		81	%	75 - 125
			Acid Extractable Calcium (Ca)	2008/12/11		100	%	75 - 125
			Acid Extractable Chromium (Cr)	2008/12/11		91	%	75 - 125
			Acid Extractable Cobalt (Co)	2008/12/11		91	%	75 - 125
			Acid Extractable Copper (Cu)	2008/12/11		100	%	75 - 125
			Acid Extractable Iron (Fe)	2008/12/11		95	%	75 - 125
			Acid Extractable Lead (Pb)	2008/12/11		95	%	75 - 125
			Acid Extractable Magnesium (Mg)	2008/12/11		95	%	75 - 125
			Acid Extractable Manganese (Mn)	2008/12/11		96	%	75 - 125
			Acid Extractable Molybdenum (Mo)	2008/12/11		91	%	75 - 125
			Acid Extractable Nickel (Ni)	2008/12/11		88	%	75 - 125
			Acid Extractable Phosphorus (P)	2008/12/11		97	%	75 - 125
			Acid Extractable Potassium (K)	2008/12/11		95	%	75 - 125
			Acid Extractable Selenium (Se)	2008/12/11		55	%	50 - 150
			Acid Extractable Silver (Ag)	2008/12/11		79	%	75 - 125
			Acid Extractable Sodium (Na)	2008/12/11		90	%	75 - 125
			Acid Extractable Strontium (Sr)	2008/12/11		93	%	75 - 125
			Acid Extractable Thallium (Tl)	2008/12/11		88	%	75 - 125
			Acid Extractable Uranium (U)	2008/12/11		69 (2)	%	75 - 125
			Acid Extractable Vanadium (V)	2008/12/11		97	%	75 - 125
			Acid Extractable Zinc (Zn)	2008/12/11		88	%	75 - 125
Method Blank	Acid Extractable Aluminum (Al)		2008/12/12		<50		ug/g	
	Acid Extractable Antimony (Sb)		2008/12/12		<0.2		ug/g	
	Acid Extractable Arsenic (As)		2008/12/12		<1		ug/g	
	Acid Extractable Barium (Ba)		2008/12/12		<0.5		ug/g	
	Acid Extractable Beryllium (Be)		2008/12/12		<0.2		ug/g	
	Acid Extractable Cadmium (Cd)		2008/12/12		<0.1		ug/g	
	Acid Extractable Calcium (Ca)		2008/12/12		<50		ug/g	
	Acid Extractable Chromium (Cr)		2008/12/12		<1		ug/g	
	Acid Extractable Cobalt (Co)		2008/12/12		<0.1		ug/g	
	Acid Extractable Copper (Cu)		2008/12/12		<0.5		ug/g	

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1698163 VIV	Method Blank	Acid Extractable Iron (Fe)	2008/12/12	<50		ug/g	
		Acid Extractable Lead (Pb)	2008/12/12	<1		ug/g	
		Acid Extractable Magnesium (Mg)	2008/12/12	<50		ug/g	
		Acid Extractable Manganese (Mn)	2008/12/12	<1		ug/g	
		Acid Extractable Molybdenum (Mo)	2008/12/12	<0.5		ug/g	
		Acid Extractable Nickel (Ni)	2008/12/12	<0.5		ug/g	
		Acid Extractable Phosphorus (P)	2008/12/12	<50		ug/g	
		Acid Extractable Potassium (K)	2008/12/12	<200		ug/g	
		Acid Extractable Selenium (Se)	2008/12/12	<0.5		ug/g	
		Acid Extractable Silver (Ag)	2008/12/12	<0.2		ug/g	
		Acid Extractable Sodium (Na)	2008/12/12	<100		ug/g	
		Acid Extractable Strontium (Sr)	2008/12/12	<1		ug/g	
		Acid Extractable Thallium (Tl)	2008/12/12	<0.05		ug/g	
		Acid Extractable Uranium (U)	2008/12/12	<0.05		ug/g	
	Acid Extractable Vanadium (V)	2008/12/12	<5		ug/g		
	Acid Extractable Zinc (Zn)	2008/12/12	<5		ug/g		
	RPD	Acid Extractable Antimony (Sb)	2008/12/11	NC		%	35
		Acid Extractable Arsenic (As)	2008/12/11	NC		%	35
		Acid Extractable Barium (Ba)	2008/12/11	3.2		%	35
		Acid Extractable Beryllium (Be)	2008/12/11	NC		%	35
		Acid Extractable Cadmium (Cd)	2008/12/11	NC		%	35
		Acid Extractable Chromium (Cr)	2008/12/11	3.7		%	35
		Acid Extractable Cobalt (Co)	2008/12/11	2.8		%	35
		Acid Extractable Copper (Cu)	2008/12/11	2.6		%	35
		Acid Extractable Lead (Pb)	2008/12/11	1.2		%	35
		Acid Extractable Molybdenum (Mo)	2008/12/11	NC		%	35
		Acid Extractable Nickel (Ni)	2008/12/11	5.7		%	35
		Acid Extractable Selenium (Se)	2008/12/11	NC		%	35
		Acid Extractable Silver (Ag)	2008/12/11	NC		%	35
		Acid Extractable Thallium (Tl)	2008/12/11	NC		%	35
		Acid Extractable Vanadium (V)	2008/12/11	4.3		%	35
Acid Extractable Zinc (Zn)		2008/12/11	2.0		%	35	
1698175 VIV		MATRIX SPIKE [BG6577-01]	Acid Extractable Aluminum (Al)	2008/12/11		NC	%
	Acid Extractable Antimony (Sb)		2008/12/11		89	%	75 - 125
	Acid Extractable Arsenic (As)		2008/12/11		101	%	75 - 125
	Acid Extractable Barium (Ba)		2008/12/11		NC (1)	%	75 - 125
	Acid Extractable Beryllium (Be)		2008/12/11		108	%	75 - 125
	Acid Extractable Cadmium (Cd)		2008/12/11		105	%	75 - 125
	Acid Extractable Calcium (Ca)		2008/12/11		NC	%	75 - 125
	Acid Extractable Chromium (Cr)		2008/12/11		103	%	75 - 125
	Acid Extractable Cobalt (Co)		2008/12/11		99	%	75 - 125
	Acid Extractable Copper (Cu)		2008/12/11		NC	%	75 - 125
	Acid Extractable Iron (Fe)		2008/12/11		NC	%	75 - 125
	Acid Extractable Lead (Pb)		2008/12/11		NC	%	75 - 125
	Acid Extractable Magnesium (Mg)		2008/12/11		NC	%	75 - 125
	Acid Extractable Manganese (Mn)		2008/12/11		NC	%	75 - 125
	Acid Extractable Molybdenum (Mo)		2008/12/11		103	%	75 - 125
	Acid Extractable Nickel (Ni)		2008/12/11		97	%	75 - 125
	Acid Extractable Phosphorus (P)		2008/12/11		NC	%	80 - 120
	Acid Extractable Potassium (K)		2008/12/11		NC	%	75 - 125
	Acid Extractable Selenium (Se)		2008/12/11		96	%	75 - 125
	Acid Extractable Silver (Ag)		2008/12/11		94	%	75 - 125
Acid Extractable Sodium (Na)	2008/12/11		NC	%	75 - 125		
Acid Extractable Strontium (Sr)	2008/12/11		NC	%	75 - 125		

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits	
1698175 VIV	MATRIX SPIKE [BG6577-01]	Acid Extractable Thallium (Tl)	2008/12/11		82	%	75 - 125	
		Acid Extractable Uranium (U)	2008/12/11		96	%	75 - 125	
		Acid Extractable Vanadium (V)	2008/12/11		NC	%	75 - 125	
	QC STANDARD	Acid Extractable Zinc (Zn)	2008/12/11		NC	%	75 - 125	
		Acid Extractable Aluminum (Al)	2008/12/11		110	%	75 - 125	
		Acid Extractable Antimony (Sb)	2008/12/11		93	%	75 - 125	
		Acid Extractable Arsenic (As)	2008/12/11		101	%	75 - 125	
		Acid Extractable Barium (Ba)	2008/12/11		98	%	75 - 125	
		Acid Extractable Beryllium (Be)	2008/12/11		87	%	75 - 125	
		Acid Extractable Cadmium (Cd)	2008/12/11		87	%	75 - 125	
		Acid Extractable Calcium (Ca)	2008/12/11		104	%	75 - 125	
		Acid Extractable Chromium (Cr)	2008/12/11		91	%	75 - 125	
		Acid Extractable Cobalt (Co)	2008/12/11		93	%	75 - 125	
		Acid Extractable Copper (Cu)	2008/12/11		102	%	75 - 125	
		Acid Extractable Iron (Fe)	2008/12/11		99	%	75 - 125	
		Acid Extractable Lead (Pb)	2008/12/11		102	%	75 - 125	
		Acid Extractable Magnesium (Mg)	2008/12/11		96	%	75 - 125	
		Acid Extractable Manganese (Mn)	2008/12/11		101	%	75 - 125	
		Acid Extractable Molybdenum (Mo)	2008/12/11		93	%	75 - 125	
		Acid Extractable Nickel (Ni)	2008/12/11		92	%	75 - 125	
		Acid Extractable Phosphorus (P)	2008/12/11		99	%	75 - 125	
		Acid Extractable Potassium (K)	2008/12/11		100	%	75 - 125	
		Acid Extractable Selenium (Se)	2008/12/11		60	%	50 - 150	
		Acid Extractable Silver (Ag)	2008/12/11		91	%	75 - 125	
		Acid Extractable Sodium (Na)	2008/12/11		92	%	75 - 125	
		Acid Extractable Strontium (Sr)	2008/12/11		95	%	75 - 125	
		Acid Extractable Thallium (Tl)	2008/12/11		90	%	75 - 125	
		Acid Extractable Uranium (U)	2008/12/11		75	%	75 - 125	
		Acid Extractable Vanadium (V)	2008/12/11		103	%	75 - 125	
		Acid Extractable Zinc (Zn)	2008/12/11		91	%	75 - 125	
	Method Blank	Acid Extractable Aluminum (Al)	2008/12/11		<50		ug/g	
		Acid Extractable Antimony (Sb)	2008/12/11		<0.2		ug/g	
		Acid Extractable Arsenic (As)	2008/12/11		<1		ug/g	
		Acid Extractable Barium (Ba)	2008/12/11		<0.5		ug/g	
Acid Extractable Beryllium (Be)		2008/12/11		<0.2		ug/g		
Acid Extractable Cadmium (Cd)		2008/12/11		<0.1		ug/g		
Acid Extractable Calcium (Ca)		2008/12/11		<50		ug/g		
Acid Extractable Chromium (Cr)		2008/12/11		<1		ug/g		
Acid Extractable Cobalt (Co)		2008/12/11		<0.1		ug/g		
Acid Extractable Copper (Cu)		2008/12/11		<0.5		ug/g		
Acid Extractable Iron (Fe)		2008/12/11		<50		ug/g		
Acid Extractable Lead (Pb)		2008/12/11		<1		ug/g		
Acid Extractable Magnesium (Mg)		2008/12/11		<50		ug/g		
Acid Extractable Manganese (Mn)		2008/12/11		<1		ug/g		
Acid Extractable Molybdenum (Mo)		2008/12/11		<0.5		ug/g		
Acid Extractable Nickel (Ni)		2008/12/11		<0.5		ug/g		
Acid Extractable Phosphorus (P)		2008/12/11		<50		ug/g		
Acid Extractable Potassium (K)		2008/12/11		<200		ug/g		
Acid Extractable Selenium (Se)		2008/12/11		<0.5		ug/g		
Acid Extractable Silver (Ag)		2008/12/11		<0.2		ug/g		
Acid Extractable Sodium (Na)		2008/12/11		<100		ug/g		
Acid Extractable Strontium (Sr)		2008/12/11		<1		ug/g		
Acid Extractable Thallium (Tl)		2008/12/11		<0.05		ug/g		
Acid Extractable Uranium (U)		2008/12/11		<0.05		ug/g		

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QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1698175 VIV	Method Blank	Acid Extractable Vanadium (V)	2008/12/11	<5		ug/g	
		Acid Extractable Zinc (Zn)	2008/12/11	<5		ug/g	
	RPD [BG6577-01]	Acid Extractable Aluminum (Al)	2008/12/11	14.6		%	35
		Acid Extractable Antimony (Sb)	2008/12/11	11.8		%	35
		Acid Extractable Arsenic (As)	2008/12/11	7.2		%	35
		Acid Extractable Barium (Ba)	2008/12/11	15.5		%	35
		Acid Extractable Beryllium (Be)	2008/12/11	15.6		%	35
		Acid Extractable Cadmium (Cd)	2008/12/11	1		%	35
		Acid Extractable Calcium (Ca)	2008/12/11	7.6		%	35
		Acid Extractable Chromium (Cr)	2008/12/11	11.0		%	35
		Acid Extractable Cobalt (Co)	2008/12/11	1.5		%	35
		Acid Extractable Copper (Cu)	2008/12/11	9.0		%	35
		Acid Extractable Iron (Fe)	2008/12/11	10.5		%	35
		Acid Extractable Lead (Pb)	2008/12/11	32.9		%	35
		Acid Extractable Magnesium (Mg)	2008/12/11	13.0		%	35
		Acid Extractable Manganese (Mn)	2008/12/11	8.3		%	35
		Acid Extractable Molybdenum (Mo)	2008/12/11	4.0		%	35
		Acid Extractable Nickel (Ni)	2008/12/11	2.0		%	35
		Acid Extractable Phosphorus (P)	2008/12/11	8.6		%	35
		Acid Extractable Potassium (K)	2008/12/11	0.2		%	35
		Acid Extractable Selenium (Se)	2008/12/11	NC		%	35
		Acid Extractable Silver (Ag)	2008/12/11	NC		%	35
		Acid Extractable Sodium (Na)	2008/12/11	9.0		%	35
		Acid Extractable Strontium (Sr)	2008/12/11	9.9		%	35
		Acid Extractable Thallium (Tl)	2008/12/11	NC		%	35
		Acid Extractable Uranium (U)	2008/12/11	6.1		%	25
		Acid Extractable Vanadium (V)	2008/12/11	5.2		%	35
		Acid Extractable Zinc (Zn)	2008/12/11	11.4		%	35
1725134 HRE	MATRIX SPIKE	Acid Extractable Manganese (Mn)	2009/01/22		NC (1)	%	75 - 125
	QC STANDARD	Acid Extractable Manganese (Mn)	2009/01/22		101	%	75 - 125
	Method Blank	Acid Extractable Manganese (Mn)	2009/01/22	<1		ug/g	

NC = Non-calculable
 RPD = Relative Percent Difference
 QC Standard = Quality Control Standard
 SPIKE = Fortified sample
 (1) The recovery in the matrix spike was not calculated (NC). Because of the high concentration of this analyte in the parent sample, the relative difference between the spiked and unspiked concentrations is not sufficiently significant to permit a reliable recovery calculation.
 (2) Please refer to General Comments page for specific clarification.

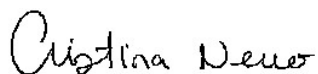
Validation Signature Page

Maxxam Job #: A8E5826

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist



CRISTINA NERVO, Scientific Services

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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. SCC and CALA have approved this reporting process and electronic report format.

INVOICE INFORMATION	REPORT INFORMATION (if different from invoice)	PROJECT INFOR
Company Name: Earth Tech AECOM	Company Name: Same as Invoicing Information	Quotation #: <u> </u> A8E5826
Contact Name: Scott Chapman	Contact Name: <u> </u>	P.O. #: <u> </u> ABO ENV-912
Address: 89 Commerce Drive	Address: <u> </u>	Project #: 100138
Phone: 204-477-5381 Fax: 204-284-2040	Phone: <u> </u> Fax: <u> </u>	Project Name: 1st & Rosser
Email: scott.chapman@aecom.com	Email: <u> </u>	Location: Brandon, MB
		Sampler's Initials: Scott Chapman
CHAIN OF CUSTODY #		
EW233208		

REGULATORY CRITERIA	REPORT DISTRIBUTION	ANALYSIS REQUESTED (please specify)
<input type="checkbox"/> AT1 - Soil Contamination (Alberta only) <input checked="" type="checkbox"/> CCME <input type="checkbox"/> CCME FWAL <input type="checkbox"/> Regulatory Limits to appear (Not available in BC)	<input type="checkbox"/> PST <input type="checkbox"/> CDWQG <input type="checkbox"/> G50 <input type="checkbox"/> CSR (BC only)	ICPMS Metals Scan TCLP Leachable Metals
<input checked="" type="checkbox"/> Mail <input type="checkbox"/> Fax <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Other: <u> </u> <input checked="" type="checkbox"/> Email: <u>scott.chapman@aecom.com</u>		
SERVICE REQUESTED	METALS: (WATERS)	
<input type="checkbox"/> RUSH (please ensure you contact the lab) Date Required: <u> </u> <input checked="" type="checkbox"/> REGULAR Turnaround	<input type="checkbox"/> Total <input type="checkbox"/> Extractable <input type="checkbox"/> Dissolved	

Sample Identification	Matrix	Date & Time Sampled	Sample Type Grab/Comp	Hold	# of Samples					
1 SS-N-WALL - CRNR-1	Soil	Oct 2008	Grab		1	X				
2 SS-N-WALL - A1 #3						X				
3 SS-N-WALL - A3						X	X			
4 SS-N-WALL - A1b - CRNR#3						X				
5 SS-N-WALL - B3						X				
6 SS-N-WALL - C2						X				
7 SS-N-WALL - D3 #2						X	X			
8 SS-N-WALL - E1						X				
9 SS-D-BOT-1						X				
10 SS-W-WALL - B3						X				
11 SS-W-WALL - D1						X				
12 SS-S-WALL - B3						X				

SIF : Sample Inspection
 Resolved By:
 Date:

DEC 5 11:43

** For water samples, please indicate if sample container has been preserved (P) and/or filtered (F).

RELINQUISHED BY (Signature/Print)	RECEIVED BY (Signature/Print)	Date / Time	COMMENTS / SPECIAL INSTRUCTIONS	Laboratory Use Only	
<u>KRIS PAWZ</u>	<u>Gwen Cameron</u>	08/12/04 4PM 08/12/06		Temperature (°C) on Receipt	Received
				19, 18, 18	

INVOICE INFORMATION	REPORT INFORMATION (if different from invoice)	PROJECT INFORMATION	MAXXAM JOB #
Company Name: Earth Tech AECOM	Company Name: Same as Invoicing Information	Quotation #: _____	A8E5826 AS
Contact Name: Scott Chapman	Contact Name: _____	P.O. #: _____	
Address: 99 Commerce Drive	Address: _____	Project #: 100138	CHAIN OF CUSTODY #
Phone: 204-477-5381 Fax: 204-284-2040	Phone: _____ Fax: _____	Project Name: 1st & Rosser	EW233208
Email: scott.chapman@aecom.com	Email: _____	Location: Brandon, MB	
		Sampler's Initials: Scott Chapman	

REGULATORY CRITERIA	REPORT DISTRIBUTION	ANALYSIS REQUESTED (please specify)
<input type="checkbox"/> AT1 - Soil Contamination (Alberta only) <input type="checkbox"/> PST <input checked="" type="checkbox"/> CCME <input type="checkbox"/> CDWQG <input type="checkbox"/> CCME FWAL <input type="checkbox"/> G50 <input type="checkbox"/> Regulatory Limits to appear (Not available in BC) <input type="checkbox"/> CSR (BC only)	<input checked="" type="checkbox"/> Mail <input type="checkbox"/> Fax <input type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Email: <u>scott.chapman@aecom.com</u>	ICPMS Metals Scan TELP Leachate Metals
SERVICE REQUESTED	METALS: (WATERS)	
<input type="checkbox"/> RUSH (please ensure you contact the lab) Date Required: _____ <input checked="" type="checkbox"/> REGULAR Turnaround	<input type="checkbox"/> Total <input type="checkbox"/> Extractable <input type="checkbox"/> Dissolved	

Sample Identification	Matrix	Date & Time Sampled	Sample Type Grab/Comp	Hold	# of Samples													
1 SS-E-WALL - A1	Soil	Oct 2008	Grab		1	X												
2 SS-E-WALL - C1						X												
3 31-36C						X	X											
4 65-96A						X	X											
5 65-96G						X												
6 ESY-E						X												
7 ESY-F						X	X											
8 ESY-L						X												
9 88-90A						X												
10 11-14A						X												
11 R1A						X												
12 R1C						X												

** For water samples, please indicate if sample container has been preserved (P) and/or filtered (F).

RELINQUISHED BY (Signature/Print)	RECEIVED BY (Signature/Print)	Date / Time	COMMENTS / SPECIAL INSTRUCTIONS	Laboratory Use Only	
<i>Kris Plantz</i>	<i>Chwen Lamoun / Owen Cameron</i>	08/12/04 4pm		Temperature (0°C) on Receipt	Received
	<i>[Signature]</i>	08/12/06		19, 18, 18	

11:43

2/1/12 1/2/3c

08 DEC 6 11:43

INVOICE INFORMATION	REPORT INFORMATION (if different from invoice)	PROJECT INFORMATION	MAXXAM JOB #
Company Name: Earth Tech AECOM	Company Name: Same as Invoicing Information	Quotation #:	A8E5826 AB
Contact Name: Scott Chapman	Contact Name:	P.O. #:	
Address: 99 Commerce Drive	Address:	Project #: 100138	CHAIN OF CUSTODY #
Phone: 204-477-5381 Fax: 204-284-2040	Phone: Fax:	Project Name: 1st & Rosser	EW233208
Email: scott.chapman@aecom.com	Email:	Location: Brandon, MB	
		Sampler's Initials: Scott Chapman	

REGULATORY CRITERIA	REPORT DISTRIBUTION	ANALYSIS REQUESTED (please specify)
<input type="checkbox"/> AT1 - Soil Contamination (Alberta only) <input checked="" type="checkbox"/> CCME <input type="checkbox"/> CCME FWAL <input type="checkbox"/> Regulatory Limits to appear (Not available in BC)	<input type="checkbox"/> PST <input type="checkbox"/> CDWQG <input type="checkbox"/> G50 <input type="checkbox"/> CSR (BC only)	ICPMS Metals Scan TCLP Leachable Metals
<input checked="" type="checkbox"/> RUSH (please ensure you contact the lab) Date Required: _____ <input checked="" type="checkbox"/> REGULAR Turnaround	<input checked="" type="checkbox"/> Mail <input type="checkbox"/> Fax <input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Email: <u>scott.chapman@aecom.com</u>	

Sample Identification	Matrix	Date & Time Sampled	Sample Type Grab/Comp	Hold	# of Samples														
1 5-10B	Soil	Oct 2008	Grab		1	X													
2 61-64B	↓	↓	↓		↓	X													
3 65-96J	↓	↓	↓		↓	X													
4 19-22B	↓	↓	↓		↓	X													
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

DEC 6 11:43

** For water samples, please indicate if sample container has been preserved (P) and/or filtered (F).

RELINQUISHED BY (Signature/Print)	RECEIVED BY (Signature/Print)	Date / Time	COMMENTS / SPECIAL INSTRUCTIONS	Laboratory Use Only	
KRIS RANTZ	John Cameron / Owen Lamoreaux	08/12/04 4 PM 08/12/06		Temperature (0°C) on Receipt	Received
				19, 18, 18	

SIEVE ANALYSIS REPORT



SA CERTIFIED CONCRETE TESTING LABORATORY
IN ACCORDANCE WITH STD A 283

TO: Ballingall Brothers
17th Street East
Brandon, MB

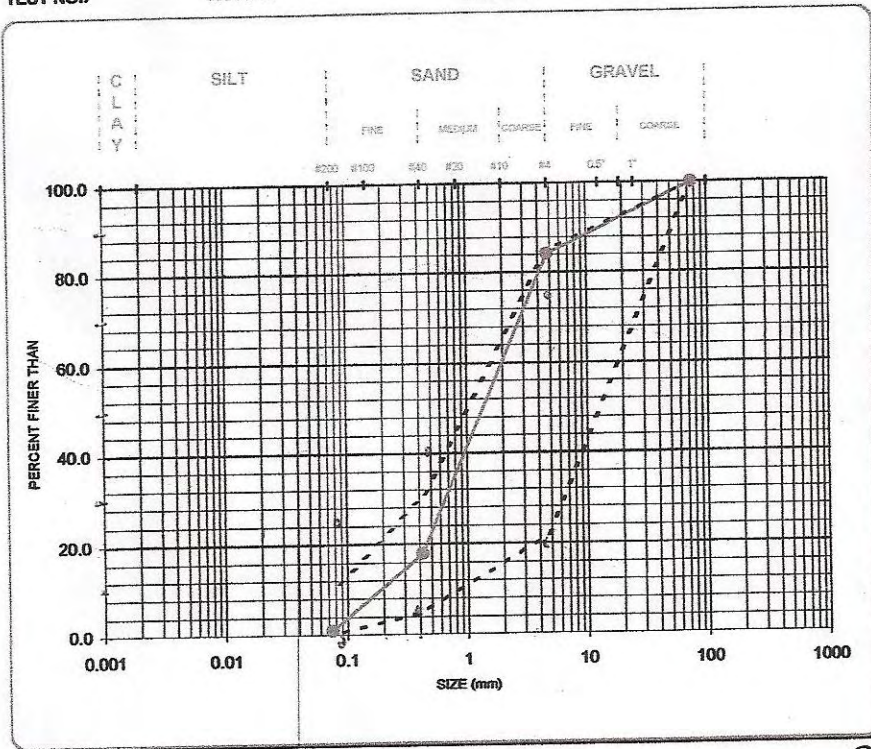
OFFICE:
PROJECT NO:
COPIES TO :

Winnipeg (204) 488-2997
WX10316

ATTENTION: Todd Ballingall

PROJECT: Quality Control

TYPE OF SAMPLE: Pitrun SAMPLED BY: Client DATE SAMPLED: Sept 11/08
DATE RECEIVED: Sept 12/08 DATE TESTED: Sept 18/08 SOURCE: Ballingall's Pit
TEST NO.: 10316-02 LAB NO.: 4289



SIEVE SIZE (mm)	PERCENT PASSING	SPECIFICATIONS	
		LOW	HIGH
75.00	100.0	100	100
4.75	84.3	22	85
0.425	18.0	5	30
0.075	1.0	0	10

SIEVE SPECIFICATION:
City of Brandon Specifications

SAMPLE DESCRIPTION: Pitrun — *don't know which sample ① or ②* AMEC Earth & Environmental
METHOD OF PREPARATION: washed over 0.075 mm sieve

COMMENTS: Sample as submitted and tested meets grading specifications for this project. Per *P. Bevel*
Contact: Paul Bevel, Lab Supervisor
For Technical Questions please contact
Manager, Technical Services; Trevor Gluck, P. Eng.

Reporting of these results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided only on written request.

MOISTURE DENSITY REPORT



CSA CERTIFIED CONCRETE TESTING LABORATORY
IN ACCORDANCE WITH STD A 283

TO: Ballingall Brothers
17th Street East
Brandon, MB

OFFICE: Winnipeg (204) 488-2997
PROJECT NO: WX10316
COPIES TO :

ATTENTION: Todd Ballingall

PROJECT: Quality Control

COMPACTION METHOD

ASTM D698 ASTM D1557

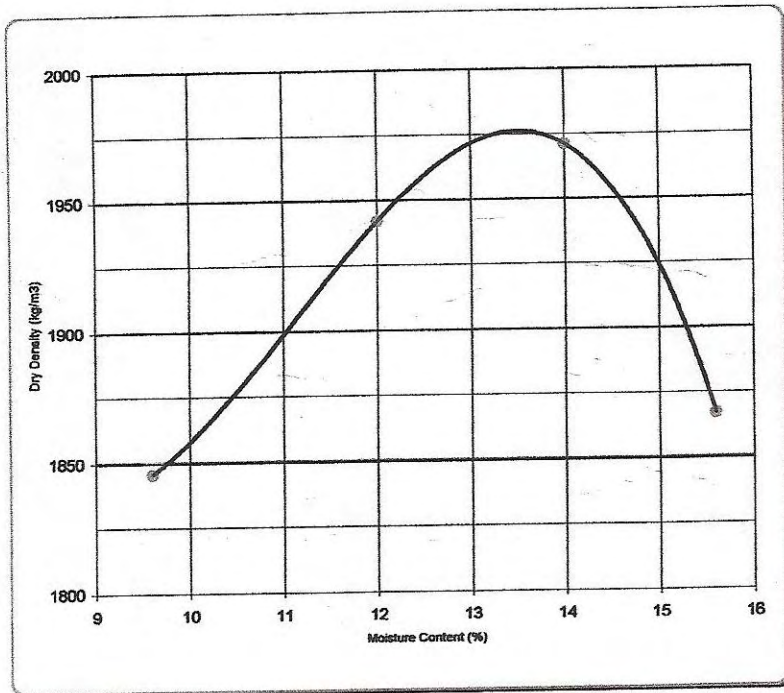
DRY DENSITY kg/m ³	1846	1942	1971	1867
MOISTURE CONTENT %	9.6	12.0	14.0	15.6

Maximum Dry Density 1976 kg/m³ Corrected: 2046 kg/m³
Optimum Moisture Content 13.5 % 11.5 %

Source: Ballingall Bros.
Date Tested: Sept 13/08
Date Sampled: Sept 12/08
Sampled by: PL
Date Received: Sept 12/08
Test No.: 10316-01
Lab No.: 4290
Rammer Type:
 Auto
 Manual
Preparation:
 Moist
 Dry

Oversize Retained on
9.50 mm sieve

Percent Oversize
17.0%



SAMPLE DESCRIPTION: Pitrun #1

AMEC Earth & Environmental

P. Bevel

Per _____
Contact: Paul Bevel, Lab Supervisor

COMMENTS:

For technical questions please contact:
Manager, Technical Services, Trevor Gluck, P. Eng

Reporting of these results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided only on written request.

AMEC Earth Environmental
A Division of AMEC Americas Limited
440 Dovercourt Drive
Winnipeg, MB
R3Y 1N4

(204) 488-2997
(204) 489-8261

MOISTURE DENSITY REPORT



SA CERTIFIED CONCRETE TESTING LABORATORY
IN ACCORDANCE WITH STD A 283

TO: Ballingall Brothers
17th Street East
Brandon, MB

OFFICE: Winnipeg (204) 488-2997
PROJECT NO: WX10316
COPIES TO :

ATTENTION: Todd Ballingall

PROJECT: Quality Control

COMPACTION METHOD

ASTM D698

ASTM D1557

DRY DENSITY kg/m ³	1901	1944	1954	1857
MOISTURE CONTENT %	9.6	11.6	13.4	16.5

Maximum Dry Density 1955 kg/m³ Corrected: 2017 kg/m³
Optimum Moisture Content 13.1 % 11.4 %

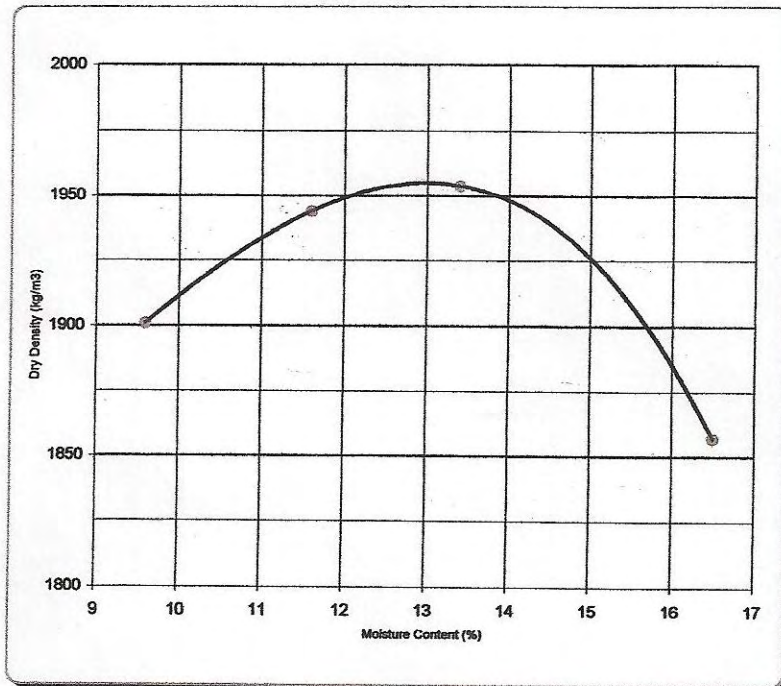
Source: Ballingall Bros.
Date Tested Sept 13/08
Date Sampled Sept 11/08
Sampled by PL
Date Received Sept 12/08
Test No. 10316-04
Lab No. 4292

Rammer Type

Auto
 Manual
Preparation
 Moist
 Dry

Oversize Retained on
9.50 mm sieve

Percent Oversize
14%



AMEC Earth & Environmental

SAMPLE DESCRIPTION: Pitrun #2

Per P. Bevel
Contact: Paul Bevel, Lab Supervisor

COMMENTS:

For technical questions please contact:
Manager, Technical Services, Trevor Gluck, P. Eng

Reporting of these results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided only on written request.