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# FINAL REPORT

Borehole and Sediment Sampling Program  
Edwards Pond,  
Former Princess Mine Site, Sydney Mines, N.S.

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA (PWGSC)

PROJECT no. 1016862.05



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Project No. 1012896.04

March 7, 2008

Mr. John White, Environmental Specialist  
Public Works & Government Services Canada  
P.O. Box 2247  
Halifax, NS B3J 3C9

Dear Mr. White:

**Re: Borehole and Sediment Sampling Program, Edwards Pond  
Former Princess Mine Site, Sydney Mines, Nova Scotia - Final**

### Introduction

At the request of Ms. Belinda Campbell, Public Works and Government Services Canada (PWGSC), Jacques Whitford completed a borehole drilling and sediment sampling program at Edwards Pond located near the former Princess Mine Site, Sydney Mines, Nova Scotia. The general location of site is presented in Figure 1, Appendix A.

The scope of work for the program was established based on a verbal request of January 26, 2007 and subsequent e-mail correspondence from PWGSC dated February 26, 2007 and March 8, 2007. The work presented within is consistent with a proposal provided to PWGSC by Jacques Whitford March 20, 2007.

### Objective

The objective of the drilling and sampling program was to provide general characterization of the conditions within Edwards Pond including the following:

- Provide characterization of the stratigraphy, extent and thickness of sediments;
- Provide an estimate of the volume and types of sediments present;
- Provide a profile of the natural pond bottom; and
- Provide chemical characterization of selected sediment samples.

It is Jacques Whitford's understanding that the information provided in this report will be used to support management decisions regarding the future use of Edwards Pond as a part of the overall closure plan for the Princess Mine Site. It should be noted that the analytical program completed here was directed by SENES who is currently developing the overall closure plan for the site. This study is intended to be a factual report of the findings. As requested, the analytical results have been compared to guidelines suggested by PWGSC. In some cases, specific regulatory criteria did not exist for certain parameters (i.e. major ions etc.).



The work was completed in accordance with the Standard Operating Procedures established by PWGSC for the DEVCO assessment/ decommissioning program for “stand alone” sites.

## **Background**

According to information provided by CBDC and supplied by PWGSC, a catastrophic sediment release resulting from a tailings dam failure on the main mine site occurred which resulted in significant deposition of grey silt and clay sediments into Edwards Pond. Prior to that event, historical deposition of black coal fines was suspected to have occurred, which was evidenced in the difference between the 1969 and 1983 aerial photography of the area and was suspected to be present beneath the grey silt and clay sediment layer.

## **Borehole Investigation Program**

The borehole (BH) and sediment sampling program was completed during two (2) events. The first event, which utilized manual sampling equipment, was completed on February 6, 2007. The second borehole program which utilized both mechanical and manual sampling equipment was completed between March 5 and 12, 2007.

## **Borehole and Sediment Sampling-Event 1**

A total of three (3) boreholes were completed during the initial borehole program which occurred on February 6, 2007. The program utilized manual sampling equipment which was provided by Boart Longyear. The manual sampling equipment consisted of a combination of equipment consisting of a split spoon sampler, “A” size drill rods and a 50 lb manual hammer, which was fitted over the “A” rod/split spoon sampling device to facilitate penetration of the sampling unit into the sediments. The objectives of this preliminary program were as follows:

- Determine ice thickness and water depth in three (3) locations;
- Determine whether a probing exercise would be useful in determining sediment thickness; and
- Determine whether a borehole/sediment sampling program would provide useful information in determining boundaries between various types of sediments (i.e. grey silt and clay vs. black coal fines vs. natural pond sediments)

The results of the preliminary borehole sampling program are as follows:

- Ice thickness was measured to be between 225 mm and 325 mm.
- Water depth was measured to be approximately 250 mm beneath the ice.

- The probing exercise was not considered useful due to the fact that the manual boreholes confirmed that sediments existed beyond the depth through which the probe was able to penetrate.
- Three (3) boreholes were advanced (PRSS-07BH-01, PRSS-07BH-02, and PRSS-07BH-03). Sediment samples were collected continuously (0.6 metre intervals, where possible) using a split spoon sampler.
- Visual assessment of the sediment samples retrieved from the three (3) boreholes revealed that the boundary between the grey silt and clay and black coal fines sediment was distinguishable.
- The depth of the three (3) boreholes ranged from approximately 1.8 metres below pond bottom (mbpb) to 2.4 mbpb. Natural pond sediments were not encountered at these depths indicating that deposited sediments were thicker than expected by PWGSC.

The locations of the boreholes are indicated on Drawing 1012896.04-01 in Appendix A. The borehole records and the corresponding GPS coordinates of each borehole location are in Appendix B. Photos 1 and 2 in Appendix C show the manual sampling method used during this program.

### **Borehole and Sediment Sampling-Event 2**

A second borehole and sediment sampling program was completed between March 5 and March 12, 2007. This program was completed using a combination of a track mounted CME 55-drill rig and a manual Tri-Pod Sampling system, both of which were supplied by Boart Longyear.

A total of twenty-seven (27) boreholes (PRSS-07BH-04 to PRSS-06BH-30), were completed. Twenty-three (23) boreholes were completed using the CME-55 drill, while four (4) boreholes were completed using the manual Tri-Pod sampling system (due to ice thickness and safety concerns for support of the CME-55 in these locations). The depth of the boreholes ranged from 1.8 metres below pond bottom (mbpb) to 5 mbpb.

The locations of the boreholes are indicated on Drawing 1012896.04-01 in Appendix A. The borehole records and the corresponding GPS coordinates of each borehole location are in Appendix B. Photo 6 located in Appendix C depicts drilling being undertaken by the CME-55 drill rig. Photo 9 depicts drilling being undertaken using the Tri-Pod Sampling system.

### **Sediment Sampling Program**

Sediment samples were collected continuously from each borehole at approximately 0.61 m intervals (where possible) using a 50mm outside diameter split spoon, or a 75 mm diameter shelly tube. HW size casing (100 mm outside diameter) was used for boreholes which were advanced using the CME-55 drill. Sediment samples were retrieved by inserting "A" size rods fitted with either a split spoon sampler or shelly tube through the HW casing. In the case where

the tripod system was used, the "A" size rods fitted with either the split spoon sampler or the shelby tube were inserted directly into the borehole.

Details of the sampling depths, the sampling method used and the number of soil samples recovered are provided on the borehole records located in Appendix B.

### Laboratory Analysis

As requested by PWGSC, a total of nineteen (19) sediment samples (including one (1) sediment sample from each analytical group for QA/QC purposes) were sent to Maxxam Analytics Inc., in Sydney, N.S. for the following analysis:

- Acid -Base Accounting (ABA)
- Polycyclic aromatic hydrocarbons (PAH)
- Available metals including mercury
- Major ions
- pH, Ammonia
- total organic carbon (TOC)
- total kjeldahl nitrogen (TKN)

In addition, a total of twenty (20) sediment samples (including one (1) QA/QC sample) were sent to the Jacques Whitford Geotechnical Laboratory, in Sydney, NS for grain size analysis and moisture content.

The following Table 1 indicates which samples were selected for chemical analysis. Table 2 indicates which samples were selected for grain size analysis and moisture content. The objective was to obtain representative chemistry from each sediment layer.

**Table 1 Analytical Chemistry**

Acid- Base Accounting (ABA) Analysis			Major Ions, pH, Ammonia, TOC, TKN And Organic Carbon Analysis		
Sample ID	Sample Depth (mbpb)	Material Type	Sample ID	Sample Depth (mbpb)	Material Type
PRSS-06BH-06-04	1.83-2.44	Black coal fines	PRSS-07BH-04-02	0.61-1.22	Grey silt and clay
PRSS-07BH-07-04	1.40-1.98	Black coal fines	PRSS-07BH-07-08	3.81-4.42	Black coal fines
PRSS-07BH-09-05	2.59-3.20	Natural pond sediments	PRSS-07BH-07-09	4.42-5.03	Natural pond sediments
PRSS-07BH-10-06	2.85-3.51	Natural pond sediments	PRSS-07BH-08-05	2.44-3.05	Black coal fines
PRSS-07BH-13-02	0.61-1.22	Natural pond sediments	PRSS-07BH-09-03	1.38-1.98	Natural pond sediments
PRSS-07BH-16-01	0-0.61	Grey silt and clay	PRSS-07BH-10-01	0-0.61	Grey silt and clay

**Table 1 Analytical Chemistry**

Acid- Base Accounting (ABA) Analysis			Major Ions, pH, Ammonia, TOC, TKN And Organic Carbon Analysis		
Sample ID	Sample Depth (mbpb)	Material Type	Sample ID	Sample Depth (mbpb)	Material Type
PRSS-07BH-17-03	1.22-1.83	Natural pond sediments	PRSS-07BH-12-03	1.22-1.83	Natural pond sediments
PRSS-06BH-21-02	0.61-1.22	Grey silt and clay	PRSS-07BH-13-03	1.22-1.83	Natural pond sediments
PRSS-06BH-22-01	0-0.61	Grey silt and clay	PRSS-07BH-14-01	0-0.61	Grey silt and clay
PRSS-07BH-23-01	0-0.61	Grey silt and clay	PRSS-07BH-16-03	1.07-1.67	Natural pond sediments
PRSS-07BH-23-02	0.61-1.22	Black coal fines	PRSS-07BH-18-01	0-0.61	Grey silt and clay
PRSS-07BH-24-03	1.22-1.83	Black coal fines	PRSS-07BH-19-01	0-0.61	Grey silt and clay
PRSS-07BH-25-04	1.83-2.44	Natural pond sediments	PRSS-07BH-21-01	0-0.61	Grey silt and clay
PRSS-07BH-26-01	0-0.61	Grey silt and clay	PRSS-07BH-21-04	1.83-2.44	Black coal fines
PRSS-07BH-26-06	3.05-3.66	Natural pond sediments	PRSS-07BH-22-03	1.22-1.83	Black coal fines
PRSS-07BH-28-04	1.80-2.41	Natural pond sediments	PRSS-07BH-23-03	1.22-1.83	Black coal fines
PRSS-07BH-29-01	0-0.61	Grey silt and clay	PRSS-07BH-25-01	0-0.61	Grey silt and clay
PRSS-07BH-30-01	0-0.61	Grey silt and clay	PRSS-07BH-25-02	0.61-1.22	Black coal fines
PRSS-07DUP-01 (Duplicate of PRSS-07BH-24-03)	1.22-1.83	Black coal fines	PRSS-07DUP-02 (Duplicate of PRSS-07BH-14-01)	0-0.61	Grey silt and clay

**Notes:**

mbpb: metres below pond bottom

**Table 2 Grain Size Analysis Testing**

Sample ID	Sample Depth (mbpb)	Material Type
PRSS-06BH-04-03	1.37- 1.52	Black coal fines
PRSS-07BH-06-01	0.37-0.98	Grey silt and clay
PRSS-07BH-07-05	2.46-3.07	Black coal fines
PRSS-07BH-08-03	1.60-2.21	Black coal fines
PRSS-07BH-09-04	2.44-3.05	Natural pond sediments
PRSS-07BH-10-01	0.30-0.91	Grey silt and clay
PRSS-07BH-10-04	1.97-2.58	Natural pond sediments
PRSS-06BH-13-03	1.68-2.29	Natural pond sediments
PRSS-06BH-15-01	0.76-1.37	Grey silt and clay

**Table 2 Grain Size Analysis Testing**

<b>Sample ID</b>	<b>Sample Depth (mbpb)</b>	<b>Material Type</b>
PRSS-07BH-18-03	1.67-2.28	Natural pond sediments
PRSS-07BH-19-02	1.22-1.83	Natural pond sediments
PRSS-07BH-21-03	1.68-2.90	Black coal fines
PRSS-07BH-21-01	0.46-1.07	Grey silt and clay
PRSS-07BH-23-01	1.37-1.98	Grey silt and clay
PRSS-07BH-23-03	1.98-2.59	Black coal fines
PRSS-07BH-28-02	1.22-1.80	Natural pond sediments
PRSS-07DUP-03 (Duplicate of PRSS-07BH-28-02)	1.22-1.80	Natural pond sediments
PRSS-07BH-30-02	1.22-1.75	Black coal fines
PRSS-07BH-30-05	3.00-3.46	Natural pond sediments

### **Stratigraphy**

In general, the borehole investigation revealed that the pond bottom consists of three (3) distinct sediment layers, grey silt and clay underlain by black coal fines underlain by natural pond sediment. Information pertaining to each layer is described as follows:

#### **Grey Silt and Clay Layer**

Grey silt and clay was encountered in twenty-five (25) of the boreholes completed within the pond and were observed to be spread throughout the pond. According to information provided to Jacques Whitford by PWGSC this sediment layer is consistent with sediment which was released into the pond as a result of a dam failure of a tailings pond. The date of the dam failure was not provided.

The grain size analysis results completed on samples selected from this sediment layer revealed that in general the material consisted of silt and clay with traces of sand. The percentage of silt and clay ranged from 88.6% in sample PRSS-07BH-021-01 to 98.9% in sample PRSS-07BH-15-01. A copy of the sieve analysis and moisture content results for all samples is located in Appendix D.

The grey silt and clay layer ranged in thickness from 0 metres thick around the perimeter of the Pond to approximately 1.09 meters thick near the north section of the Pond with the thicker layers of sediment being located within the central north section of the Pond. Photo 5 located in Appendix C depicts the grey silt and clay layer as it was sampled.

Several thinner pockets of this type of sediment were also found to be inter-mixed within the underlying black coal fines layer, particularly within the central portion of the Pond. The thickness of these layers ranged from 0.26 metres in PRSS-07BH-08 to 0.60 metres thick in PRSS-07BH-11. A plan view of the approximate sediment thicknesses of this grey silt and clay layer across the Pond is provided on Drawing 1012896.04-02 in Appendix A.

### **Black Coal Fines Layer**

Black coal fines were encountered in nineteen (19) of the boreholes completed within the Pond and were found to be spread throughout the Pond. In general, the black coal fines sediment layer was detected beneath the grey silt and clay layer. Photos 7, 8 and 10 in Appendix C indicate the transition zone between the grey silt and clay sediments and the black coal fines sediments.

The grain size analysis results completed on samples selected from this sediment layer revealed that in general the material consisted of silty sand coal fines with trace gravel. The percentage of silt and clay ranged from 7.1% in sample PRSS-07BH-28-02 to 74.3% in sample PRSS-07BH-07-05. The percentage of sand ranged from 23.5% in sample PRSS-07BH-07-05 to 91.2% in PRSS-07DUP-03 which is a duplicate sample of PRSS-07BH-28-02 which had a sand percentage of 89.5%. A copy of the sieve analysis and moisture content results is located in Appendix D.

This layer of black coal fines ranged in thickness from 0 metres thick around the perimeter of the Pond to approximately 3.5 meters thick near the centre section of the Pond. The thicker layers of this sediment layer were located within the north and central sections of the Pond. Several thinner pockets of grey silt and clay layer sediment were also found to be inter-mixed within the underlying black coal fines layer, particularly within the central portion of the Pond. The approximate sediment thicknesses of this sediment layer across the Pond are indicated on Drawing 1012896.04-03 in Appendix A.

### **Natural Pond Sediment Layer**

The natural pond sediment layer was encountered in nineteen (19) of the boreholes completed within the pond. In general the natural sediments located beneath the black coal fines layer consisted of a grey to brown sand containing some silt, gravel and organics which was overlain by some peat in some areas.

Photo 4 in Appendix C gives an indication of the natural pond sediments as they were sampled.

The grain size analysis results completed on samples selected from this sediment layer revealed that in general the material consisted of a sand with some silt and clay, gravel and organics. The percentage of sand ranged from 39% in sample PRSS-07BH-19-02 to 95.3% in sample PRSS-07BH-13-03. The percentage of silt and clay ranged from 3.8% in sample PRSS-07BH-13-03 to 21.8% in sample PRSS-07BH-19-02. The percentage of gravel ranged from 0.7% in sample PRSS-07BH-10-04 to 39.2% in sample PRSS-07BH-19-02. A copy of the sieve analysis and moisture content results is located in Appendix D.

The thickness of the natural pond sediment layer was not established. Natural till was identified in several boreholes.

## **Cross Sections**

Four (4) cross sections (A-A', B-B', C-C', D-D') of the various sediment layers has been provided as shown on Drawing 1012896.04-02 in Appendix A. The purpose of the cross-sections is to provide a visual vertical projection of the sediment locations and thicknesses within the Pond as well as to provide a visual representation of the profile of the Pond bottom. The cross-sectional projections of each sediment layer are indicated on Drawing Numbers 1012896.04-04 (A-A'), 1012896.04-05 (B-B') 1012896.04-06 (C-C') and 1012896.04-07 (D-D') in Appendix A.

A three (3) dimensional fence diagram which provides a visual projection of the four (4) cross sections and measured sediment thicknesses for each sediment layer is also provided on Drawing 1012896.04-08 in Appendix A.

## **Sediment Quantification**

In order to estimate the quantities of sediment associated with the major sediment layers encountered within the Pond (grey silt and clay and black coal fines) calculations were performed and modeled visual representations were derived from the data collected during the field investigation using Environmental Systems Research Institute Inc.'s ArcGIS 9.2 Suite (ESRI) software.

The volume calculations and modeling are presented in ArcGIS figure format, using three (3) dimensional cross sections, fence diagrams, and extrusion models using C Tech's Environmental Visualization Software (EVS-Pro). EVS-Pro unites state-of-the art analysis and visualization tools into extremely powerful software systems developed to meet the needs of geologists, geochemists, environmental or mining engineers, oceanographers, archaeologists and modelers. C Tech provides true 3D volumetric modeling, analysis and visualization useful in observing data trends.

The volumetric calculations derived for this project were done using EVS-Pro's volume and mass module. The module is used to calculate the volumes and masses of soil, chemicals in soils, and ground water within a user specified isosurface (surface of constant concentration), and set of geologic layers. The user inputs the units for the nodal properties, model coordinates, and the type of processing that has been applied to the nodal data values. Then the user specifies the iso level and soil and chemical properties to be used in the calculation. The module then performs an integration of both the soil volumes and chemical masses that are within the specified isosurface.

## **Quantification Results**

In using the above noted tools, the following total quantity estimates of the two (2) predominant sediment layers were derived as follows:

- Calculated total quantity of grey silt and clay = approximately **36,000 m<sup>3</sup>**





- Calculated total weight of grey silt and clay (based on a density of 1.85) = approximately **66,600 tonnes**
- Calculated total quantity black coal fines = approximately **59,000 m<sup>3</sup>**
- Calculated total weight of black coal fines (based on a density of 1.85) = approximately **109,150 tonnes**

A visual three (3) dimensional representation of the extrusion of grey silt and clay and black coal fines layers is indicated on Drawing 1012896.04-09 in Appendix A.

It should be noted that the above noted quantities are estimates only based on a limited drill and sampling program. A more accurate quantification would require a more extensive delineation drill and sampling program which was beyond the scope of this program.

### **Analytical Program**

### **Regulatory Criteria**

The following regulatory guidelines were used to compare the measured concentrations from the sediment sampling program:

*Sulphide Bearing Material Disposal Regulations, under the NS Environment Act (April 1995)*

Sulphide Bearing Material Disposal Regulations were selected for comparison of the samples collected for acid generation potential. These regulations were adopted by the Nova Scotia Department of Environment in 1995 and set out the requirements for determining if a rock is considered to be a sulphide bearing material (sulphide sulphur content equal to or greater than 0.4%) and if it is net acid producing.

*Canadian Council of Ministers of the Environment (CCME) Environmental Quality Guidelines for the Protection of Environmental and Human Health (1999, updated 2006)*

These guidelines are applicable to various chemical parameters which may be found in sediment, soil and groundwater, including metals, Polycyclic Aromatic Hydrocarbons (PAHs), volatile organic compounds and Polychlorinated Biphenyls (PCBs). For freshwater sediments, Interim Sediment Quality Guidelines (ISQGs) and Probable Effect Level (PEL) concentrations are presented.

*Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life (Marine) (1999, updated 2006)*



These guidelines are applicable to various inorganic chemical parameters which may be found in leachate.

#### Other Guidelines

Where applicable, sample results were also compared to the Site Specific Target Levels (SSTLs) derived for the site by Jacques Whitford in the 2006 Human Health and Ecological Risk Assessment (SSTLs were available for metals only).

#### **Laboratory Results**

A summary of the laboratory analytical results are provided in the summary tables in Appendix E along with copies of the Laboratory Certificates of Analysis.

#### **Acid Based Accounting (ABA)**

The determination of an acid bearing material is based on the requirements of the Nova Scotia Sulphide Bearing Materials Regulations. These regulations indicate that a sulphide bearing material has a sulphide sulphur content equal to or greater than 0.4% (12.52 kg H<sub>2</sub>SO<sub>4</sub>/tonne).

Thirteen (13) of nineteen (19) samples submitted had sulphide sulphur content greater than the 0.4%. A negative value for net neutralizing potential indicates that the material is a net acid producer. Sediment sampling location PRSS-07BH-25 was the lone location that identified a positive net neutralizing potential. As such, based on the sampling completed, the aerial extent of the acid generating potential for the site extends throughout the sediments in Edwards Pond.

Table E-1 in Appendix E summarizes the soil modified acid-base accounting results.

#### **Polycyclic Aromatic Hydrocarbons (PAH)**

Fifteen (15) of the nineteen (19) sediment samples submitted for PAH analysis exceeded both the CCME Interim Sediment Quality Guidelines (ISQG) and Probable Effects Levels (PELs) for fresh water sediments for one (1) or more PAH compounds. The four (4) remaining samples identified PAH impacts above the CCME ISQGs only. Table E-2 in Appendix E summarizes the soil PAH results.

#### **Metals**

Fifteen (15) of the nineteen (19) sediment samples exceeded the SSTLs for one (1) or more metal parameters. Arsenic and iron were the most common exceedances.

Fourteen (14) of the nineteen (19) sediment samples submitted for metals analysis exceeded both the ISQGs and the PELs for freshwater sediments for one (1) or more metal compounds. Three (3) samples contained metal impacts

above the CCME ISQG guidelines only, and two (2) samples contained metal impacts below both the applicable CCME ISQG and PEL guidelines.

Table E-4 in Appendix E summarizes the soil inorganic results.

### **Major Ion Leachate and Additional Soils Chemistry**

Table E-4 and Table E-5 in Appendix E summarizes the requested major ion leachate chemistry and additional soil chemistry collected for the site.

### **Quality Assurance and Quality Control**

Sampling procedures included a quality assurance and quality control plan. The purpose of this QA/QC sampling was to provide some review to the accuracy of the laboratory analytical reporting as well as some review of the sample handling techniques in the field associated with the respective samples.

Three (3) duplicate samples were collected at three (3) separate sampling locations including PRSS-07DUP-01, PRSS-07DUP-02 and PRSS-07DUP-03. These samples were duplicates of PRSS-07BH-24-03, PRSS-07BH-14-01 and PRSS-07BH-28-02, respectively.

A comparison of the duplicate samples indicate that the average difference for the ABA analysis was 22.89%, for PAH analysis was 4.37% and for the grain size analysis was 1.86%.

### **Closure**

This report is prepared for the sole benefit of the Public Works and Government Services Canada. The report may not be relied upon by any other person or entity without the express written consent of Jacques Whitford and Public Works and Government Services Canada.

Any uses which a third party makes of this report, or any reliance on decisions made based on it, are the responsibility of such third parties. Jacques Whitford accepts no responsibility for damages, if any suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. The extent of the limited area depends on the soil and groundwater conditions, as well as the history of the site, reflecting natural, construction, and other activities.

In addition, analysis has been carried out for a limited number of chemical parameters, and it should not be inferred that other chemical species are not present. Due to the nature of the investigation and the limited data available, Jacques Whitford cannot warrant against undiscovered environmental liabilities.

Mr. John White  
Page 12  
March 7, 2008

Should additional information become available which differs significantly from our understanding of conditions presented in this report, we request that this information be brought to our attention so that we may reassess the conclusions provided herein.

This report is considered a draft of work completed to date. This report was written by William McNeil, B.Tech. (Env.), CET and reviewed by John Henderson, P.Eng.

Sincerely,

**JACQUES WHITFORD LIMITED**

William McNeil, B.Tech., CET  
Project Manager

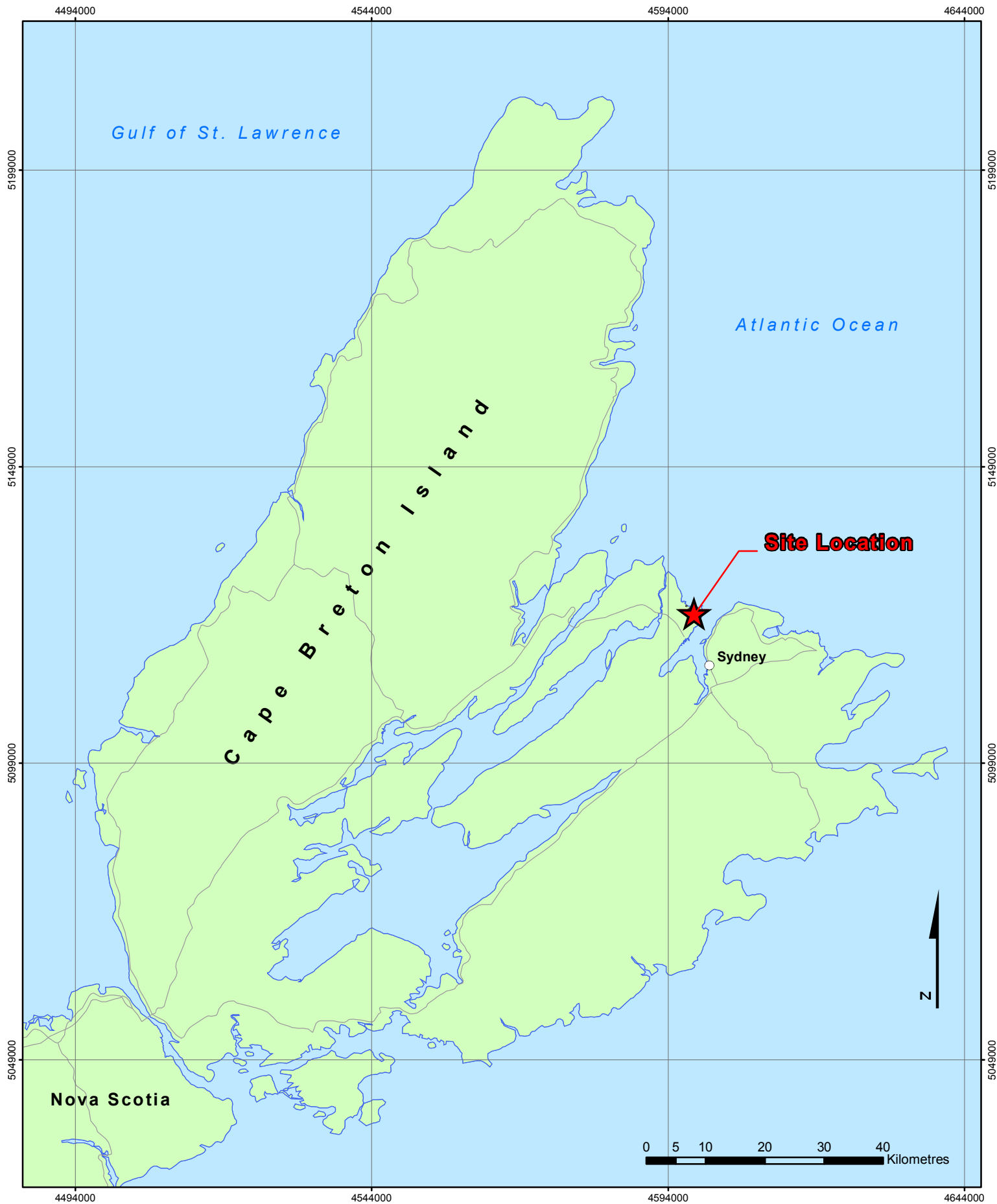
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## **APPENDIX A**

Figure And Drawings



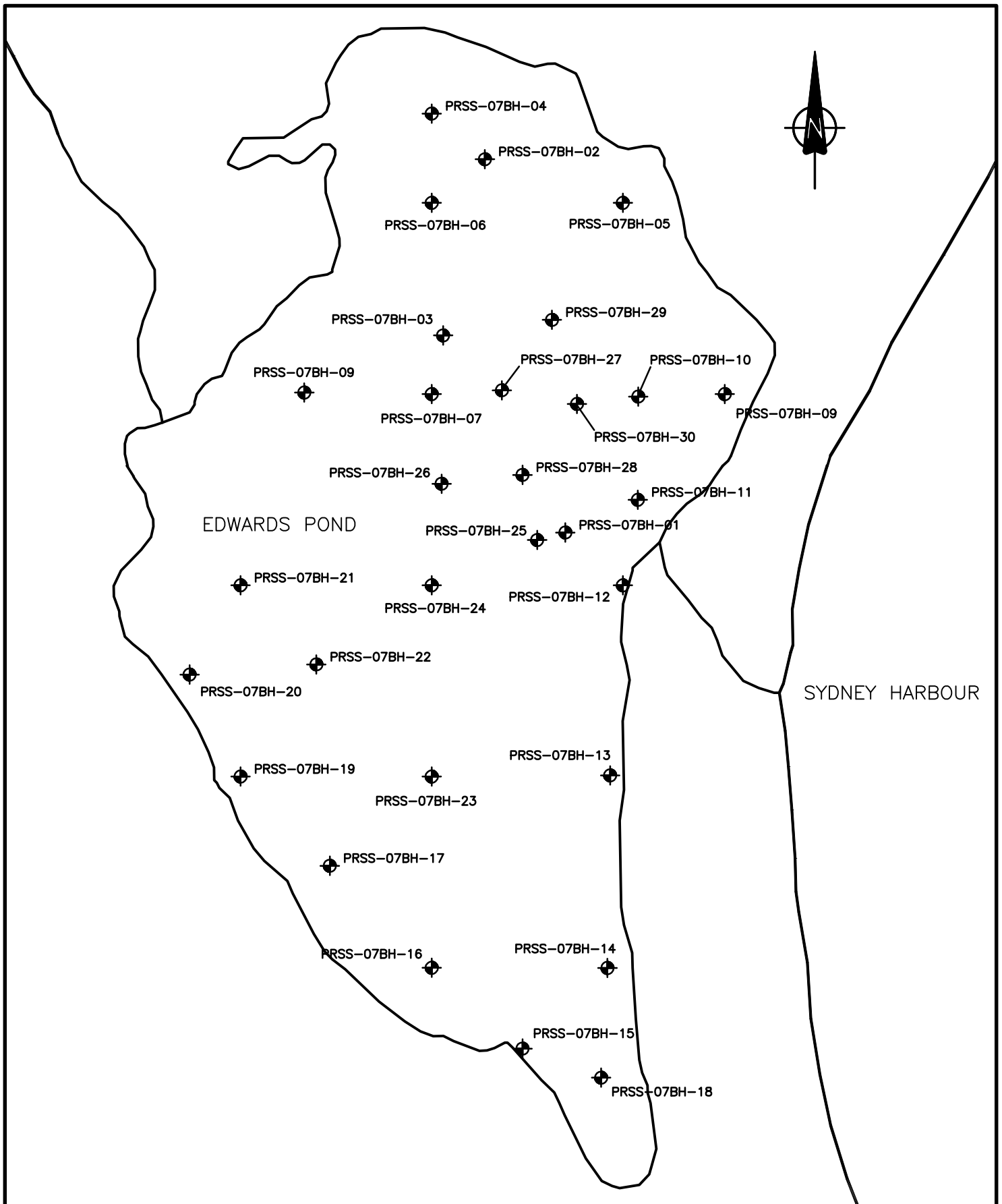
**Figure 1**

# **Edwards Pond Borehole Program** **SITE LOCATION**

Map Parameters  
 Projection: ATS77-MTM-Z4  
 Scale 1:1,000,000  
 Date: May 3rd, 2007  
 Project No.: 1012896.04



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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

## BOREHOLE LOCATIONS

EDWARDS POND, PRINCESS MINE, NOVA SCOTIA

## BOREHOLE INVESTIGATION

Scale:

1 : 2 000

Date:

2007/05/03

Dwn. By:

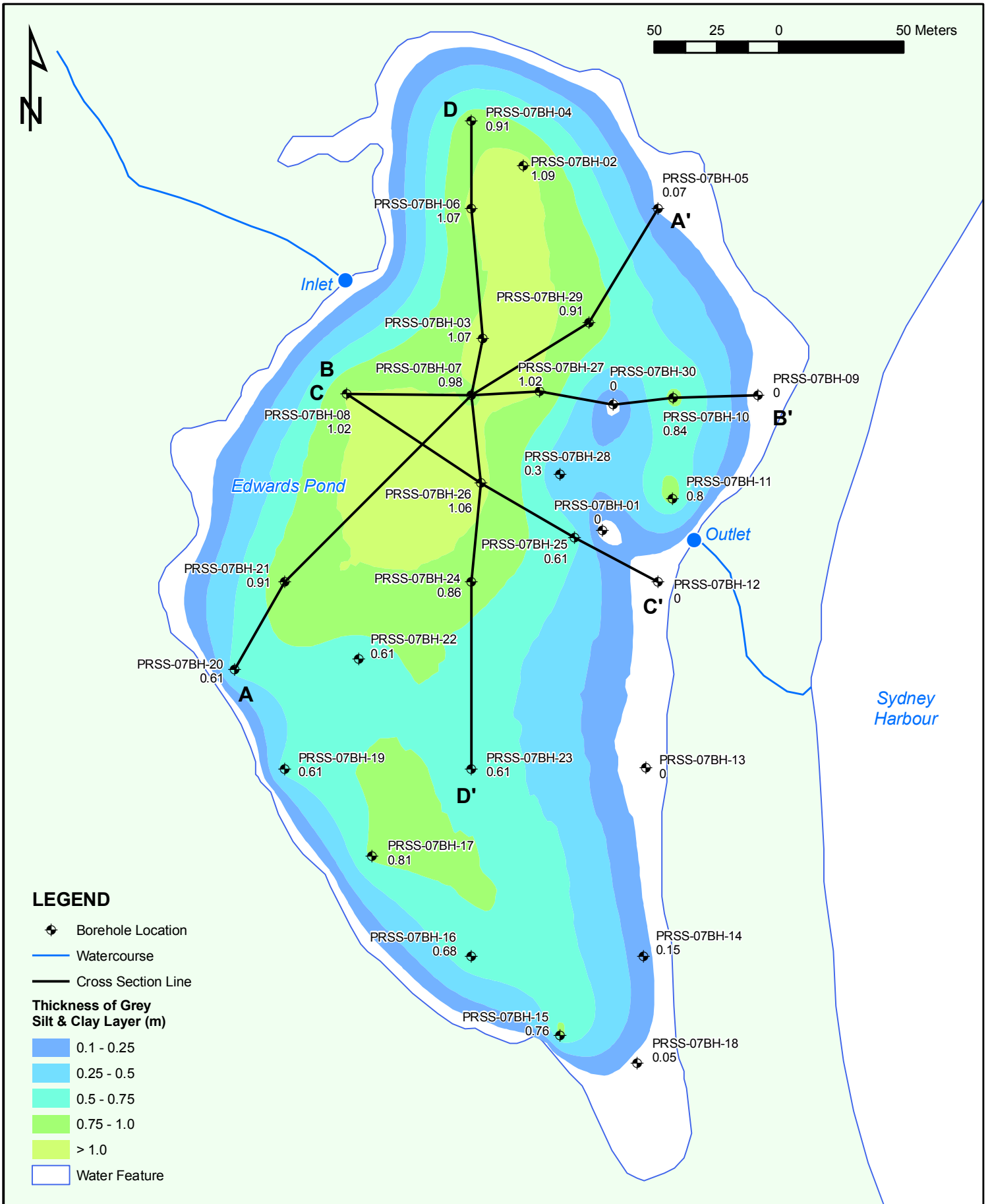
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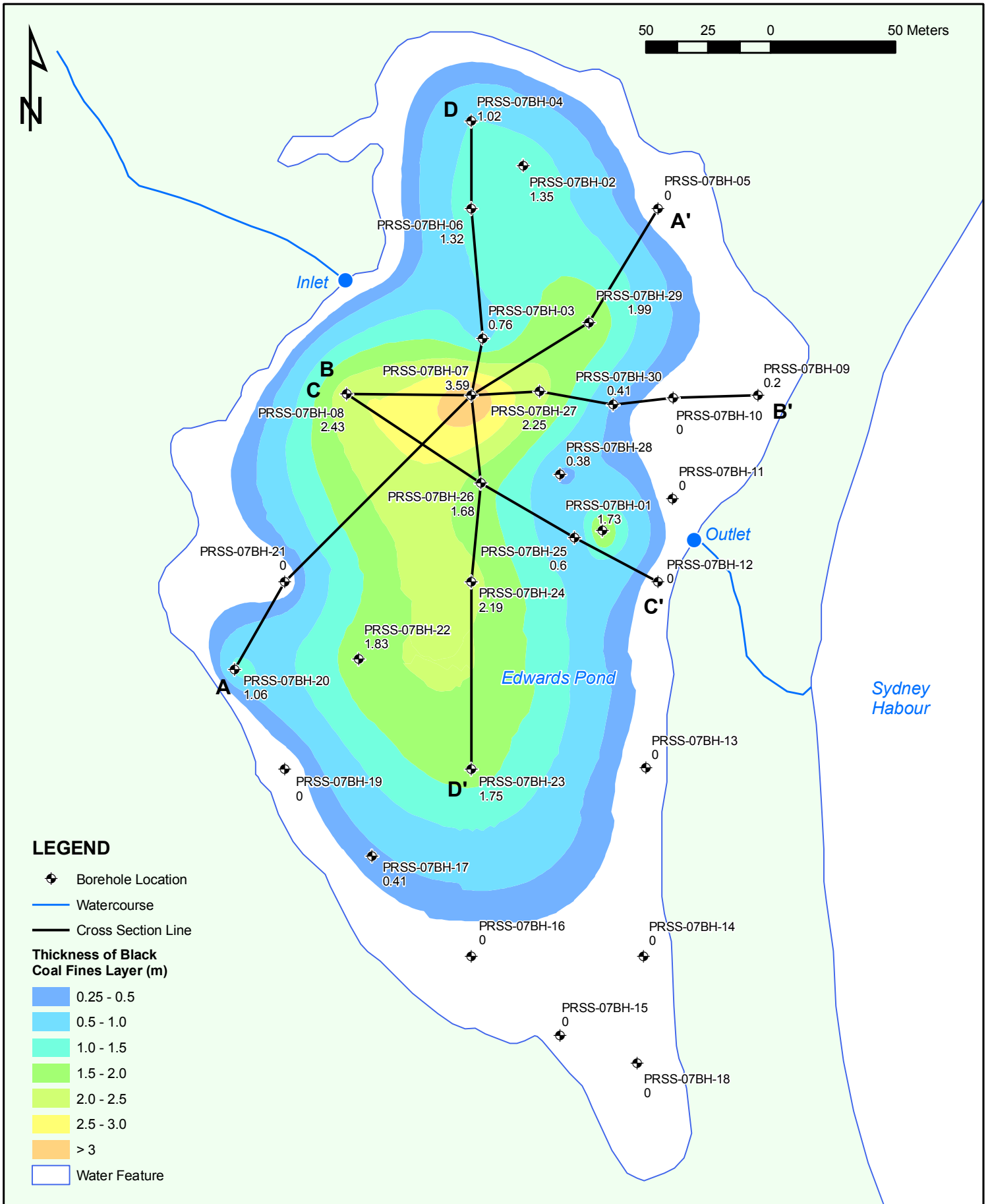


Drawing No.:

1012896.04-01



<b>GREY SILT AND CLAY LAYER THICKNESS</b> BOREHOLE INVESTIGATION EDWARDS POND, PRINCESS MINE, NOVA SCOTIA		Scale: 1 : 2,000	Job No.: 1012896.04	Dwg. No.: 1012896.04-02
		Date: 10/10/07	Dwn. By: CSA	Appd. By:
Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA				

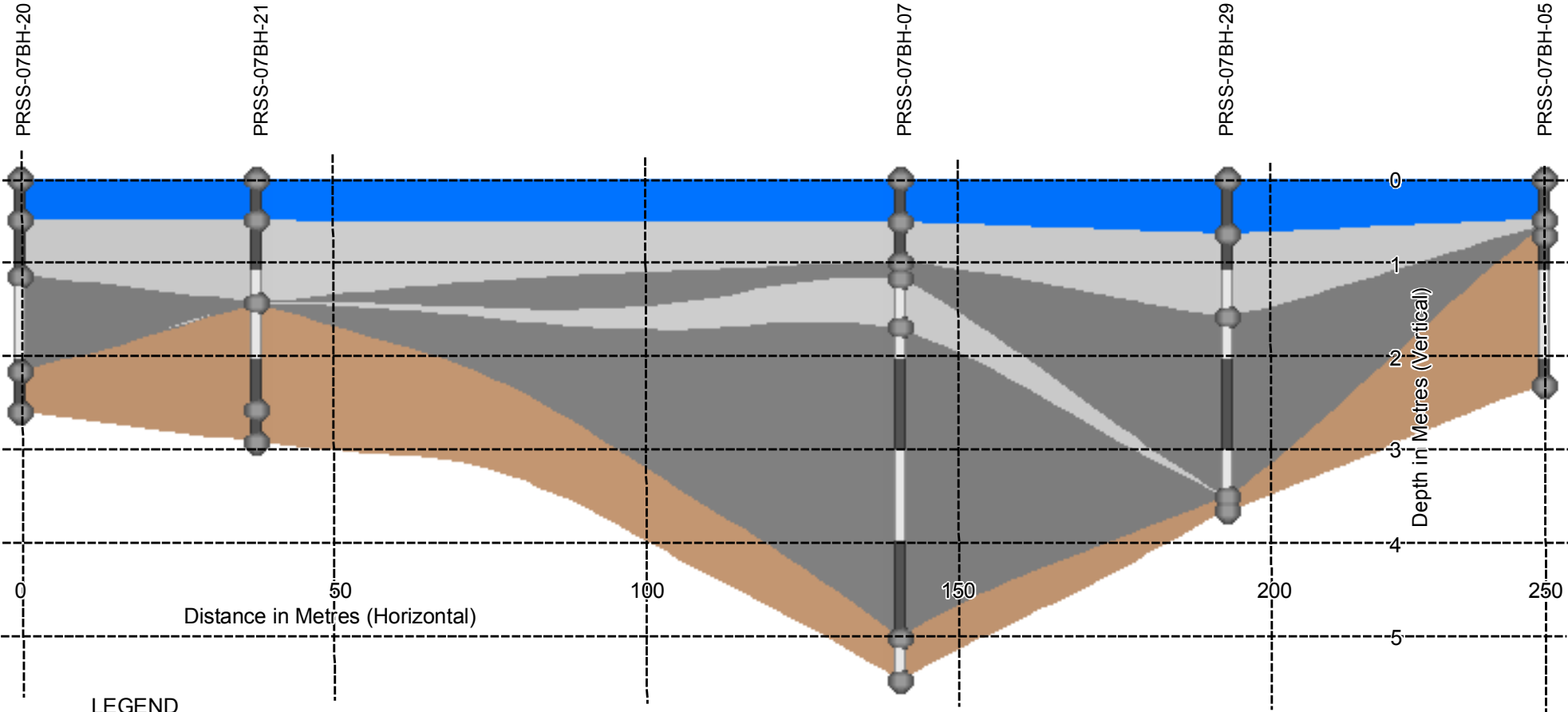


<b>BLACK COAL FINES LAYER THICKNESS</b> BOREHOLE INVESTIGATION EDWARDS POND, PRINCESS MINE, NOVA SCOTIA		Scale: 1 : 2,000	Job No.: 1012896.04	Dwg. No.: 1012896.04-03
		Date: 10/10/07	Dwn. By: CSA	Appd. By:
Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA				



**A**

**A'**



**LEGEND**


- ICE LAYER
- GREY SILT AND CLAY LAYER
- BLACK COAL FINES LAYER
- NATURAL POND SEDIMENT LAYER

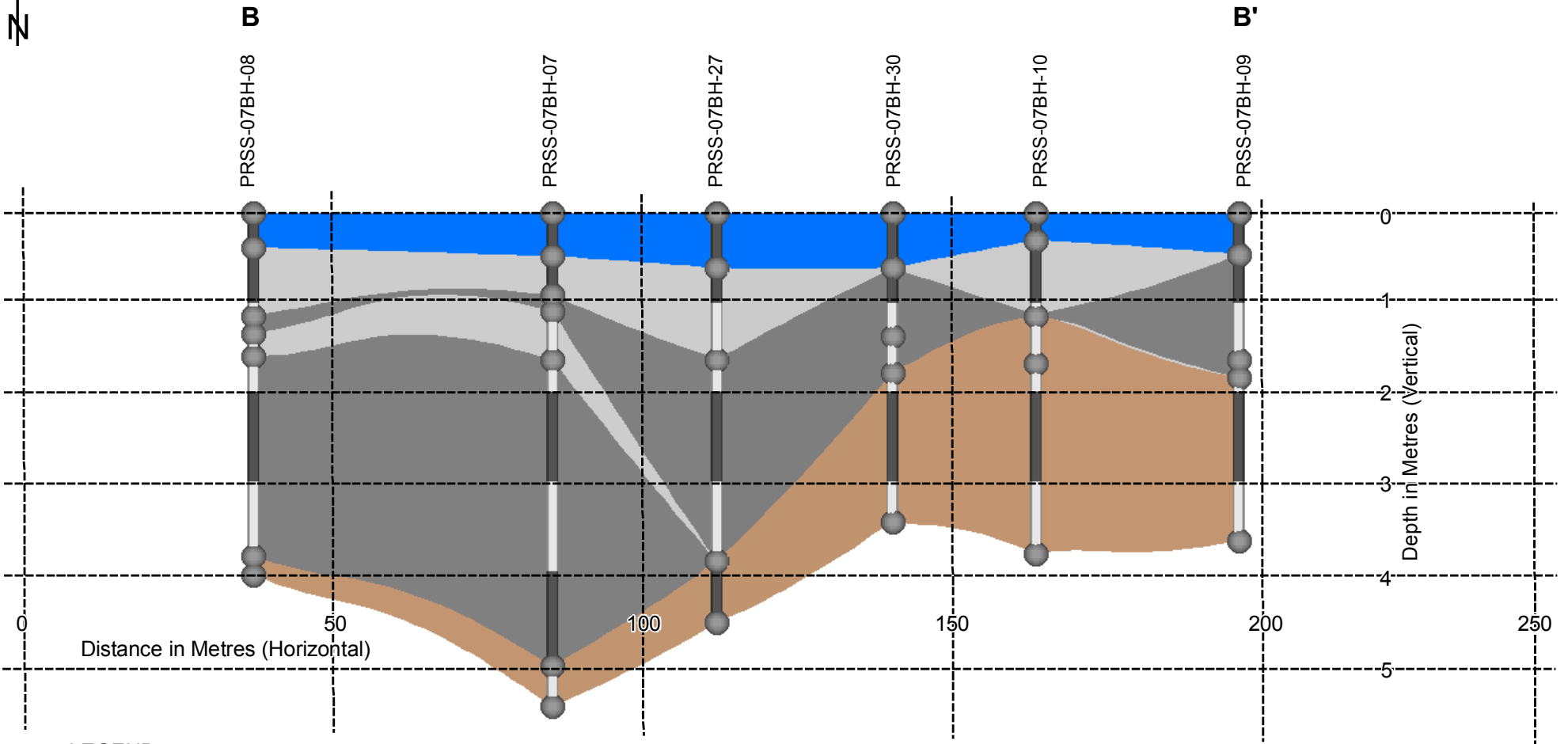


**3D CROSS SECTION A-A' (LOOKING NORTHWEST)**

BATHYMETRIC SURVEY  
EDWARDS POND, PRINCESS MINE, NOVA SCOTIA

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Scale: SEE SCALE BARS		Job No.: 1012896.04		Dwg. No.: 1012896.04-04	
Date: 10/10/07		Dwn. By: CSA		Appd. By: 	



#### LEGEND

- ICE LAYER
- GREY SILT AND CLAY LAYER
- BLACK COAL FINES LAYER
- NATURAL POND SEDIMENT LAYER

### 3D CROSS SECTION B-B' (LOOKING NORTH)

BATHYMETRIC SURVEY  
EDWARDS POND, PRINCESS MINE, NOVA SCOTIA

Client:

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Scale:  
SEE SCALE  
BARS

Job No.:  
1012896.04

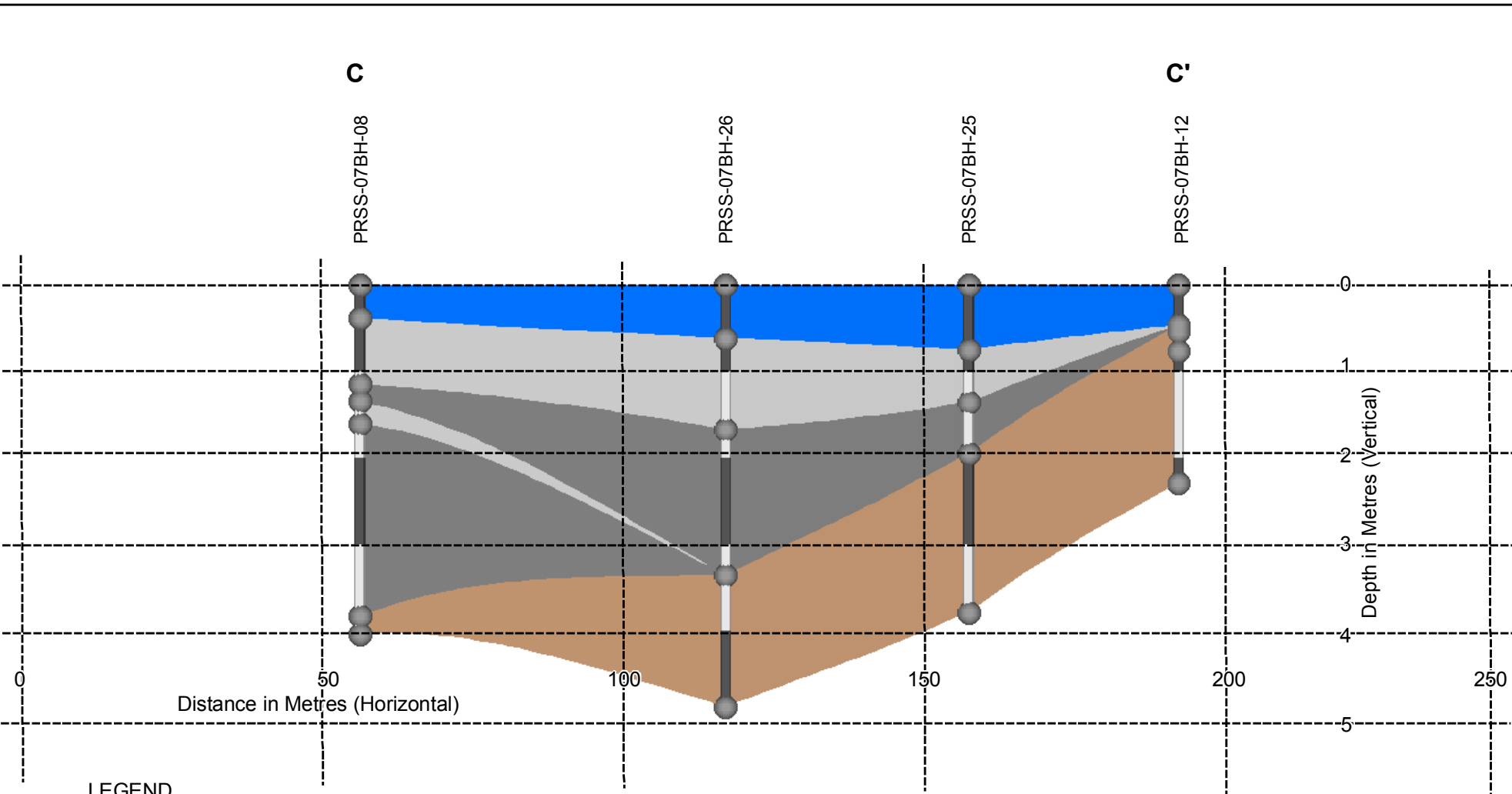
Dwg. No.:  
1012896.04-05

Date:  
10/10/07

Dwn. By:  
CSA

Appd. By:





LEGEND

- ICE LAYER
- GREY SILT AND CLAY LAYER
- BLACK COAL FINES LAYER
- NATURAL POND SEDIMENT LAYER



### 3D CROSS SECTION C-C' (LOOKING NORTHEAST)

BATHYMETRIC SURVEY  
EDWARDS POND, PRINCESS MINE, NOVA SCOTIA

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Scale:  
SEE SCALE  
BARS

Job No.:  
1012896.04

Dwg. No.:  
1012896.04-06

Date:  
10/10/07

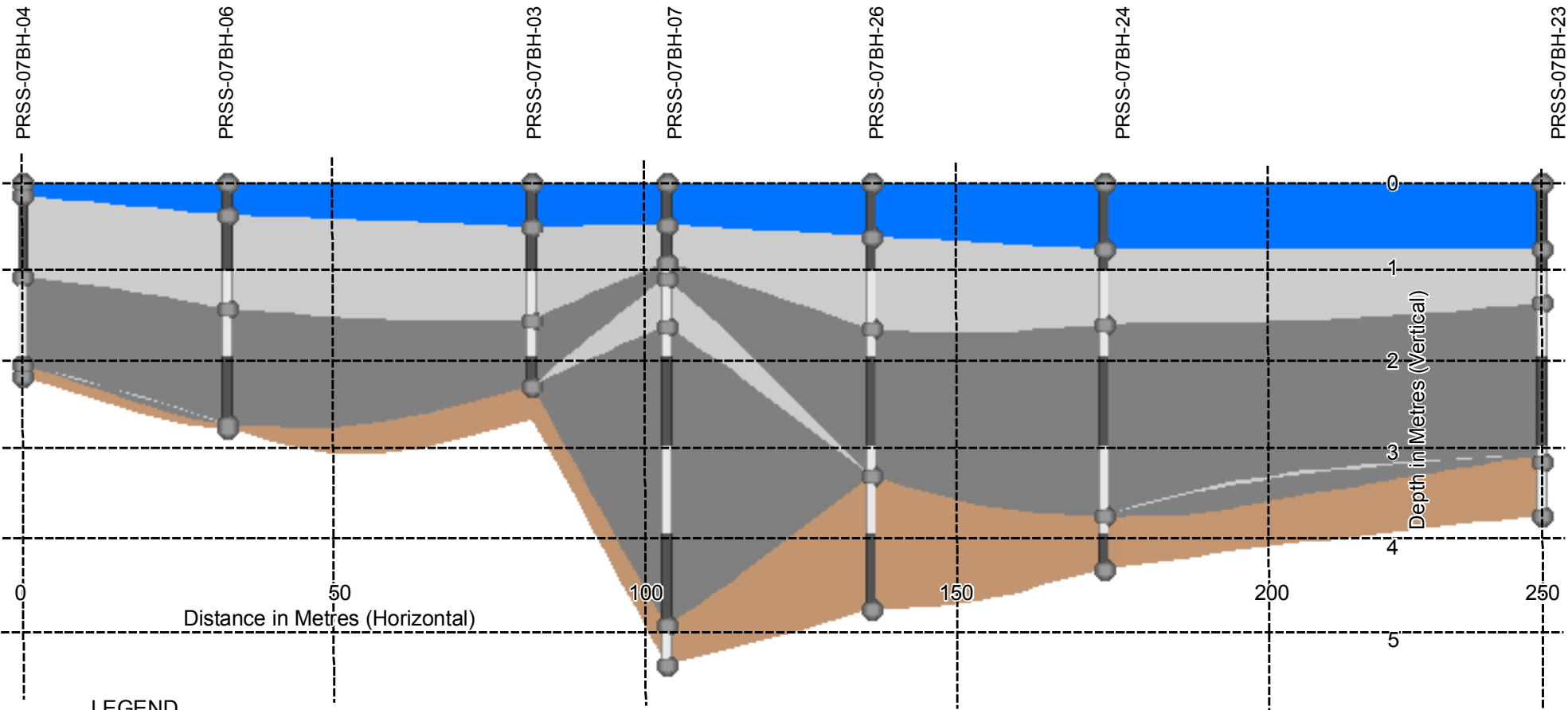
Dwn. By:  
CSA

Appd. By:



**D**

**D'**



**LEGEND**

- ICE LAYER
- GREY SILT AND CLAY LAYER
- BLACK COAL FINES LAYER
- NATURAL POND SEDIMENT LAYER



**3D CROSS SECTION D-D' (LOOKING EAST)**

BATHYMETRIC SURVEY  
EDWARDS POND, PRINCESS MINE, NOVA SCOTIA

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Scale:  
SEE SCALE  
BARS

Job No.:  
1012896.04

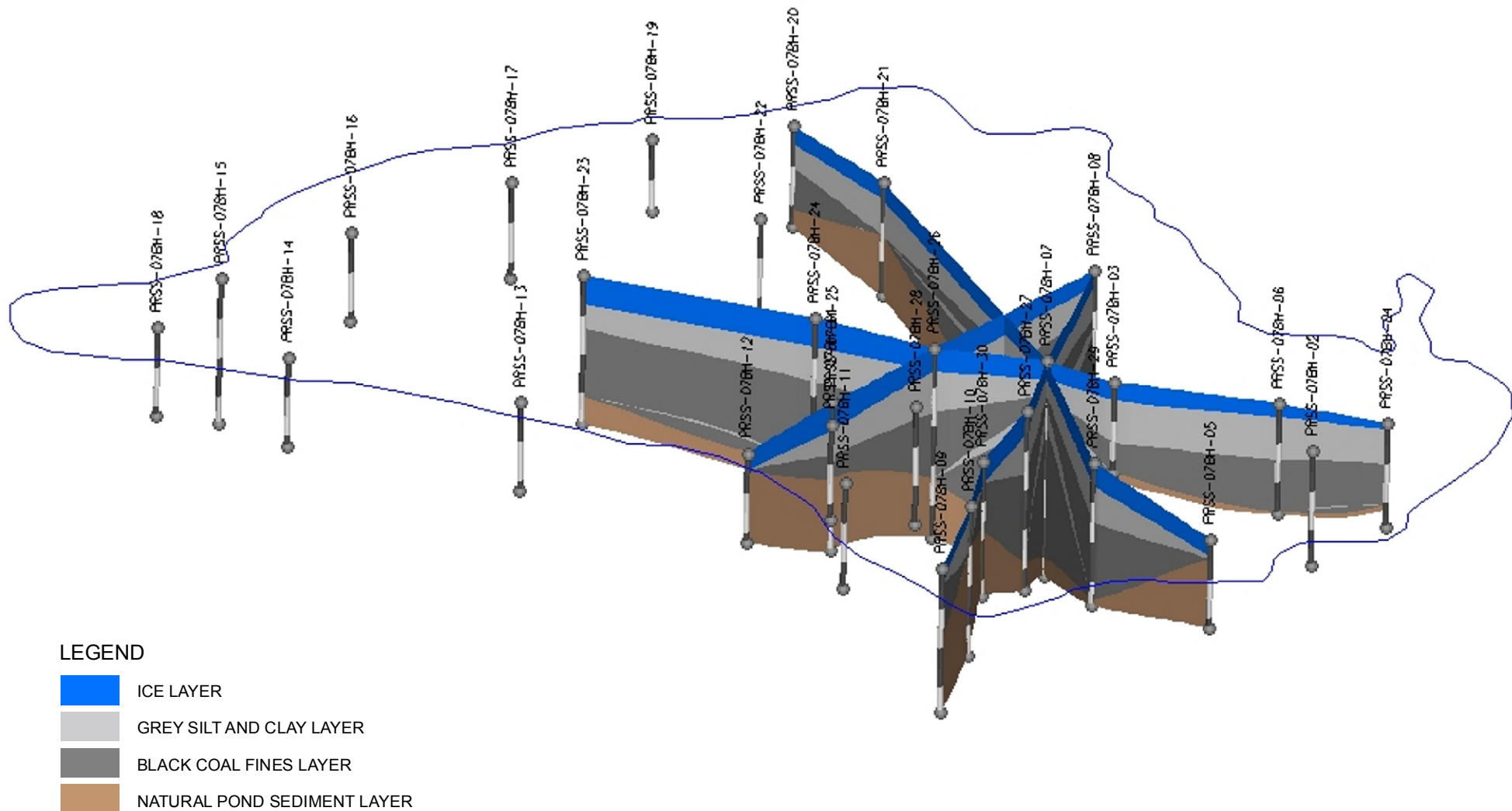
Dwg. No.:  
1012896.04-07

Date:  
10/10/07

Dwn. By:  
CSA

Appd. By:






# LEGEND

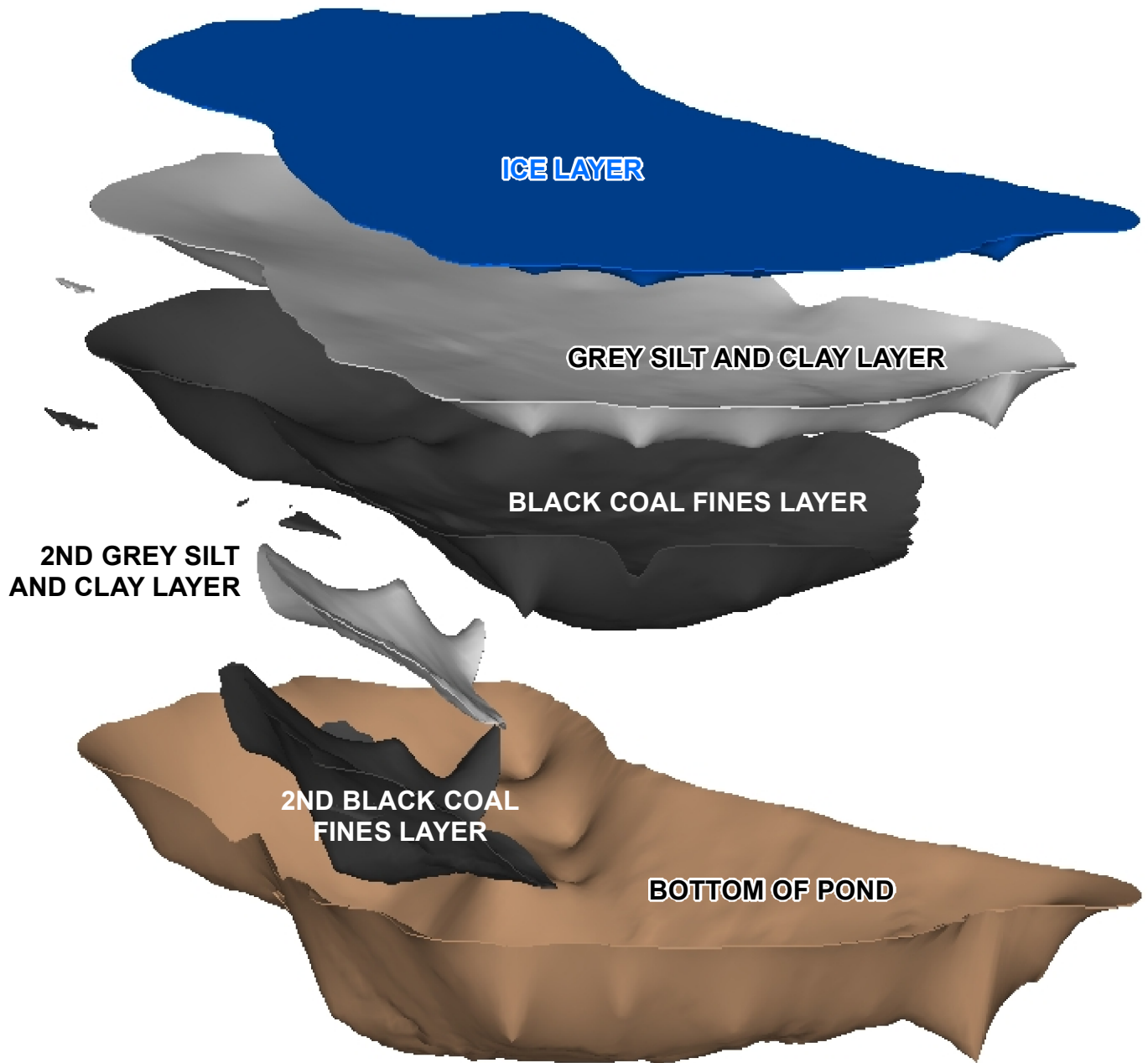
- ICE LAYER
- GREY SILT AND CLAY LAYER
- BLACK COAL FINES LAYER
- NATURAL POND SEDIMENT LAYER

## 3D FENCE DIAGRAM

BATHYMETRIC SURVEY  
EDWARDS POND, PRINCESS MINE, NOVA SCOTIA

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Scale:		Job No.:		Dwg. No.:	
NTS		1012896.04		1012896.04-08	
Date:	Dwn. By:	Appd. By:			
10/10/07	CSA				




GREY SILT AND CLAY LAYER:  
 Total Soil Volume = 3.3717E+004 Cubic Meters  
 Total Soil Mass = 6.2375E+007 Kilograms (based on default variables)

BLACK COAL FINES LAYER:  
 Total Soil Volume = 4.4129E+004 Cubic Meters  
 Total Soil Mass = 8.1637E+007 Kilograms (based on default variables)

2nd GREY SILT AND CLAY LAYER:  
 Total Soil Volume = 1.9444E+003 Cubic Meters  
 Total Soil Mass = 3.5969E+006 Kilograms (based on default variables)

2nd BLACK COAL FINES LAYER:  
 Total Soil Volume = 1.3973E+004 Cubic Meters  
 Total Soil Mass = 2.5849E+007 Kilograms (based on default variables)

<b>3D EXTRUSION OF SILT AND COAL LAYERS</b>  BATHYMETRIC SURVEY EDWARDS POND, PRINCESS MINE, NOVA SCOTIA		Scale:	Job No.:	Dwg. No.:
		NTS	1012896.04	1012896.04-09
Client:		Date:	Dwn. By:	Appd. By:
PUBLIC WORKS AND GOVERNMENT SERVICES CANADA		10/10/07	CSA	
				

## **APPENDIX B**

Borehole Records



# BOREHOLE RECORD

**PRSS-07BH-01**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/06 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-01  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm <sub>i</sub> (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.30 m of ice/0.3 m of water				mm								
		Ice and water.												
	1.30													
	1.20	Very soft, brown SILT												
1		Loose becoming compact, black COAL fines		SS	1	250								
				SS	2	275								
2				SS	3	100								
	-0.53													
		End of borehole												
3		- Able to push chimney rods 1.75 meters into sediments below pond bottom												
		- NAD 83 coordinates 0714820/5125604												
4		Note: SS = Split Spoon Sample												
5														
6														
App'd _____ Oct 9 2007 14:55:22														





# BOREHOLE RECORD

**PRSS-07BH-02**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/06 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-02  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.23 m of ice/0.25 m of water				mm								
	1.42	Ice and water												
1		Very soft grey SILT and clay sediment		SS	1	100								
	0.33			SS	2	400								
2		Loose becoming compact black COAL fines		SS	3	250								
	-1.02			SS	4	300								
3		End of borehole												
4		- Able to push chimney rods 1.40 meters into sediments below pond bottom												
		- NAD 83 coordinates 0714762/5125702												
		NOTE: SS = Split Spoon Sample												
5														
6														
App'd _____ Oct 9 2007 14:55:31														



# BOREHOLE RECORD

**PRSS-07BH-03**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/06 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-03  
 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm <sub>i</sub> (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.25 m of ice/ 0.25 m of water				mm								
		Ice and water												
	1.40													
		Very sof grey SILT and clay sediment		SS	1	300								
1														
	0.33			SS	2	350								
		Loose to compact black COAL fines												
2				SS	3	300								
	-0.43													
		End of borehole												
3		- Able to push chimney rods 1.52 meters into sediments below pond bottom												
		NOTE: SS = Split Spoon Sample												
4														
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:55:41



# BOREHOLE RECORD

**PRSS-07BH-04**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-04  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.15 m of ice/ 0 m water				mm								
	1.75	Ice and water.												
		Very soft, grey SILT and clay		SS	1	0	push							
1	0.84	Very soft, grey- black silty sand with COAL fines some peat		ST	2	475	push							
				ST	3	150	push							
2	-0.18			SS	4	325	2							
	-0.38	Loose, brown organic SILT, NATURAL POND SEDIMENTS		SS	5	500	14							
	-0.76	Compact, brown silty sand and gravel, TILL. Last 125 mm brown-grey siltstone, INFERRED BEDROCK. End of borehole.												
3														
4														
5														
6														
NOTE: ST = Shelby Tube Sample SS = Split Spoon Sample														
App'd _____ Oct 9 2007 14:55:53														



# BOREHOLE RECORD

**PRSS-07BH-05**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-05  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m of ice/ 0.15 m water				mm								
	1.45	Ice and water												
	1.38	Very soft grey SILT and clay, severe iron staining.		ST	1	525	push							
1		Loose to somewhat compact black PEAT with coal fines, grass.		ST	2	500	push							
	0.08													
2	-0.38	Loose to somewhat compact brown-grey organic SILT, NATURAL POND SEDIMENTS.		SS	3	550	2							
		End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:56:0



# BOREHOLE RECORD

**PRSS-07BH-06**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-06  
 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.07 m water				mm								
	1.53	Ice and water												
1		Very soft to soft grey SILT and clay with iron staining throughout, some fine grained coal laminations		ST	1	450	push							
	0.46			ST	2	525	push							
2		Loose to somewhat compact black COAL fines with some silt		SS	3	450	6							
	-0.86			SS	4	350	1/600							
3	-0.91	Loose brown organic SILT, NATURAL POND SEDIMENTS End of borehole												
4		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:56:6



# BOREHOLE RECORD

**PRSS-07BH-07**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-07  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm <sub>i</sub> (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.18 m water				mm								
	1.42	Ice and water												
	0.99	Very soft grey SILT and clay with iron staining		ST	1	525	push							
1	0.81	Loose black COAL fines												
	0.26	Very soft grey SILT and clay with coal fines throughout.		ST	2	550	push							
2		Loose black COAL fines		ST	3	125	push							
				SS	4	375	5							
				SS	5	600	1/600							
3				SS	6	200	1/600							
				SS	7	0	1/600							
4				SS	8	250	push							
5	-3.15			SS	9	425	5							
	-3.61	Loose brown sandy sediments, NATURAL POND SEDIMENTS, underlain by compact brown silty sand some gravel TILL												
		End of borehole												
6														

App'd \_\_\_\_\_ Oct 9 2007 14:56:12



# BOREHOLE RECORD

**PRSS-07BH-07**

 CLIENT ENVIRONMENTAL SERVICES, PWGSC

 PROJECT No. 1012896.04

 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA

 BOREHOLE No. PRSS-07BH-07

 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
6		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample				mm								
7														
8														
9														
10														
11														
12														

App'd \_\_\_\_\_ Oct 9 2007 14:56:13



# BOREHOLE RECORD

**PRSS-07BH-08**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-08  
 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.38 m ice/ 0 m water				mm								
	1.52	Ice and water												
		Very soft grey SILT and clay with iron staining trace coal fines.		ST	1	475	push							
1	0.76													
	0.56	Loose black COAL fines		ST	2	525	push							
	0.30	Very soft grey SILT and clay with coal fines throughout												
2		Loose to somewhat compact black COAL fines		ST	3	425	push							
				SS	4	375	4							
3				SS	5	250	3							
				SS	6	375	2							
-1.93														
-2.14		Loose brown organic SILT, NATURAL POND SEDIMENTS												
		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:56:20





# BOREHOLE RECORD

**PRSS-07BH-09**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/27 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-09  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.46 m ice/ 0 m water				mm								
		Ice and water												
	1.44													
	1.29	Frozen SILT iron stained												
1		Loose red-brown SAND trace gravel with iron staining throughout		SS	1	600	3							
	0.27			SS	2	450	2							
	0.07	Loose grey-black sand and COAL fines												
2		Loose to somewhat compact grey-brown SILT with sand trace coal and organics, NATURAL POND SEDIMENTS		SS	3	150	2							
				SS	4	425	6							
3				SS	5	575	5							
	-1.76	End of borehole.												
4		NOTE: SS - Split Spoon Sample												
5														
6														



# BOREHOLE RECORD

**PRSS-07BH-10**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-10  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0 m water				mm								
	1.60	Ice and water												
		Very soft to soft grey SILT and clay, trace coal with severe iron staining		ST	1	525	push							
1	0.76	Loose black PEAT with coal fines		ST	2	500	push							
	0.23	Loose grey SAND trace coal, NATURAL POND SEDIMENTS		ST	3	450	push							
2				SS	4	400	4							
3				SS	5	325	2							
				SS	6	350	2							
-1.91		End of borehole												
4		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:56:34



# BOREHOLE RECORD

**PRSS-07BH-11**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-11  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.1 m water				mm								
		Ice and water												
	1.50													
	1.30	Very soft grey SILT and clay some organics, some iron staining		ST	1	325	push							
	1.04													
1		Loose red-brown SAND iron stained throughout		SS	2	450	0/600							
	0.43	Loose brown to yellow some black SAND with trace coal fines												
		Loose black grey SILT and clay with coal fines		SS	3	300	4							
2	-0.17													
		Loose brown organic SILT with shells and grey sand, NATURAL POND SEDIMENTS		SS	4	175	2							
	-0.78													
3		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														



# BOREHOLE RECORD

**PRSS-07BH-12**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-12  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.46 m ice/ 0 m water				mm								
		Ice and water												
	1.44													
	1.36	Soft iron stained SILT												
	1.14	Loose orange stained SAND		ST	1	450	push							
1		Loose black-brown PEAT with traces of wood and organic matter		SS	2	275	4							
	0.22													
2		Loose to compact brown-grey SAND trace organics, NATURAL POND SEDIMENTS		SS	3	400	9							
	-0.39													
		End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														



# BOREHOLE RECORD

**PRSS-07BH-13**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-13  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.36 m ice/ 0.1 m water				mm								
		Ice and water												
	1.44													
	1.29	Soft orange iron stained SILT												
		Loose orange-brown SAND trace organics		ST	1	550	push							
1	0.83													
		Loose to compact brown grey SAND trace coal, NATURAL POND SEDIMENTS		SS	2	300	5							
				SS	3	450	8							
	-0.39													
		End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														
App'd _____ Oct 9 2007 14:56:48														



# BOREHOLE RECORD

**PRSS-07BH-14**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-14  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.36 m ice/ 0.1 m water				mm								
		Ice and water												
	1.44													
	1.29	Very soft, iron stained grey SILT and clay												
1	0.83	Soft grey-brown SAND some silt trace iron staining, organics		ST	1	500	push							
		Loose to compact brown SAND, NATURAL POND SEDIMENTS		SS	2	250	3							
2				SS	3	425	8							
	-0.39	End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														



# BOREHOLE RECORD

**PRSS-07BH-15**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-15  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.38 m ice/ 0.38 m water				mm								
		Ice and water												
	1.14													
1		Very soft grey SILT and clay, orange stained, trace coal		ST	1	550	push							
	0.38													
		Loose black PEAT with traces of coal fines, wood peices		ST	2	550	push							
2														
	-0.69			SS	3	500	push							
		Loose to compact silty sand some clay, TILL		SS	4	225	8							
3														
	-1.83													
		End of borehole												
4		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														
App'd _____ Oct 9 2007 14:56:59														



# BOREHOLE RECORD

**PRSS-07BH-16**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-16  
 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.38 m ice/ 0.23 m water				mm								
		Ice and water												
	1.29													
1		Very soft grey SILT and clay, iron stained, trace organics		ST	1	600	push							
	0.61													
	0.43	Loose black PEAT with organics, traces of coal fines		ST	2	425	push							
2		Loose to compact brown SAND trace of coal		SS	3	425	7							
	-0.38													
3		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														
App'd _____ Oct 9 2007 14:57:5														





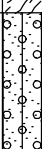


# BOREHOLE RECORD

**PRSS-07BH-17**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-17  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.46 m ice/ 0.15 m water				mm								
		Ice and water												
	1.29													
1		Very soft grey SILT and clay, some iron staining		ST	1	500	push							
	0.48													
		Loose black peat and COAL fines		ST	2	550	push							
	0.07													
2		Compact brown silty sand trace clay some gravel, TILL		SS	3	350	11							
	-0.54													
		End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:57:10



# BOREHOLE RECORD

**PRSS-07BH-18**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/02/28 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-18  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.46 m ice/ 0 m water				mm								
		Ice and water												
	1.45													
	1.40	Very soft grey SILT and clay, orange stained.		ST	1	500	push							
1	0.83	Loose brown SAND and GRAVEL with root matter		ST	2	350	2							
		Loose brown to black SAND trace coal		SS	3	450	4							
	-0.28													
	-0.38	Loose black PEAT trace coal												
		End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:57:17



# BOREHOLE RECORD

**PRSS-07BH-19**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/01 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-19  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.3 m water				mm								
		Ice and water												
	1.29													
1		Very soft brown grey SILT and clay, orange stained		ST	1	350	push							
	0.68													
	0.63	Loose brown organic SAND		SS	2	400	20							
		Compact brown silty GRAVEL with sand, TILL												
	0.07													
2		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
3														
4														
5														
6														



# BOREHOLE RECORD

**PRSS-07BH-20**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/01 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-20  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm <sub>i</sub> (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.33 m ice/ 0.13 m water				mm								
	1.44	Ice and water												
		Very soft brown grey SILT and clay, orange stained		ST	1	550	push							
1	0.83	Soft black to grey silt and COAL fines some organics		ST	2	400	push							
				SS	3	500	3							
2	-0.23	Loose to compact brown SAND underlain by silty sand some gravel and some sandstone fragments, TILL		SS	4	300	12							
	-0.67	End of borehole												
3		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														



# BOREHOLE RECORD

**PRSS-07BH-21**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/01 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-21  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.15 m water				mm								
	1.44	Ice and water												
		Very soft grey SILT and clay, orange stained		ST	1	500	push							
1	0.53			ST	2	600	push							
		Very loose to loose black sandy SILT trace coal		SS	3	350	4/600							
2	-0.64			SS	4	550	13							
	-1.00	Compact brown silty sand some gravel with sandstone fragments, TILL												
3		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:57:33

## PRSS-07BH-22

PROJECT No. 1012896.04  
BOREHOLE No. PRSS-07BH-22  
DATUM GEODETIC

[illegible]



# BOREHOLE RECORD

**PRSS-07BH-23**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/01 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-23  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.46 m water				mm								
		Ice and water												
	1.14													
1		Very soft grey SILT and clay, orange stained, trace coal		ST	1	550	push							
	0.53													
		Loose black COAL fines		ST	2	500	push							
2				SS	3	400	push							
				SS	4	500	push							
3	-1.22													
	-1.30	Loose black PEAT some silt trace coal fines		SS	5	200	14							
	-1.91	Compact brown organic SILT some sand, NATURAL POND SEDIMENTS												
4		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:57:42



# BOREHOLE RECORD

**PRSS-07BH-24**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/01 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-24  
 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.46 m water				mm								
		Ice and water												
	1.14													
1		Very soft grey SILT and clay, orange stained		ST	1	550	push							
	0.28													
2		Loose to somewhat compact black COAL fines trace peat		ST	2	500	push							
				ST	3	550	push							
3														
				SS	4	425	5							
				SS	5	425	push							
4	-1.91	Soft brown SILT with some sand and organics, NATURAL POND SEDIMENTS		SS	6	350	push							
	-2.52													
		End of borehole												
5		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
6														
App'd _____ Oct 9 2007 14:57:47														



## PRSS-07BH-25

PROJECT No. 1012896.04  
BOREHOLE No. PRSS-07BH-25  
DATUM GEODETIC

[illegible]



# BOREHOLE RECORD

**PRSS-07BH-26**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/05 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-26  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm <sub>i</sub> (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.3 m water				mm								
		Ice and water												
	1.29													
1		Very soft grey SILT and clay, orange stained		ST	1	475	push							
	0.23			ST	2	525	push							
2		Loose black COAL fines		ST	3	525	push							
				SS	4	350	2/600							
3	-1.45			SS	5	325	10							
		Compact grey SAND		SS	6	325	push							
4				SS	7	300	2							
	-2.82													
	-2.97	Loose brown silty organic sand, NATURAL POND SEDIMENTS												
5		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
6														

App'd \_\_\_\_\_ Oct 9 2007 14:57:58



# BOREHOLE RECORD

**PRSS-07BH-27**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/05 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-27  
 DATUM GEODETIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm <sub>i</sub> (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.3 m water				mm								
		Ice and water												
	1.29													
1		Very soft grey SILT and clay, orange stained		ST	1	450	push							
	0.27			ST	2	550	push							
2		Loose black COAL fines		ST	3	300	push							
				SS	4	375	10							
3				SS	5	450	2/600							
				SS	6	425	push							
4	-1.98													
	-2.14	Loose grey SAND, NATURAL POND SEDIMENTS												
		Loose brown organic SILT		SS	7	325	push							
	-2.67													
5		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
6														
App'd _____ Oct 9 2007 14:58:2														



# BOREHOLE RECORD

**PRSS-07BH-28**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/05 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-28  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.25 m ice/ 0.35 m water				mm								
		Ice and water												
	1.29													
	0.99	Very soft grey SILT and clay, orange stained												
1				ST	1	575	push							
	0.61	Loose black to grey sand with trace COAL fines												
	0.55	Loose brown PEAT		ST	2	575	push							
		Compact brown to grey SAND, NATURAL POND SEDIMENTS												
2				SS	3	375	13							
				SS	4	475	18							
3	-1.12	End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
4														
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:58:7



# BOREHOLE RECORD

**PRSS-07BH-29**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/05 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-29  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.3 m water				mm								
		Ice and water												
	1.29													
1		Very soft grey SILT and clay, orange stained		ST	1	500	push							
	0.38			ST	2	500	push							
2		Loose black COAL fines some peat		SS	3	550	5							
				SS	4	425	1							
3				SS	5	450	1							
	-1.61													
	-1.76	Loose brown to grey organic SILT some sand, NATURAL POND SEDIMENTS												
4		End of borehole												
		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:58:12



# BOREHOLE RECORD

**PRSS-07BH-30**

CLIENT ENVIRONMENTAL SERVICES, PWGSC  
 LOCATION EDWARDS POND, PRINCESS MINE, SYDNEY MINES, NOVA SCOTIA  
 DATES: BORING 2007/03/05 WATER LEVEL \_\_\_\_\_

PROJECT No. 1012896.04  
 BOREHOLE No. PRSS-07BH-30  
 DATUM GEODETTIC

DEPTH(m)	ELEVATION(m)	SOIL DESCRIPTION	STRATA PLOT	SAMPLES					HYDROCARBON ODOUR	VOC ppm, (% LEL)	APPARENT MOISTURE CONTENT	WATER LEVEL	FREE HYDROCARBON	REMARKS
				TYPE	NUMBER	RECOVERY	N-VALUE OR RQD %	OTHER TESTS						
0	1.90	0.3 m ice/ 0.3 m water				mm								
		Ice and water												
	1.29													
1		Very soft grey orange stained silty SAND trace coal		ST	1	525	push							
	0.53													
		Loose black COAL fines		ST	2	525	push							
	0.12													
2		Loose to compact grey SAND with silt, NATURAL POND SEDIMENTS		SS	3	400	4							
				SS	4	325	8							
3				SS	5	450	25							
	-1.55													
		End of borehole												
4		NOTE: ST - Shelby Tube Sample SS - Split Spoon Sample												
5														
6														

App'd \_\_\_\_\_ Oct 9 2007 14:58:17

## APPENDIX C

Photos



**Photo 1 - Coring Ice to Access Pond Bottom - Feb. 6, 2007  
PRSS-07BH-01 (Coordinates: 5124120, 4599200)**



**Photo 2 - Probing Pond Bottom Sediments - Feb. 6, 2007  
PRSS-07BH-01 (Coordinates: 5124120, 4599200)**





**Photo 3 - Interface between Grey Silt and Clay and Black Coal Fines Layers -  
Feb. 6, 2007**



**Photo 4 - Natural Pond Sediments - Feb. 27, 2007**



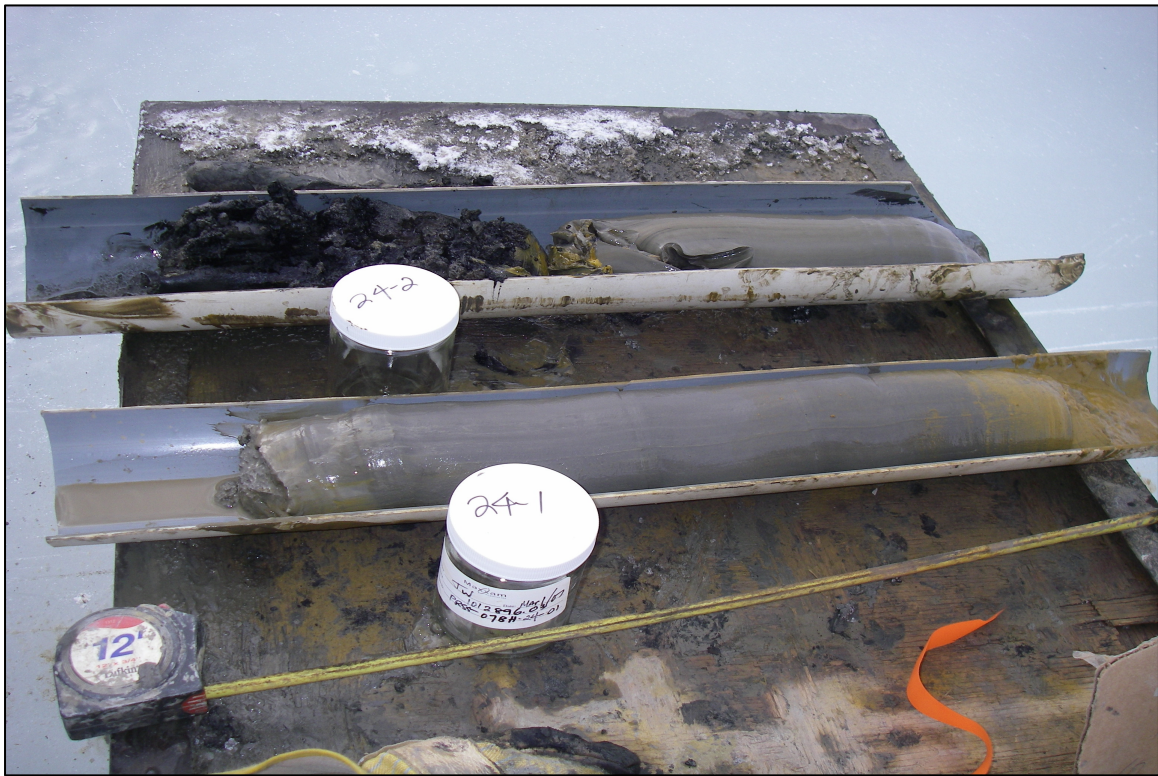


**Photo 5 - Sample of Grey Silt and Clay Layer - Feb. 28. 2007  
PRSS-07BH-16-01 (Coordinates: 5123970, 4599148)**

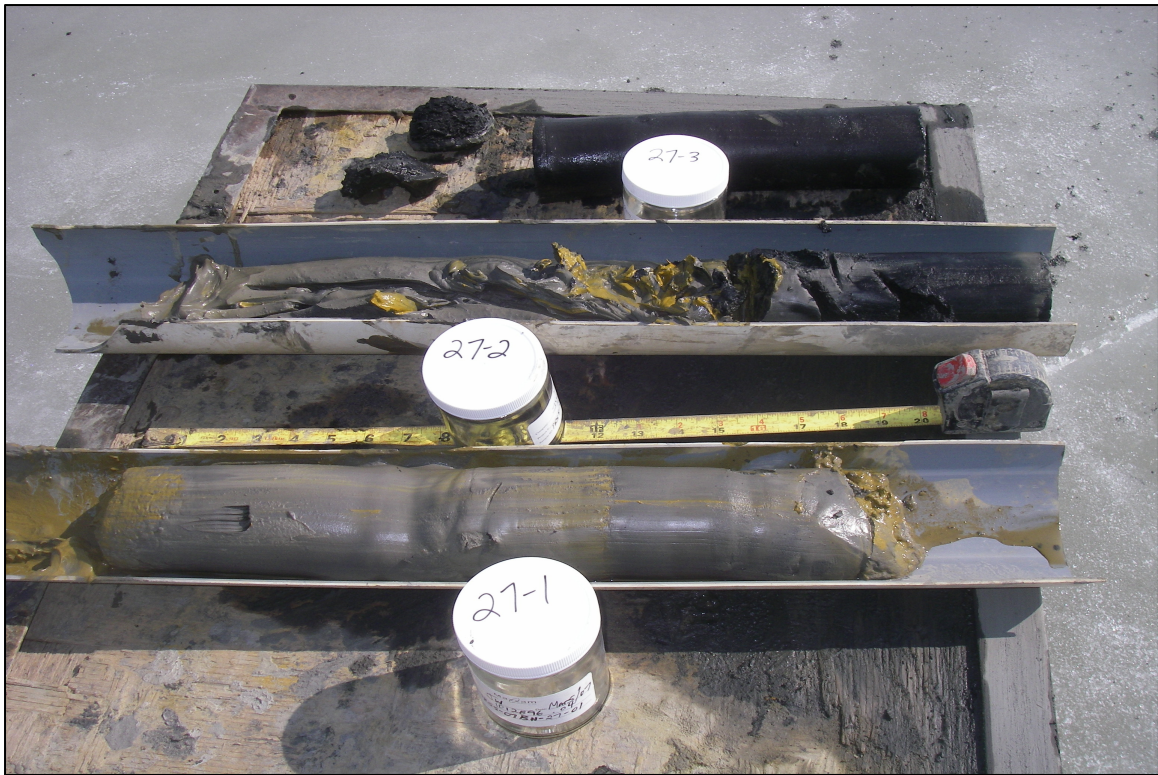


**Photo 6 - CME 55 Drill Preparing Borehole For Sampling  
PRSS-07BH-17 (Coordinates: 5124010, 4599108)**





**Photo 7 - Interface between Grey Silt and Clay and Black Coal Fines Layers  
PRSS-07BH-24-01 and PRSS-07BH-24-02 (Coordinates: 512120, 4599148)**



**Photo 8 - Interface between Grey Silt and Clay and Black Coal Fines Layers  
PRSS-07BH-27-01, PRSS-07BH-27-02, PRSS-07BH-27-03 (Coordinates:  
5124196, 4599175)**





**Photo 9 - Boart Longyear Drill Crew Using the Tri-Pod Sampling System  
PRSS-07BH-28 (Coordinates: 5124163, 4599184)**



**Photo 10 - Interface between Grey Silt and Clay and Black Coal Fines Layers  
PRSS-07BH-30-01 and PRSS-07BH-30-02 (Coordinates: 5124163,  
4599184) (Coordinates: 5124196, 4599175)**

## **APPENDIX D**

Grain Size Analysis  
And Moisture Contents





Jacques  
Whitford

# MATERIALS TESTING REPORT

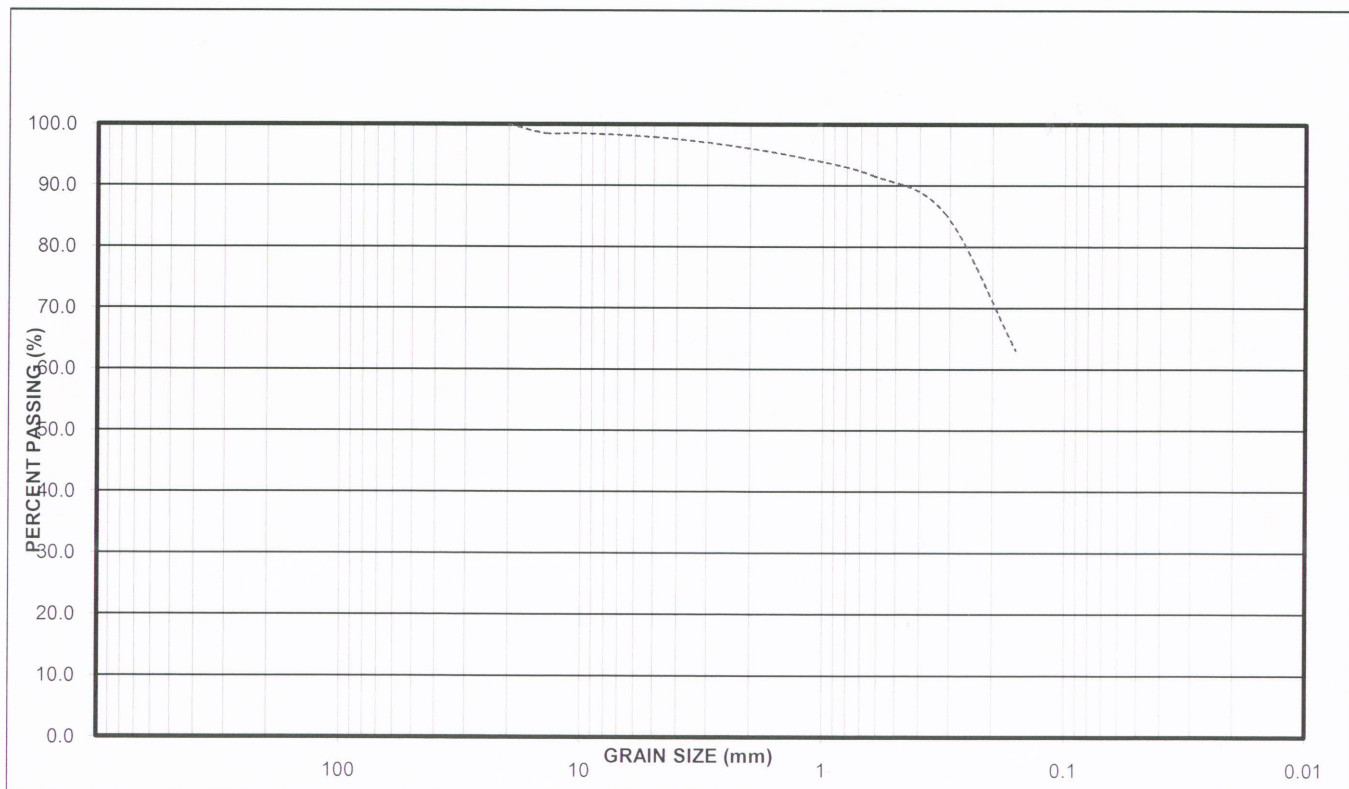
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-04-03

Material Type: Grey Black Silty Sand Test 1  
Date Received: 4-Jan-07  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20	100.0			
14	98.5			
10	98.5			
5	97.9			
2.5	96.6			
1.25	94.6			
0.630	91.7			
0.315	85.5			
0.160	63.1			
0.080	46.3			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.1	
Sand, %	51.6	
Silt & Clay, %	46.3	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density: Standard		
Optimum Moisture Content %		



Technician

BM

Reviewed By

WM



Jacques  
Whitford

## MATERIALS TESTING REPORT

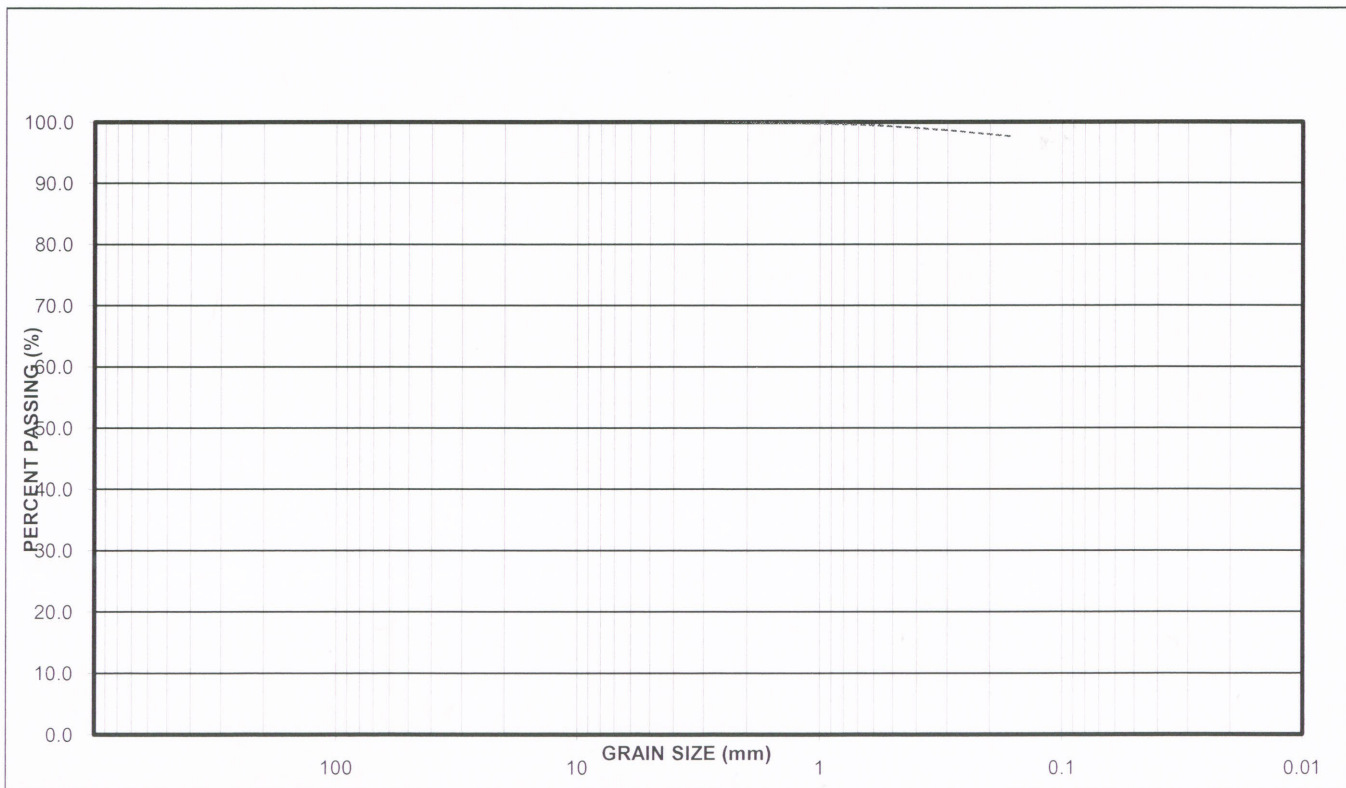
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-06-01

Material Type: Grey Silt Test 2  
Date Received: \_\_\_\_\_  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14					
10					
5					
2.5	100.0				
1.25	99.8				
0.630	99.5				
0.315	98.7				
0.160	97.6				
0.080	95.9				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	0.0	
Sand, %	4.1	
Silt & Clay, %	95.9	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density: Standard		
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

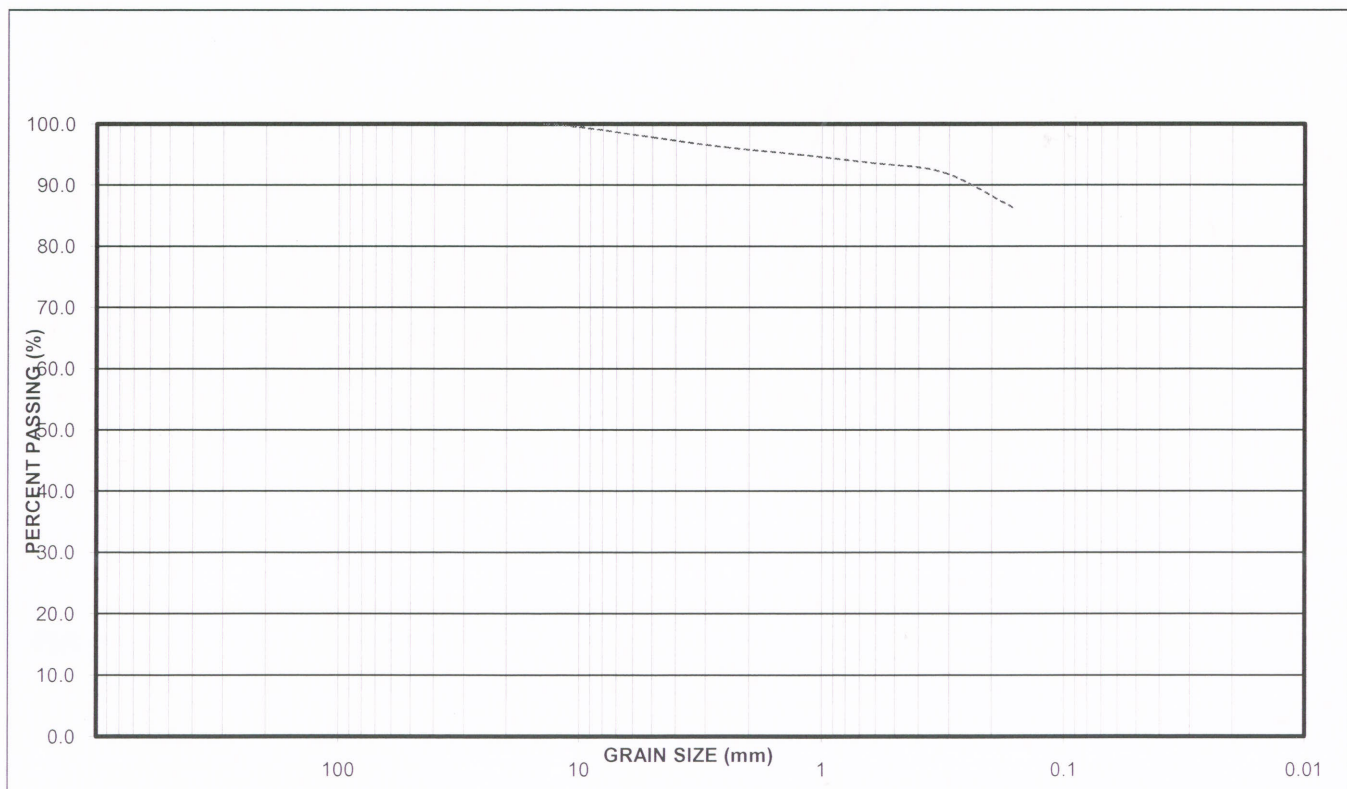
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-07-05

Material Type: Coal Test 3  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14	100.0			
10	99.5			
5	97.8			
2.5	96.2			
1.25	95.0			
0.630	93.6			
0.315	92.0			
0.160	86.1			
0.080	74.3			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.2	
Sand, %	23.5	
Silt & Clay, %	74.3	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

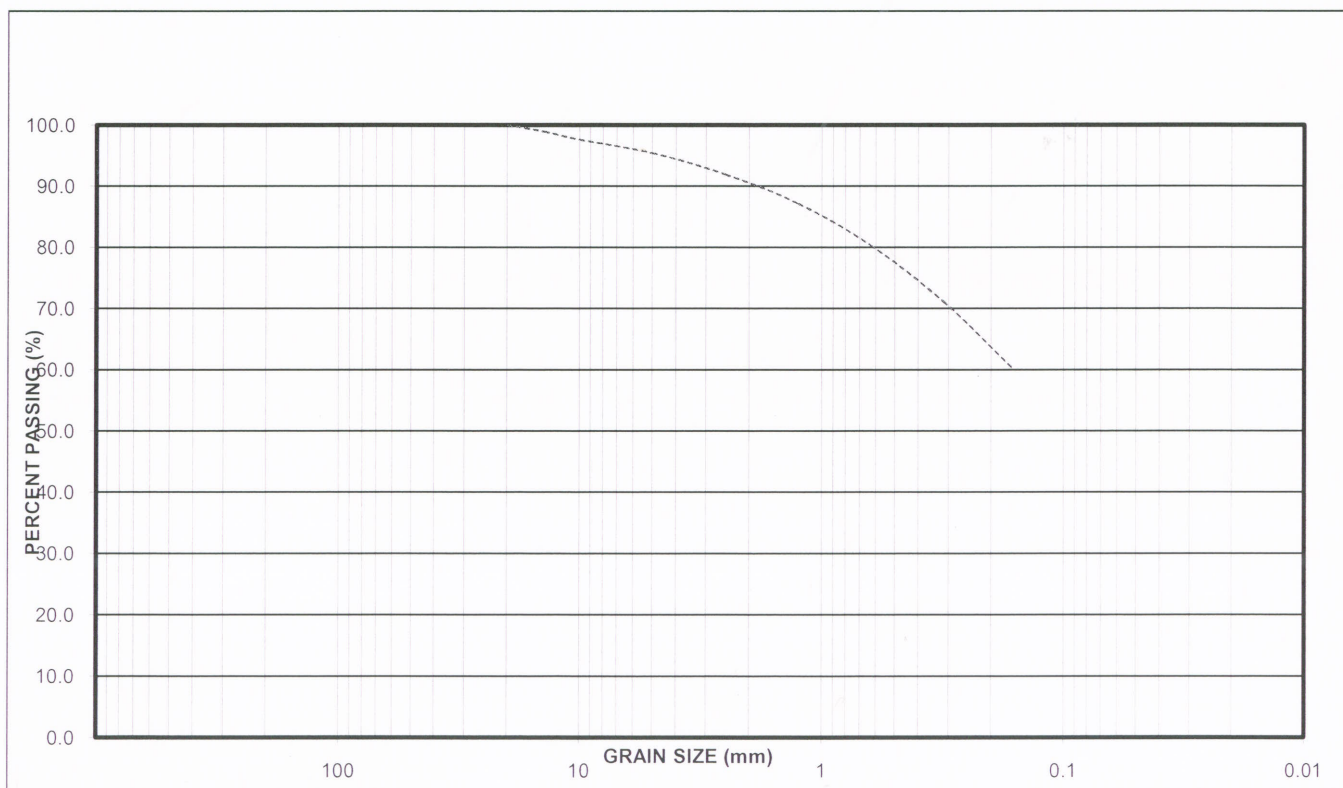
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-08-03

Material Type: Coal Test 4  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20	100.0			
14	98.9			
10	97.6			
5	95.4			
2.5	91.9			
1.25	87.1			
0.630	80.3			
0.315	71.1			
0.160	59.9			
0.080	46.1			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	4.6	
Sand, %	49.3	
Silt & Clay, %	46.1	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density: Standard		
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

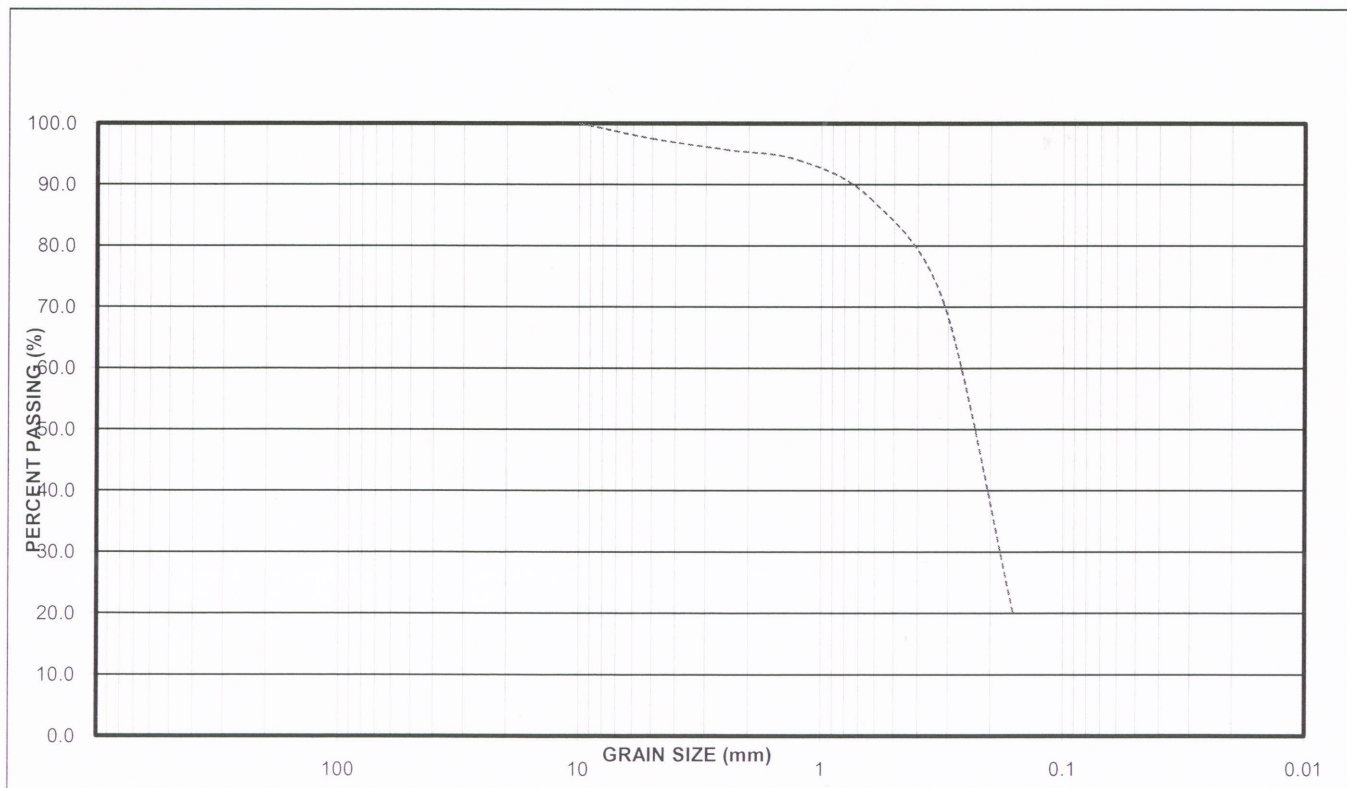
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-09-04

Material Type: Silt with Sand(tr.coal) Test 5  
Date Received:  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14					
10	100.0				
5	97.5				
2.5	95.7				
1.25	94.0				
0.630	87.7				
0.315	70.9				
0.160	19.7				
0.080	10.4				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.5	
Sand, %	87.1	
Silt & Clay, %	10.4	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

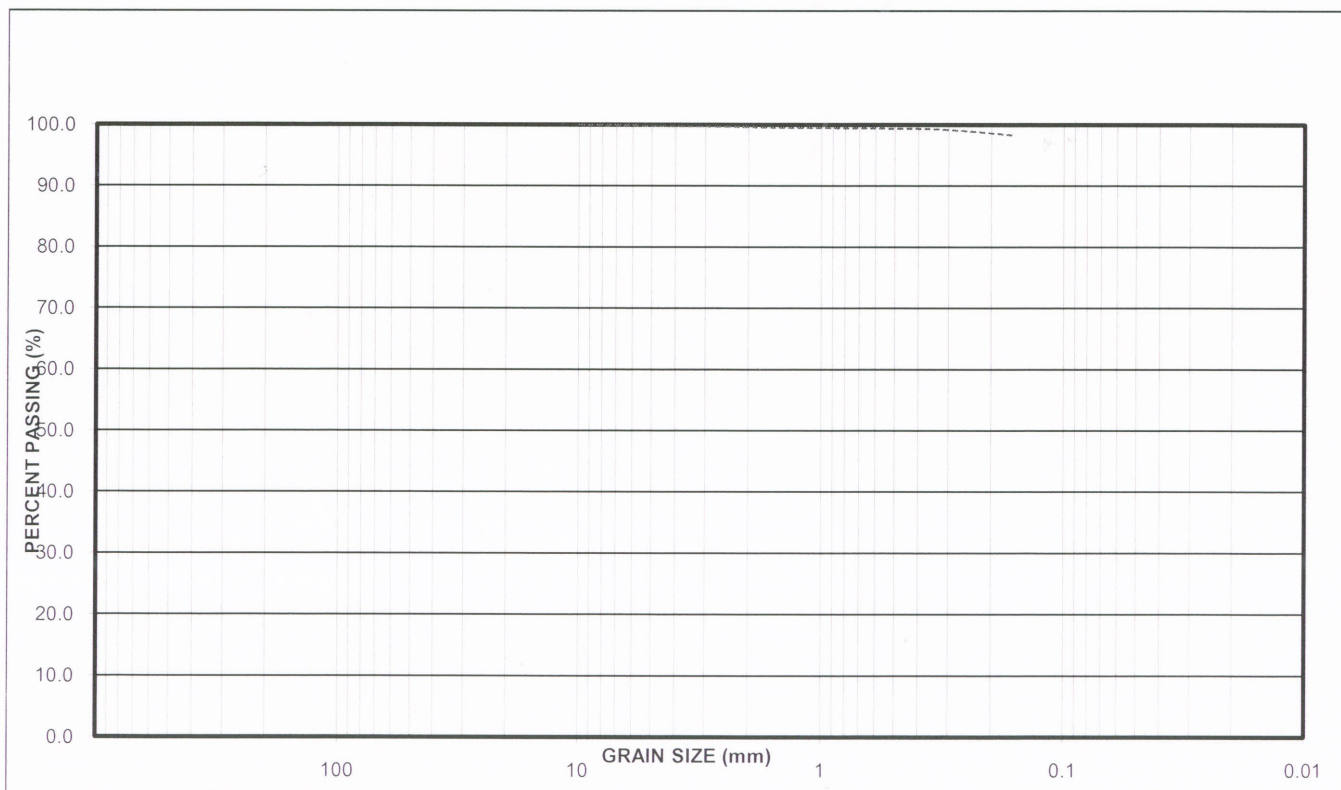
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-10-01

Material Type: Silt ( trace coal) Test 6  
Date Received:  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14					
10	100.0				
5	99.8				
2.5	99.7				
1.25	99.5				
0.630	99.4				
0.315	99.2				
0.160	98.3				
0.080	97.4				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	0.2	
Sand, %	2.2	
Silt & Clay, %	97.4	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density: Standard		
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

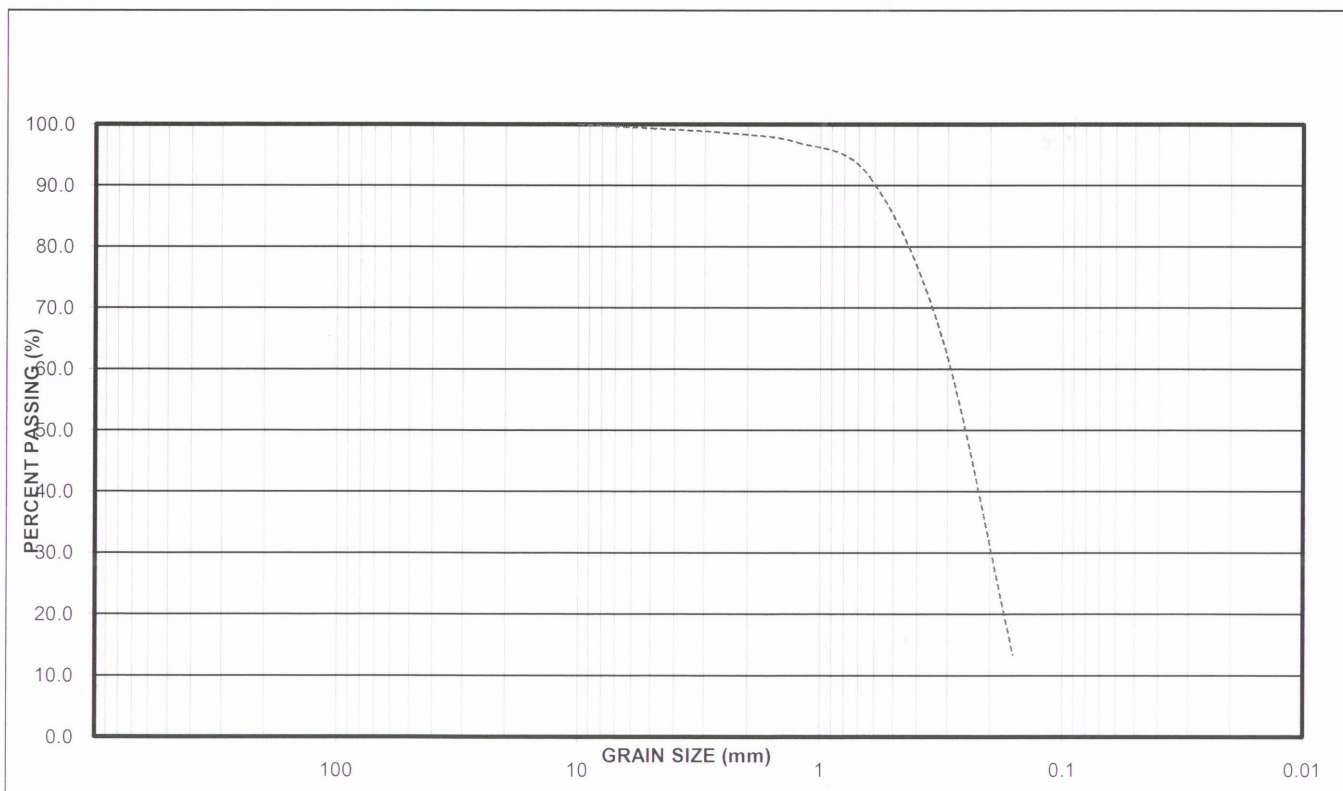
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-10-04

Material Type: Sand ( trace coal) Test 7  
Date Received:  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14					
10	100.0				
5	99.3				
2.5	98.6				
1.25	97.0				
0.630	91.3				
0.315	64.8				
0.160	13.3				
0.080	4.7				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	0.7	
Sand, %	94.6	
Silt & Clay, %	4.7	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

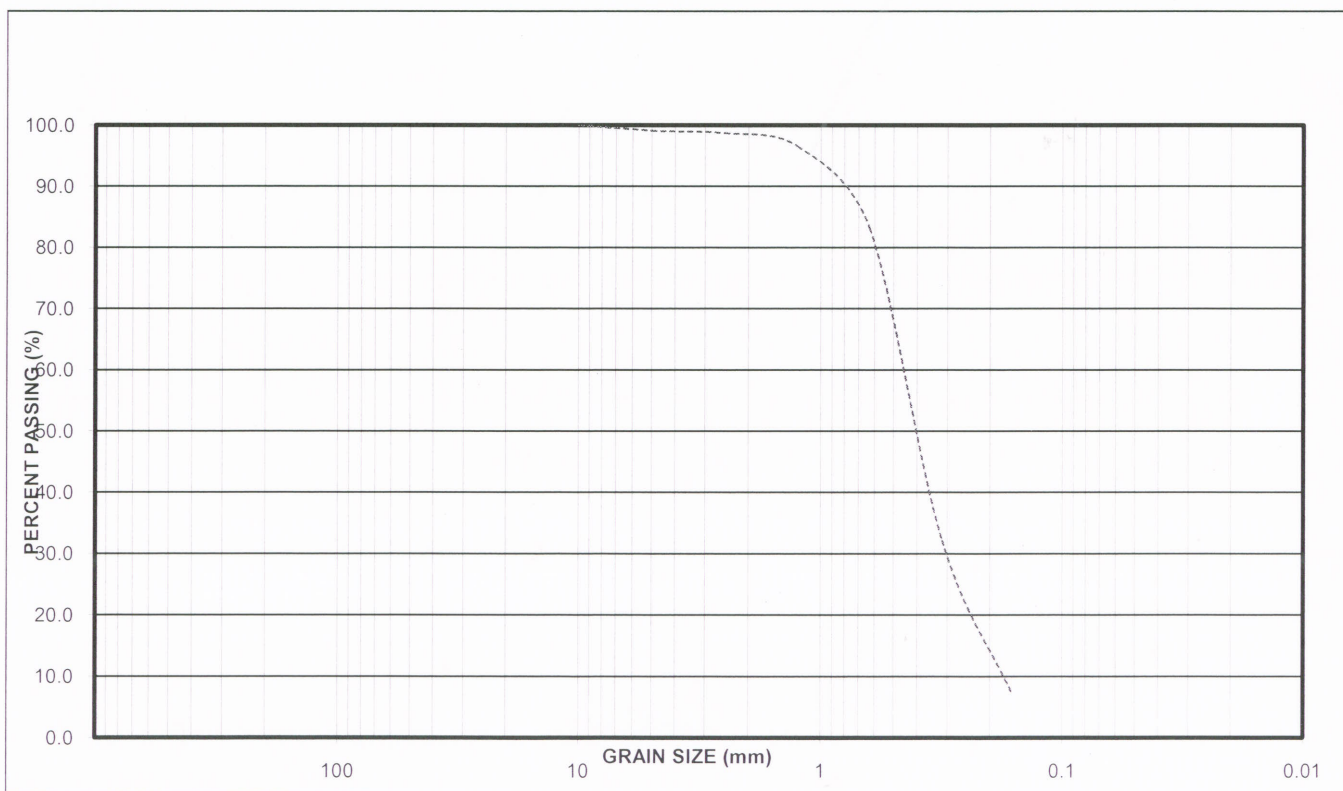
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-13-03

Material Type: Sand ( trace coal) Test 8  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14				
10	100.0			
5	99.1			
2.5	98.7			
1.25	96.5			
0.630	83.1			
0.315	32.1			
0.160	6.9			
0.080	3.8			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	0.9	
Sand, %	95.3	
Silt & Clay, %	3.8	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

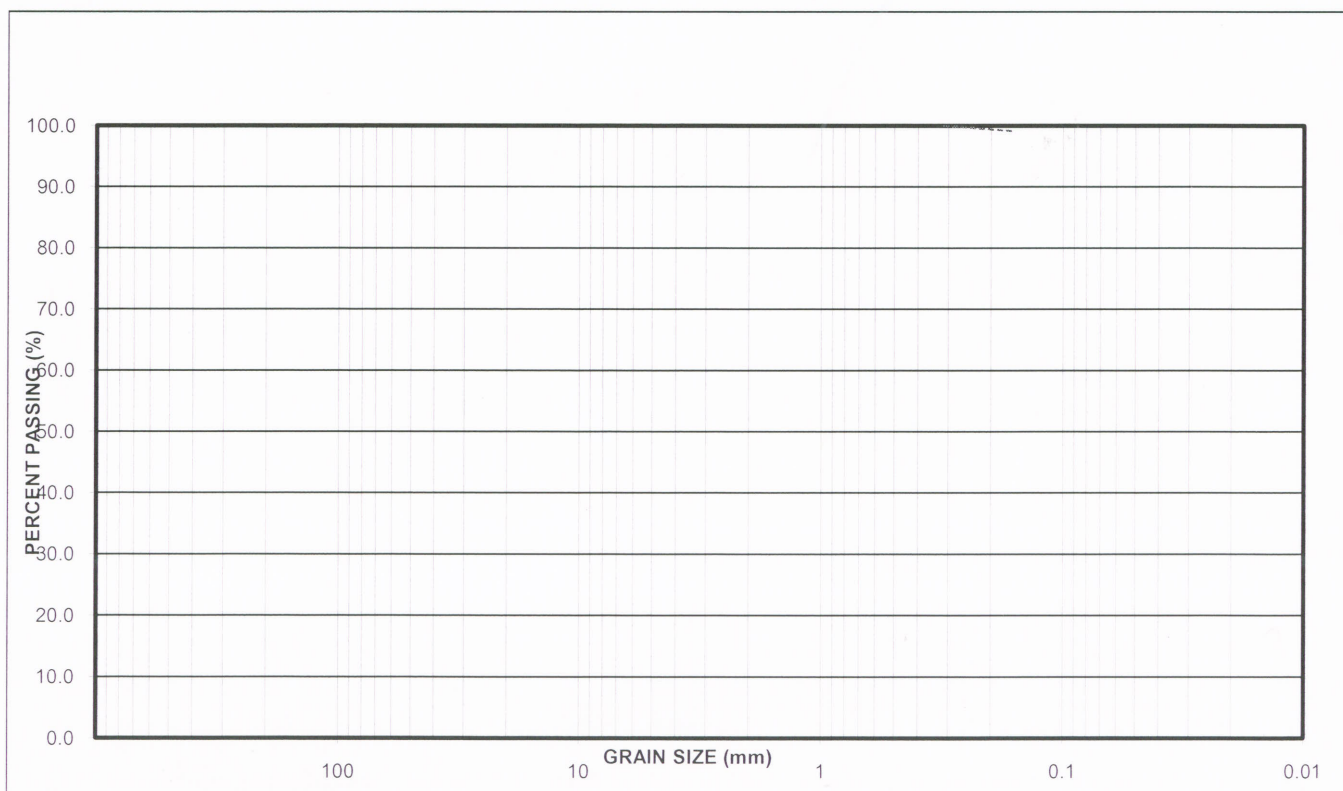
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07-15-01

Material Type: Silt ( trace coal) Test 9  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14				
10				
5				
2.5				
1.25				
0.630				
0.315	100.0			
0.160	99.1			
0.080	98.9			

PHYSICAL PROPERTY TESTS	
Sample Number	1
Gravel, %	0.0
Sand, %	1.1
Silt & Clay, %	98.9
Petrographic No:	
Abrasion Loss, %	
Soundness Loss, %	
Micro Deval Loss, %	
Fine Absorption, %	
Flat & Elongated Particles, %	
Coarse Absorption, %	
Coarse Spec. Gravity, kg/m <sup>3</sup>	
Fractured Faces, %	
Liquid Limit, %	
Plastic Limit, %	
Plasticity Index, %	
Max. Dry Density: Standard	
Optimum Moisture Content %	



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## MATERIALS TESTING REPORT

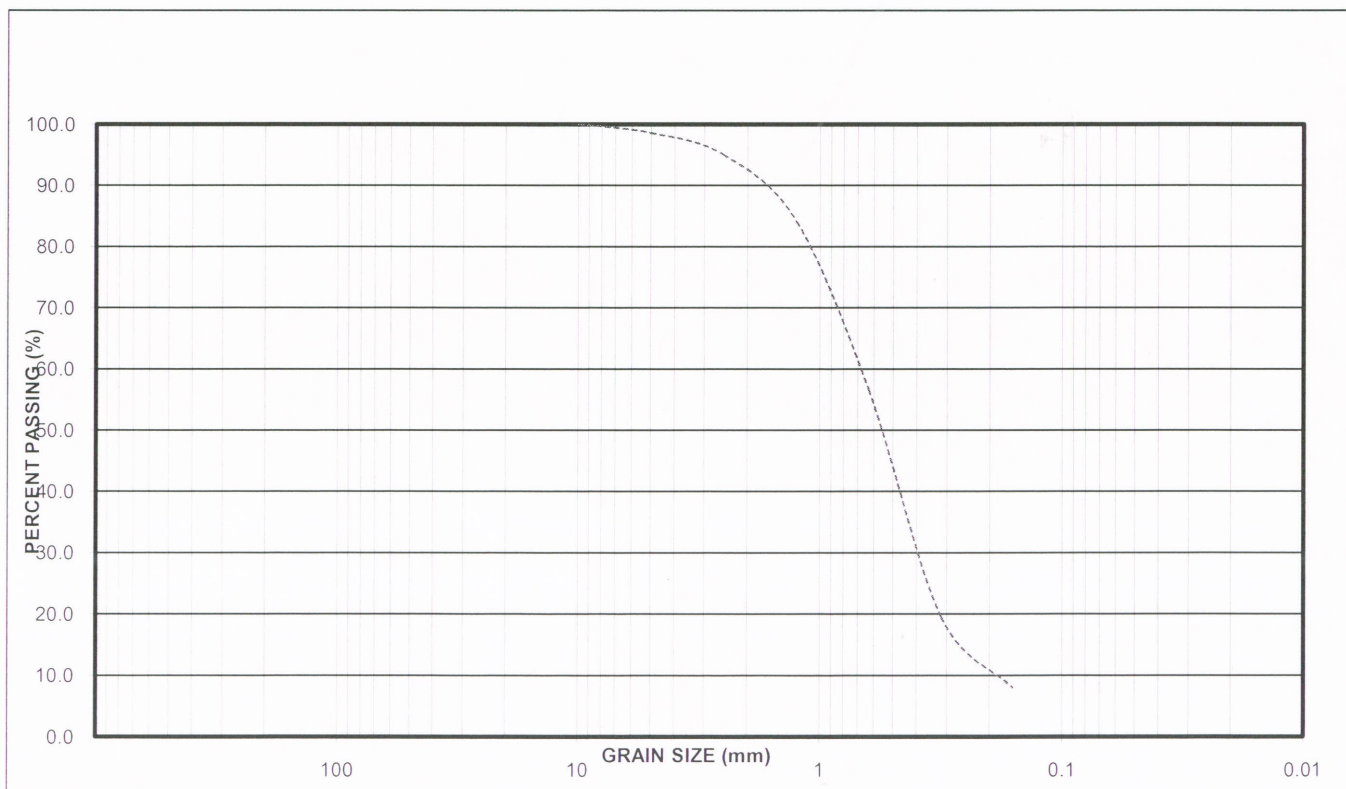
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-18-03

Material Type: Sand ( trace coal) Test 10  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14				
10	100.0			
5	98.6			
2.5	95.0			
1.25	84.0			
0.630	56.5			
0.315	19.4			
0.160	8.0			
0.080	4.6			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	1.4	
Sand, %	94.0	
Silt & Clay, %	4.6	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

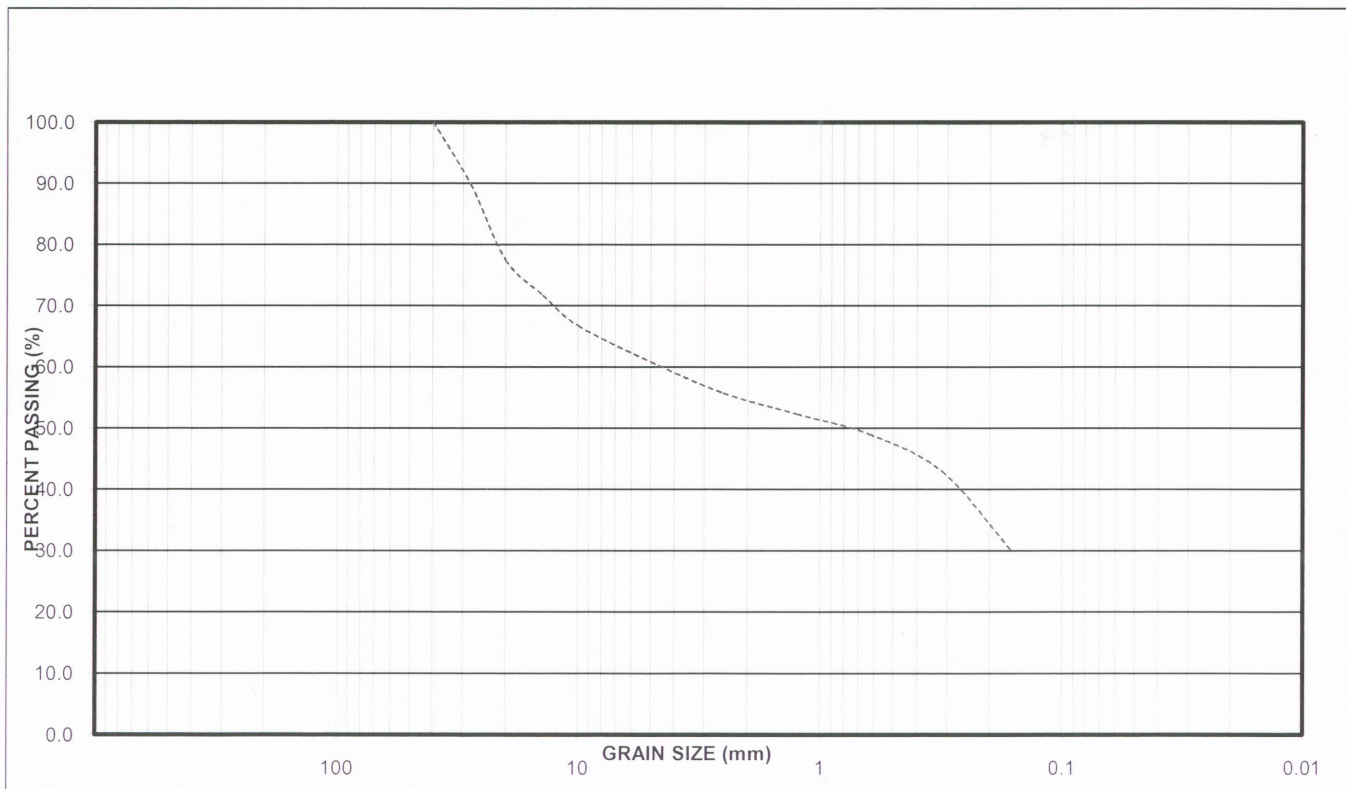
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-19-02

Material Type: Silty gravel w/Sand Test 11  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40	100.0			
28	89.8			
20	77.4			
14	71.7			
10	66.7			
5	60.8			
2.5	55.7			
1.25	52.3			
0.630	49.0			
0.315	42.9			
0.160	29.7			
0.080	21.8			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	39.2	
Sand, %	39.0	
Silt & Clay, %	21.8	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

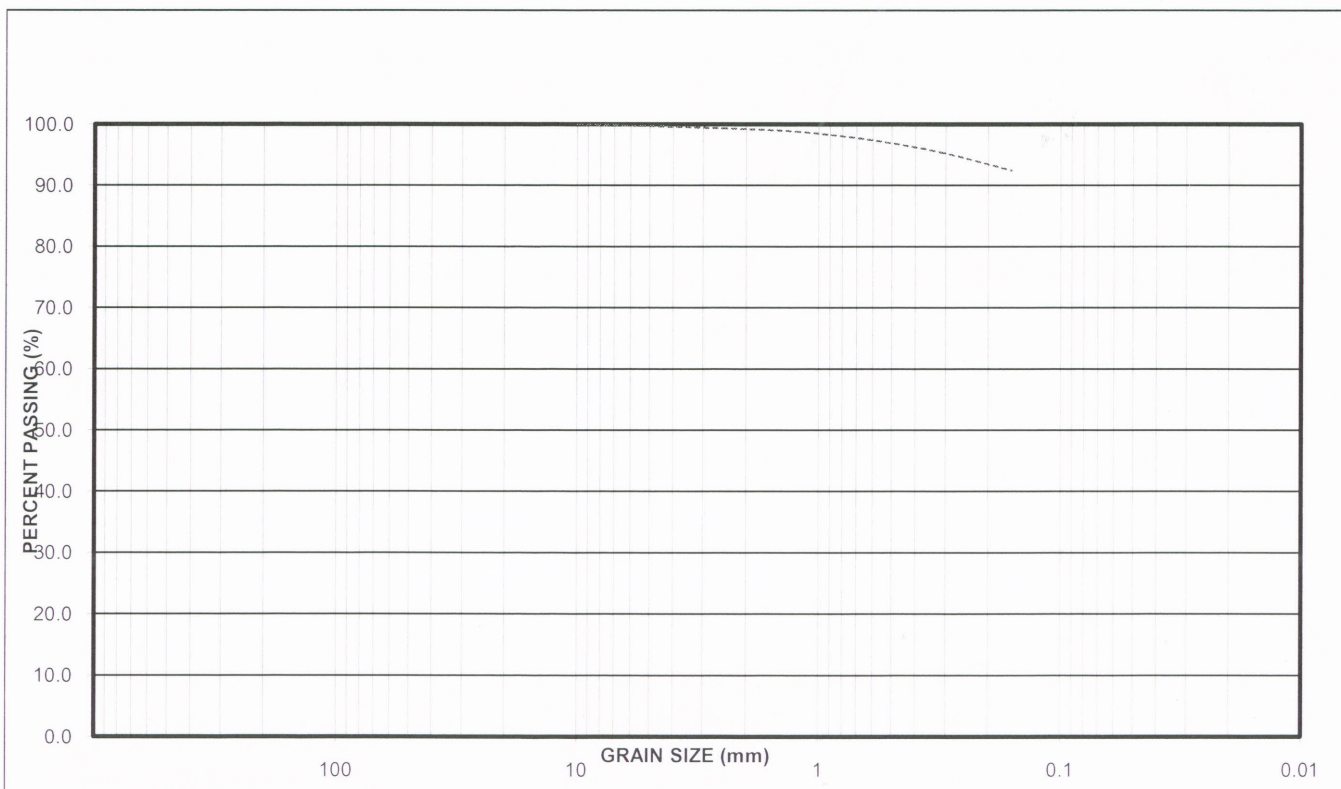
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-21-01

Material Type: Silt Test 12  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14				
10	100.0			
5	99.7			
2.5	99.3			
1.25	98.8			
0.630	97.5			
0.315	95.4			
0.160	92.4			
0.080	88.6			

PHYSICAL PROPERTY TESTS	
Sample Number	1
Gravel, %	0.3
Sand, %	11.1
Silt & Clay, %	88.6
Petrographic No:	
Abrasion Loss, %	
Soundness Loss, %	
Micro Deval Loss, %	
Fine Absorption, %	
Flat & Elongated Particles, %	
Coarse Absorption, %	
Coarse Spec. Gravity, kg/m <sup>3</sup>	
Fractured Faces, %	
Liquid Limit, %	
Plastic Limit, %	
Plasticity Index, %	
Max. Dry Density: Standard	
Optimum Moisture Content %	



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## MATERIALS TESTING REPORT

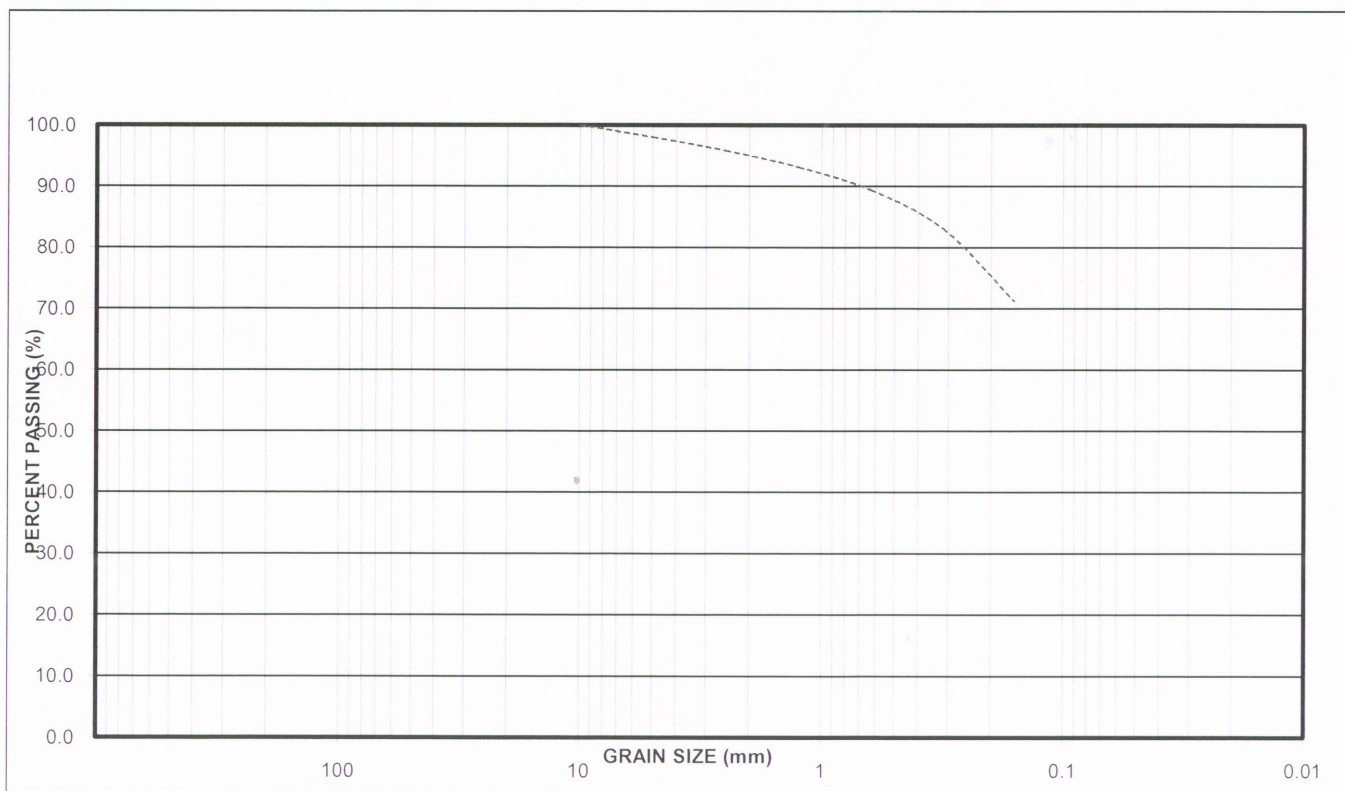
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-21-03

Material Type: Sandy Silt (tr.Coal) Test 13  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14				
10	100.0			
5	98.0			
2.5	95.8			
1.25	93.1			
0.630	89.4			
0.315	83.0			
0.160	71.2			
0.080	55.9			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.0	
Sand, %	42.1	
Silt & Clay, %	55.9	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

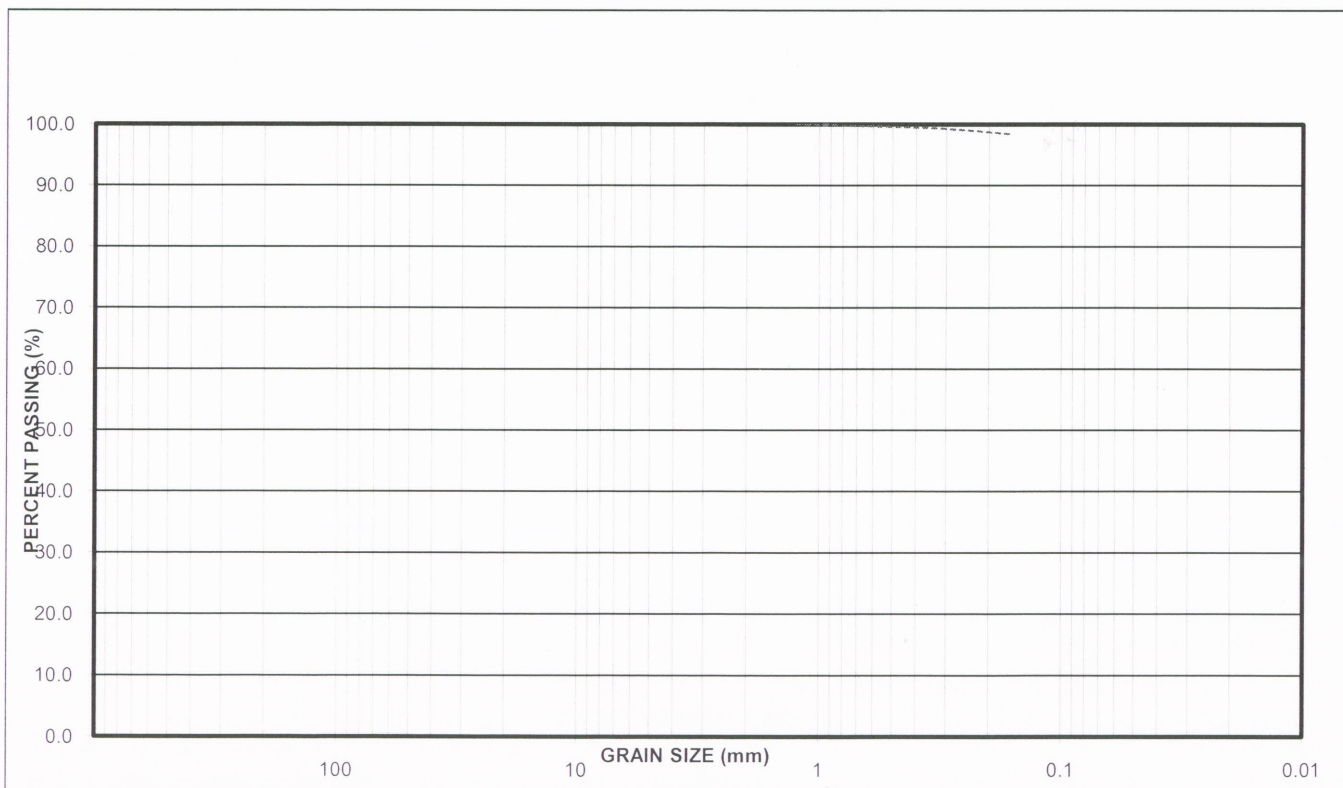
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-23-01

Material Type: Silt (tr.Coal) Test 14  
Date Received:  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14					
10					
5					
2.5					
1.25	100.0				
0.630	99.7				
0.315	99.3				
0.160	98.4				
0.080	96.8				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	0.0	
Sand, %	3.2	
Silt & Clay, %	96.8	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density: Standard		
Optimum Moisture Content %		



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# MATERIALS TESTING REPORT

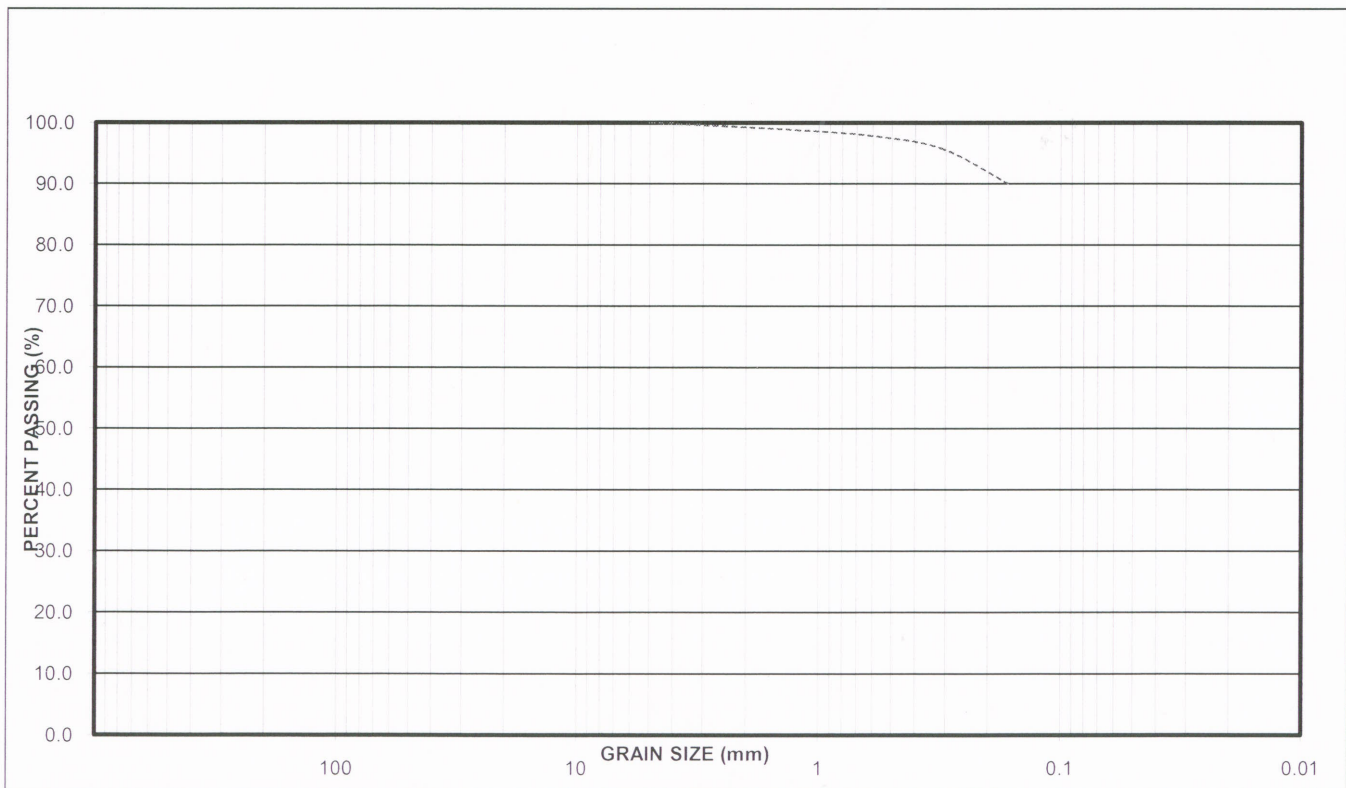
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-23-03

Material Type: Coal Test 15  
Date Received:  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14					
10					
5	100.0				
2.5	99.4				
1.25	98.8				
0.630	97.9				
0.315	95.8				
0.160	89.7				
0.080	72.5				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	0.0	
Sand, %	27.5	
Silt & Clay, %	72.5	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density: Standard		
Optimum Moisture Content %		



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## MATERIALS TESTING REPORT

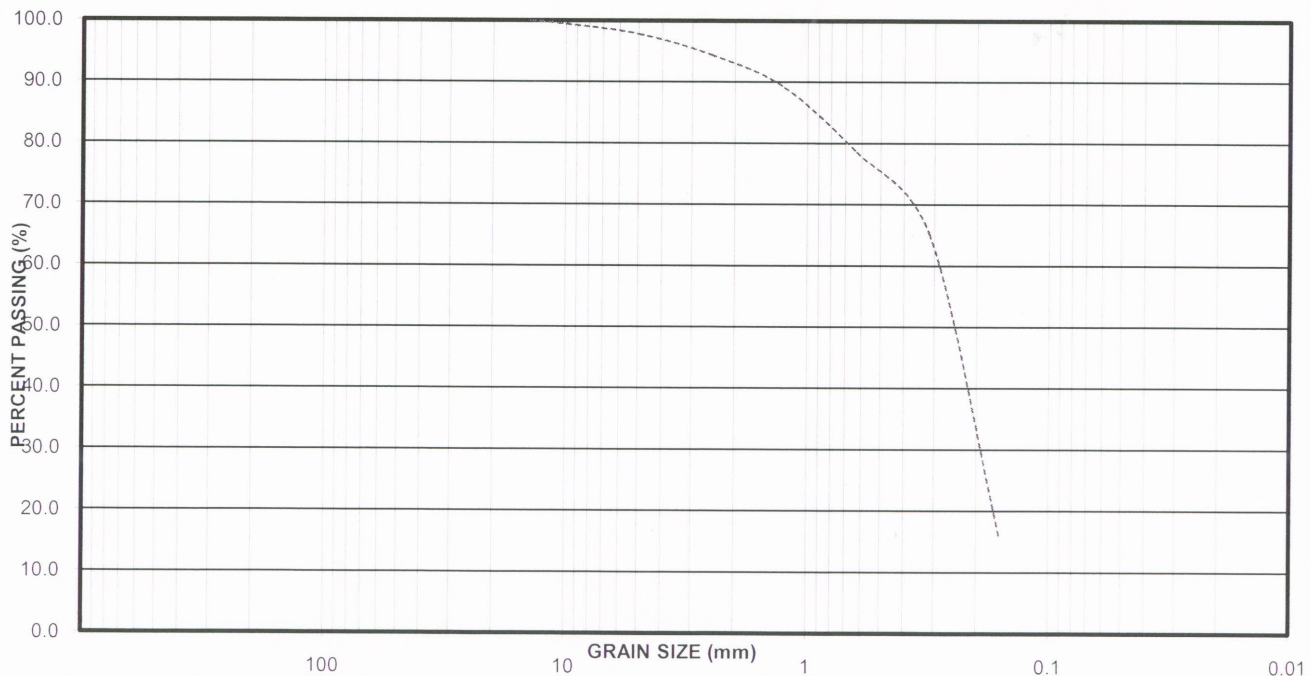
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-28-02

Material Type: Sand ( Tr. Coal ) Test 16  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14	100.0			
10	99.4			
5	97.8			
2.5	94.4			
1.25	89.1			
0.630	78.5			
0.315	65.2			
0.160	15.9			
0.080	8.3			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.2	
Sand, %	89.5	
Silt & Clay, %	8.3	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		





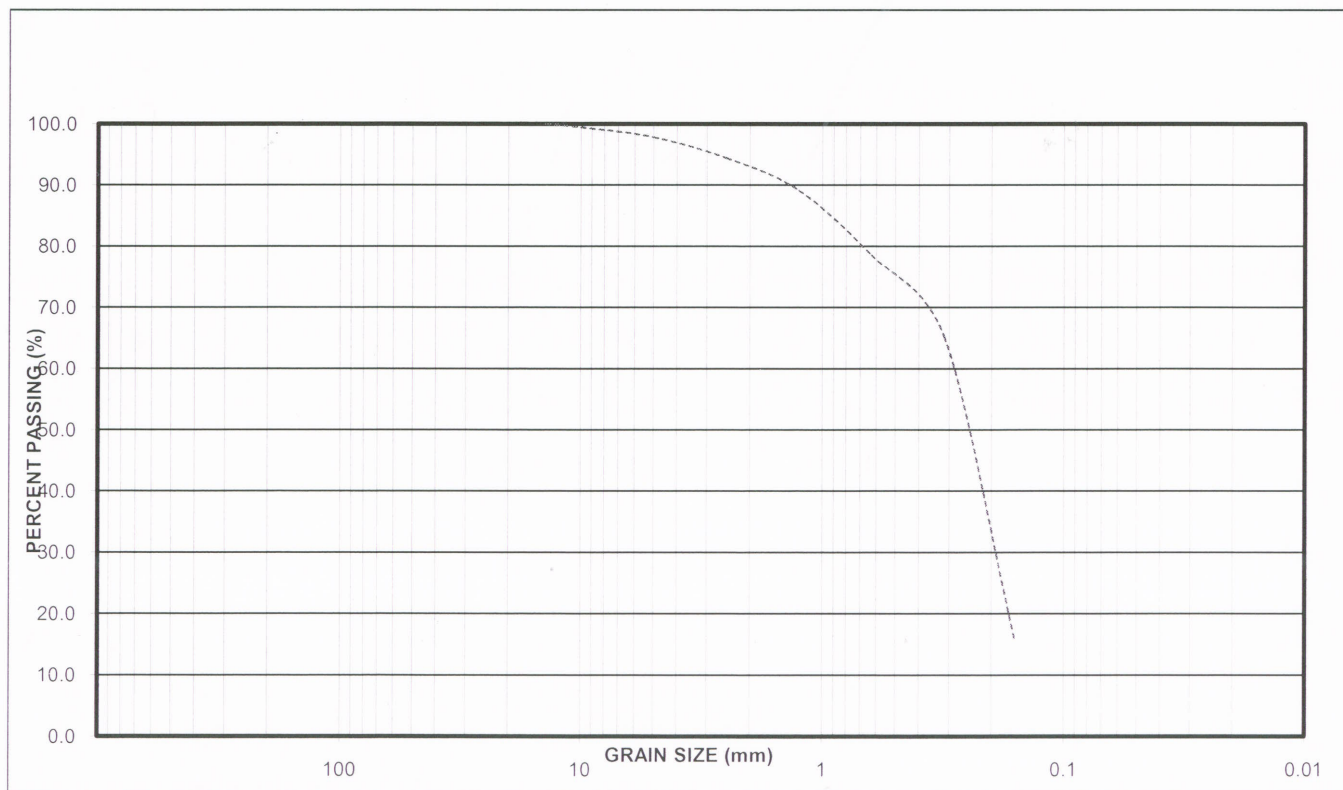
## Project #: 1012896.04

**Client:** Public Works and Government Services  
**Project:** Edwards Pond  
**Source:** PRSS-07DUP-03 (duplicate of PRSS-07BH-28-02)

Material Type: Sand ( Tr. Coal )      Test 17  
Date Received: \_\_\_\_\_  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20					
14	100.0				
10	99.4				
5	97.8				
2.5	94.4				
1.25	89.1				
0.630	78.5				
0.315	65.2				
0.160	15.9				
0.080	8.3				

PHYSICAL PROPERTY TESTS		
Sample Number		1
Gravel, %		1.7
Sand, %		91.2
Silt & Clay, %		7.1
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles,%		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



## Technician

AM

Reviewed By

WM





Jacques  
Whitford

## MATERIALS TESTING REPORT

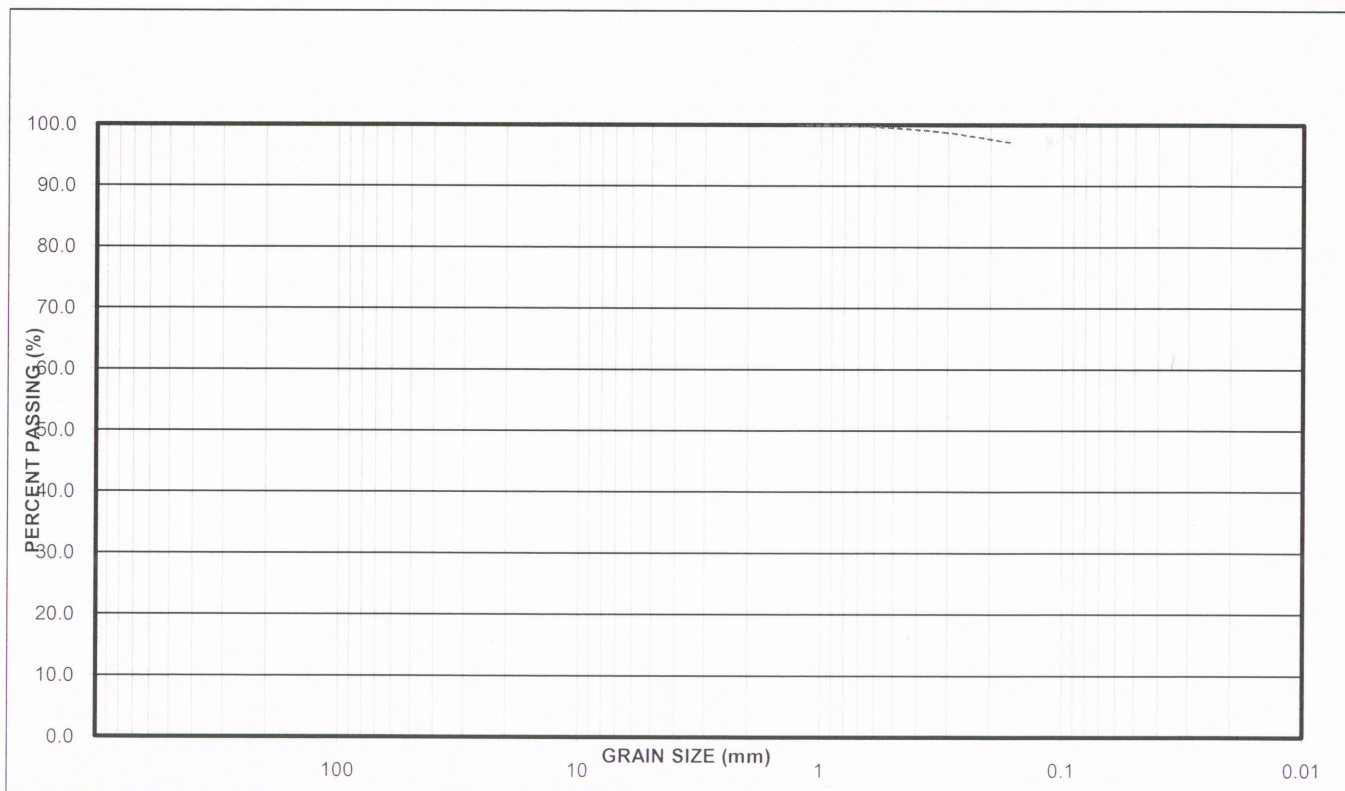
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-30-01

Material Type: Silt ( Tr. Coal ) Test 18  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14				
10				
5				
2.5				
1.25	100.0			
0.630	99.7			
0.315	98.8			
0.160	97.0			
0.080	95			

PHYSICAL PROPERTY TESTS	
Sample Number	1
Gravel, %	0.0
Sand, %	5.0
Silt & Clay, %	95.0
Petrographic No:	
Abrasion Loss, %	
Soundness Loss, %	
Micro Deval Loss, %	
Fine Absorption, %	
Flat & Elongated Particles, %	
Coarse Absorption, %	
Coarse Spec. Gravity, kg/m <sup>3</sup>	
Fractured Faces, %	
Liquid Limit, %	
Plastic Limit, %	
Plasticity Index, %	
Max. Dry Density: Standard	
Optimum Moisture Content %	



Technician AM

Reviewed By WM



Jacques  
Whitford

## MATERIALS TESTING REPORT

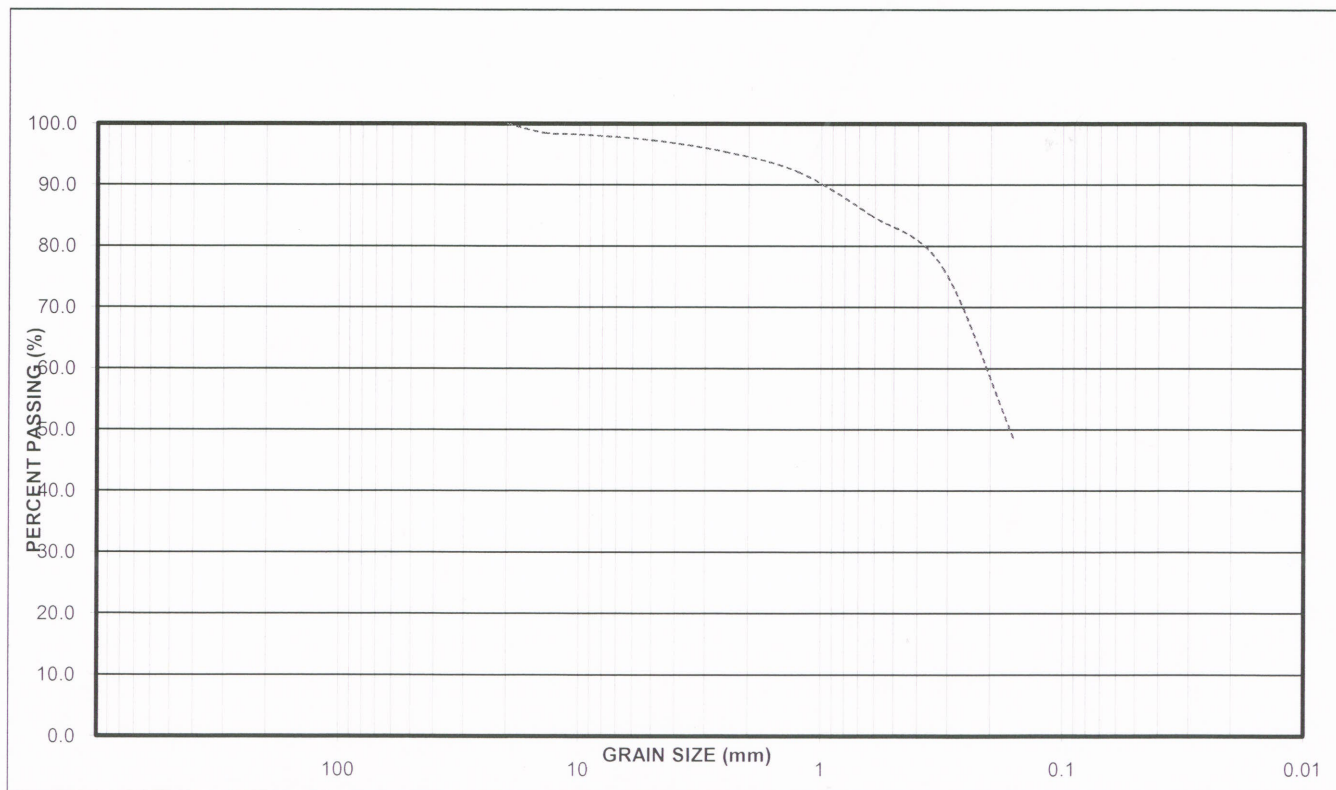
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-30-02

Material Type: Silty Sand ( tr. Coal ) Test 19  
Date Received:  
Date Tested: March 14/07

GRADING					
SAMPLE #	1	2	3	SPEC	
SIEVE (mm)	% PASSING	% PASSING	% PASSING		
112				-	
80					
56					
40					
28					
20	100.0				
14	98.5				
10	98.2				
5	97.3				
2.5	95.4				
1.25	92.1				
0.630	85.1				
0.315	76.4				
0.160	48.5				
0.080	38.8				

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.7	
Sand, %	58.5	
Silt & Clay, %	38.8	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



Technician

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## MATERIALS TESTING REPORT

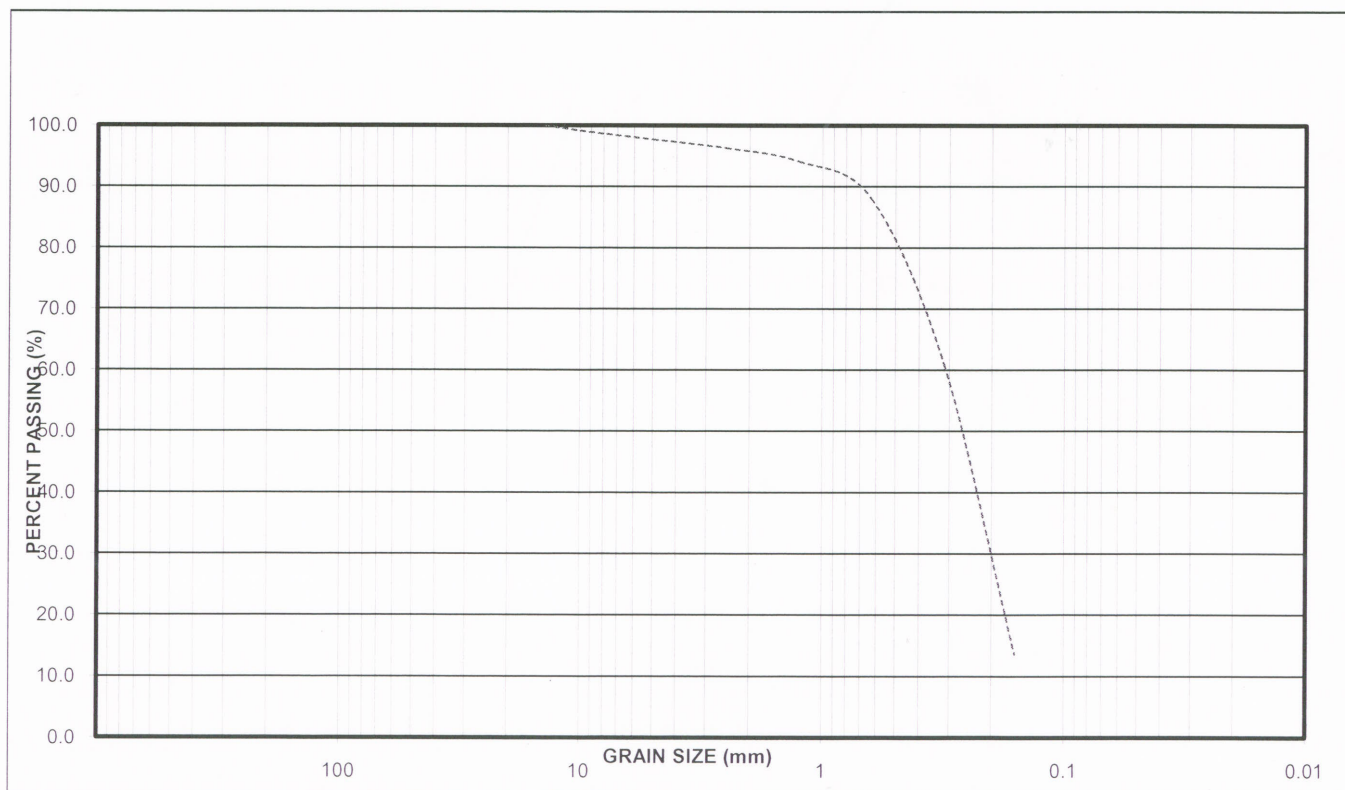
Project #: 1012896.04

Client: Public Works and Government Services  
Project: Edwards Pond  
Source: PRSS-07BH-30-05

Material Type: Sand with Silt ( tr. Coal ) Test 20  
Date Received:  
Date Tested: March 14/07

GRADING				
SAMPLE #	1	2	3	SPEC
SIEVE (mm)	% PASSING	% PASSING	% PASSING	
112				-
80				
56				
40				
28				
20				
14	100.0			
10	99.1			
5	97.7			
2.5	96.3			
1.25	94.1			
0.630	88.0			
0.315	60.8			
0.160	13.6			
0.080	8.4			

PHYSICAL PROPERTY TESTS		
Sample Number	1	
Gravel, %	2.3	
Sand, %	89.3	
Silt & Clay, %	8.4	
Petrographic No:		
Abrasion Loss, %		
Soundness Loss, %		
Micro Deval Loss, %		
Fine Absorption, %		
Flat & Elongated Particles, %		
Coarse Absorption, %		
Coarse Spec. Gravity, kg/m <sup>3</sup>		
Fractured Faces, %		
Liquid Limit, %		
Plastic Limit, %		
Plasticity Index, %		
Max. Dry Density:	Standard	
Optimum Moisture Content %		



Technician

AM

Reviewed By

WM

## **APPENDIX E**

Analytical Summary Tables  
And Laboratory Certificates

TABLE E-1

**SEDIMENT MODIFIED ACID-BASE ACCOUNTING**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Page 1 of 3

Sample ID:			PRSS-07BH-23-01	PRSS-07BH-22-01	PRSS-07BH-16-01	PRSS-07BH-26-01	PRSS-07BH-29-01	PRSS-07BH-30-01
Maxxam (RPC) Laboratory ID:			68195-01A	68195-02	68195-03	68195-04	68195-05	68195-06
Matrix:			Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)
Depth (mbpb):			0-0.61	0-0.61	0-0.61	0-0.61	0-0.61	0-0.61
Date Sampled:			1-Mar-07	1-Mar-07	28-Feb-07	5-Mar-07	5-Mar-07	5-Mar-07
Parameters	NSEL Sulphide Bearing Material Guideline	Units						
Paste pH	-	-	2.5	2.7	2.4	2.6	3.0	3.0
Total Sulfur	-	%	1.50	1.27	1.44	1.44	1.30	1.51
Sulfate	-	%	1.15	0.626	1.12	1.12	0.836	1.03
Sulfide	0.4	%	0.35	<b>0.644</b>	0.32	0.32	<b>0.464</b>	<b>0.480</b>
Acid Production Potential	-	Kg	10.9	20.1	10.0	10.0	14.5	15.0
Neutralizing Potential pH 8.3	-	CaCO <sub>3</sub>	-9.2	-5.5	-10.4	-10.8	-7.0	-6.6
Net Neutralizing Potential pH 8.3	-	/tonne	-20.1	-25.6	-20.4	-20.8	-21.5	-21.6
NP/AP	-	-	-0.8	-0.3	-1.0	-1.1	-0.5	-0.4

**Notes:**

1. The modified acid/base accounting was determined by the Sobek method. Results based upon Sulphide
2. mbpb = metres below pond bottom
3. NSEL = Nova Scotia Environment and Labour Sulphide Bearing Material Disposal Regulations, under the NS Environment Act (April 1995)
4. A negative value for Net Neutralizing Potential indicates that the material is a net acid producer.
5. **Bold = parameter exceeds applicable guideline**
6. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-1

**SEDIMENT MODIFIED ACID-BASE ACCOUNTING**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:			PRSS-07BH-06-04	PRSS-07BH-21-02	PRSS-07BH-23-02	PRSS-07BH-24-03	PRSS-07BH-25-04	PRSS-07BH-07-04
Maxxam (RPC) Laboratory ID:			68195-07	68195-08	68195-09	68195-10	68195-11	68195-12
Matrix:			Sediment (BC)	Sediment (GS)	Sediment (BC)	Sediment (BC)	Sediment (NS)	Sediment (BC)
Depth (mbpb):			1.83-2.44	0.61-1.22	0.61-1.22	1.22-1.83	1.83-2.44	1.40-1.98
Date Sampled:			27-Feb-07	1-Mar-07	1-Mar-07	1-Mar-07	5-Mar-07	27-Feb-07
Parameters	NSEL Sulphide Bearing Material Guideline	Units						
Paste pH	-	-	7	4.9	4.2	4.4	6.9	7.0
Total Sulfur	-	%	1.12	1.66	1.11	1.84	0.538	1.47
Sulfate	-	%	0.06	0.089	0.236	0.118	0.029	0.079
Sulfide	0.4	%	<b>1.06</b>	<b>1.57</b>	<b>0.874</b>	<b>1.72</b>	<b>0.509</b>	<b>1.39</b>
Acid Production Potential	-	Kg	33.1	49.1	27.3	53.8	15.9	43.5
Neutralizing Potential pH 8.3	-	CaCO <sub>3</sub>	7.0	1.2	-1.9	4.4	17.5	6.2
Net Neutralizing Potential pH 8.3	-	/tonne	-26.1	-47.8	-29.2	-49.4	1.6	-37.3
NP/AP	-	-	0.2	0.0	-0.1	0.1	1.1	0.1

**Notes:**

1. The modified acid/base accounting was determined by the Sobek method. Results based upon Sulphide
2. mbpb = metres below pond bottom
3. NSEL = Nova Scotia Environment and Labour Sulphide Bearing Material Disposal Regulations, under the NS Environment Act (April 1995)
4. A negative value for Net Neutralizing Potential indicates that the material is a net acid producer.
5. **Bold = parameter exceeds applicable guideline**
6. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-1

**SEDIMENT MODIFIED ACID-BASE ACCOUNTING**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:			PRSS-07BH-10-06	PRSS-07BH-09-05	PRSS-07BH-13-02	PRSS-07BH-17-03	PRSS-07BH-26-06	PRSS-07BH-28-04	PRSS-07BH-DUP-01
Maxxam (RPC) Laboratory ID:			68195-13	68195-14	68195-15	68195-16	68195-17	68195-18	68195-19
Matrix:			Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (BC)
Depth (mbpb):			2.85-3.51	2.59-3.20	0.61-1.22	1.22-1.83	3.05-3.66	1.80-2.41	1.40-1.98
Date Sampled:			28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	5-Mar-07	5-Mar-07	1-Mar-07
Parameters	NSEL Sulphide Bearing Material Guideline	Units							
Paste pH	-	-	6.5	4.4	4.2	5.1	7.3	6.4	4.4
Total Sulfur	-	%	0.853	0.816	0.111	0.011	0.5	0.322	2.8
Sulfate	-	%	0.074	0.074	0.078	<.005	0.036	0.039	0.076
Sulfide	0.4	%	<b>0.779</b>	<b>0.742</b>	0.033	0.011	<b>0.473</b>	0.283	<b>2.73</b>
Acid Production Potential	-	Kg	24.3	23.2	1.0	0.3	14.8	8.8	85.4
Neutralizing Potential pH 8.3	-	CaCO <sub>3</sub>	0.70	-2.7	-1.9	-1.7	4.8	0.2	4.4
Net Neutralizing Potential pH 8.3	-	/tonne	-23.6	-25.8	-2.9	-2.1	-10.0	-8.6	-81.0
NP/AP	-	-	0.0	-0.1	-1.8	-5.0	0.3	0.0	0.1

**Notes:**

1. The modified acid/base accounting was determined by the Sobek method. Results based upon Sulphide
2. mbpb = metres below pond bottom
3. NSEL = Nova Scotia Environment and Labour Sulphide Bearing Material Disposal Regulations, under the NS Environment Act (April 1995)
4. A negative value for Net Neutralizing Potential indicates that the material is a net acid producer.
5. **Bold = parameter exceeds applicable guideline**
6. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-2

**SEDIMENT POLYCYCLIC AROMATIC HYDROCARBON CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Page 1 of 3

Sample ID:				PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07-BH-18-01	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01	PRSS-07BH-04-02
Maxxam Laboratory ID:				R28765	R28792	R28793	R28794	R28795	R28797	R28800
Matrix:				Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)
Depth (mbpb):				0-0.61	0-0.61	0-0.61	0-0.61	0-0.61	0-0.61	0.61-1.22
Date Sampled:				28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	1-Mar-07	28-Feb-07	27-Feb-07
Parameter	DL (mg/kg)	ISQG	PEL							
1-Methylnaphthalene	0.005	-	-	1.2	0.46	0.63	1.6	1.5	1.4	1.8
2-Methylnaphthalene	0.005	0.0202	0.201	<b>1.5</b>	<b>0.64</b>	<b>0.88</b>	<b>2.3</b>	<b>3.5</b>	<b>1.9</b>	<b>4.3</b>
Acenaphthene	0.005	0.00671	0.0889	<b>0.070</b>	0.006	<b>0.01</b>	<b>0.05</b>	<b>0.04</b>	<b>0.070</b>	<b>0.32</b>
Acenaphthylene	0.005	0.00587	0.128	ND	ND	ND	ND	ND	ND	<b>0.010</b>
Anthracene	0.005	0.0469	0.245	<b>0.12</b>	0.010	0.020	<b>0.14</b>	<b>0.06</b>	<b>0.14</b>	<b>0.23</b>
Benzo[a]anthracene	0.005	0.0317	0.385	<b>0.16</b>	<b>0.050</b>	<b>0.060</b>	<b>0.18</b>	<b>0.14</b>	<b>0.15</b>	<b>0.27</b>
Benzo[a]pyrene	0.005	0.0319	0.782	<b>0.070</b>	0.020	<b>0.040</b>	<b>0.11</b>	<b>0.080</b>	<b>0.080</b>	<b>0.15</b>
Benzo[b]fluoranthene	0.005	-	-	0.080	0.030	0.060	0.14	0.10	0.090	0.14
Benzo[ghi]perylene	0.005	-	-	0.080	0.030	0.050	0.09	0.070	0.070	0.090
Benzo[k]fluoranthene	0.005	-	-	0.090	0.040	0.050	0.13	0.090	0.10	0.15
Chrysene	0.005	0.0571	0.862	<b>0.20</b>	0.050	<b>0.080</b>	<b>0.22</b>	<b>0.19</b>	<b>0.19</b>	<b>0.32</b>
Dibenz[a,h]anthracene	0.005	0.00622	0.135	<b>0.020</b>	<b>0.010</b>	<b>0.020</b>	<b>0.03</b>	<b>0.030</b>	<b>0.020</b>	<b>0.030</b>
Fluoranthene	0.005	0.111	2.355	<b>0.23</b>	0.070	<b>0.12</b>	<b>0.32</b>	<b>0.22</b>	<b>0.23</b>	<b>0.45</b>
Fluorene	0.005	0.0212	0.144	<b>0.15</b>	0.010	0.020	<b>0.14</b>	<b>0.11</b>	<b>0.15</b>	<b>0.48</b>
Indeno[1,2,3-cd]pyrene	0.005	-	-	0.030	0.010	0.020	0.05	0.030	0.030	0.040
Naphthalene	0.005	0.0346	0.391	<b>1.20</b>	<b>0.50</b>	<b>0.63</b>	<b>1.8(1)</b>	<b>1.6</b>	<b>1.5</b>	<b>1.7</b>
Perylene	0.005	-	-	0.020	ND	0.007	0.02	0.010	0.010	0.020
Phenanthrene	0.005	0.0419	0.515	<b>1.1</b>	<b>0.33</b>	<b>0.44</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>	<b>3.2</b>
Pyrene	0.005	0.053	0.875	<b>0.27</b>	<b>0.090</b>	<b>0.13</b>	<b>0.36</b>	<b>0.26</b>	<b>0.28</b>	<b>0.57</b>

**Notes:**

- DL = laboratory detection limit
- nd = parameter not detected above DL
- mbpb = metres below pond bottom
- '-' = no criterion available
- CCME Guidelines = Canadian Council of Ministers of the Environment - *Canadian Sediment Quality Guidelines for the Protection of Freshwater Aquatic Life* (1995; last updated 2002)  
ISQG = *Interim Sediment Quality Guideline*; PEL = *Probable Effect Limit*
- Bold** = parameter exceeds CCME FAL ISQG Guideline
- Bold and Underlined** = parameter exceeds CCME FAL PEL Guideline
- GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-2

**SEDIMENT POLYCYCLIC AROMATIC HYDROCARBON CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Page 2 of 3

Sample ID:				PRSS-07BH-07-08	PRSS-07BH-08-05	PRSS-07-BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02	PRSS-07BH-07-09	PRSS-07BH-09-03
Maxxam Laboratory ID:				R28801	R28802	R28803	R28804	R28805	R28806	R28807
Matrix:				Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (NS)	Sediment (NS)
Depth (mbpb):				3.81-4.42	2.44-3.05	1.22-1.83	1.22-1.83	0.61-1.22	4.42-5.03	1.38-1.98
Date Sampled:				27-Feb-07	27-Feb-07	1-Mar-07	1-Mar-07	5-Mar-07	27-Feb-07	27-Feb-07
Parameter	DL (mg/kg)	ISQG	PEL							
1-Methylnaphthalene	0.005	-	-	4.5	8.4	4.6	5.7	1.1	0.45	0.38
2-Methylnaphthalene	0.005	0.0202	0.201	<b>6.1</b>	<b>12.0</b>	<b>5.9</b>	<b>6.7</b>	<b>1.7</b>	<b>0.65</b>	<b>0.42</b>
Acenaphthene	0.005	0.00671	0.0889	<b>0.19</b>	<b>0.33</b>	<b>0.30</b>	<b>0.44</b>	<b>0.11</b>	<b>0.020</b>	<b>0.030</b>
Acenaphthylene	0.005	0.00587	0.128	<b>0.010</b>	<b>0.020</b>	<b>0.010</b>	<b>0.020</b>	<b>0.009</b>	ND	ND
Anthracene	0.005	0.0469	0.245	<b>0.19</b>	<b>0.25</b>	<b>0.35</b>	<b>0.45</b>	<b>0.18</b>	0.040	0.040
Benzo[a]anthracene	0.005	0.0317	0.385	<b>0.29</b>	<b>0.34</b>	<b>0.31</b>	<b>0.41</b>	<b>0.20</b>	<b>0.060</b>	<b>0.060</b>
Benzo[a]pyrene	0.005	0.0319	0.782	<b>0.15</b>	<b>0.14</b>	<b>0.14</b>	<b>0.18</b>	<b>0.14</b>	<b>0.040</b>	<b>0.040</b>
Benzo[b]fluoranthene	0.005	-	-	0.11	0.10	0.090	0.16	0.17	0.030	0.030
Benzo[ghi]perylene	0.005	-	-	0.10	0.090	0.080	0.12	0.090	0.040	0.030
Benzo[k]fluoranthene	0.005	-	-	0.16	0.15	0.14	0.20	0.17	0.040	0.040
Chrysene	0.005	0.0571	0.862	<b>0.26</b>	<b>0.29</b>	<b>0.28</b>	<b>0.36</b>	<b>0.22</b>	0.050	0.050
Dibenz[a,h]anthracene	0.005	0.00622	0.135	<b>0.030</b>	<b>0.030</b>	<b>0.030</b>	<b>0.040</b>	<b>0.030</b>	<b>0.010</b>	<b>0.009</b>
Fluoranthene	0.005	0.111	2.355	<b>0.42</b>	<b>0.40</b>	<b>0.46</b>	<b>0.62</b>	<b>0.43</b>	0.08	0.090
Fluorene	0.005	0.0212	0.144	<b>0.34</b>	<b>0.50</b>	<b>0.49</b>	<b>0.54</b>	<b>0.22</b>	<b>0.06</b>	<b>0.050</b>
Indeno[1,2,3-cd]pyrene	0.005	-	-	0.040	0.030	0.040	0.050	0.070	0.020	0.010
Naphthalene	0.005	0.0346	0.391	<b>3.70</b>	<b>10.00</b>	<b>3.5</b>	<b>4.0</b>	<b>1.1</b>	<b>0.36</b>	<b>0.24</b>
Perylene	0.005	-	-	0.070	0.020	0.020	0.040	0.040	0.12	0.010
Phenanthrene	0.005	0.0419	0.515	<b>1.9</b>	<b>3.8</b>	<b>3.1</b>	<b>4.1</b>	<b>1.2</b>	<b>0.3</b>	<b>0.29</b>
Pyrene	0.005	0.053	0.875	<b>0.54</b>	<b>0.65</b>	<b>0.63</b>	<b>0.80</b>	<b>0.45</b>	<b>0.1</b>	<b>0.11</b>

**Notes:**

- DL = laboratory detection limit
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- mbpb = metres below pond bottom
- '-' = no criterion available
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ISQG = *Interim Sediment Quality Guideline*; PEL = *Probable Effect Limit*
- Bold** = parameter exceeds CCME FAL ISQG Guideline
- Bold and Underlined** = parameter exceeds CCME FAL PEL Guideline
- GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-2

**SEDIMENT POLYCYCLIC AROMATIC HYDROCARBON CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:				PRSS-07BH-12-03	PRSS-07BH-13-03	PRSS-07BH-16-03	PRSS-07BH-21-04	PRSS-07DUP-02
Maxxam Laboratory ID:				R28808	R28809	R28810	R28811	R28812
Matrix:				Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (BC)	Sediment (GS)
Depth (mbpb):				1.22-1.83	1.22-1.83	1.07-1.67	1.83-2.44	0-0.61
Date Sampled:				28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	28-Feb-07
Parameter	DL (mg/kg)	ISQG	PEL					
1-Methylnaphthalene	0.005	-	-	0.070	0.040	0.020	0.04	0.47
2-Methylnaphthalene	0.005	0.0202	0.201	<b>0.080</b>	<b>0.040</b>	0.020	<b>0.05</b>	<b><u>0.70</u></b>
Acenaphthene	0.005	0.00671	0.0889	ND	ND	ND	ND	0.006
Acenaphthylene	0.005	0.00587	0.128	ND	ND	ND	ND	ND
Anthracene	0.005	0.0469	0.245	0.006	0.005	ND	ND	0.010
Benzo[a]anthracene	0.005	0.0317	0.385	0.010	0.009	0.010	0.009	<b>0.040</b>
Benzo[a]pyrene	0.005	0.0319	0.782	0.006	0.005	0.007	0.005	0.020
Benzo[b]fluoranthene	0.005	-	-	0.007	0.006	0.020	0.005	0.030
Benzo[ghi]perylene	0.005	-	-	0.009	0.006	0.010	0.005	0.030
Benzo[k]fluoranthene	0.005	-	-	0.007	0.005	0.010	0.005	0.030
Chrysene	0.005	0.0571	0.862	0.008	0.006	0.020	0.005	0.050
Dibenz[a,h]anthracene	0.005	0.00622	0.135	ND	ND	ND	ND	<b>0.010</b>
Fluoranthene	0.005	0.111	2.355	0.020	0.010	0.030	0.008	0.070
Fluorene	0.005	0.0212	0.144	ND	ND	ND	ND	0.010
Indeno[1,2,3-cd]pyrene	0.005	-	-	0.005	ND	0.005	ND	0.010
Naphthalene	0.005	0.0346	0.391	<b>0.060</b>	0.020	0.010	<b>0.040</b>	<b><u>0.54</u></b>
Perylene	0.005	-	-	ND	ND	ND	0.040	0.005
Phenanthrene	0.005	0.0419	0.515	0.040	0.030	<b>0.110</b>	0.020	<b>0.33</b>
Pyrene	0.005	0.053	0.875	0.020	0.020	<b>0.060</b>	0.020	<b>0.08</b>

**Notes:**

1. DL = laboratory detection limit
2. nd = parameter not detected above DL
3. mbpb = metres below pond bottom
4. '-' = no criterion available
5. CCME Guidelines = Canadian Council of Ministers of the Environment - *Canadian Sediment Quality Guidelines for the Protection of Freshwater Aquatic Life* (1995; last updated 2002)  
 ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Limit
6. **Bold** = parameter exceeds CCME FAL ISQG Guideline
7. **Bold and Underlined** = parameter exceeds CCME FAL PEL Guideline
8. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment



TABLE E-3

**SEDIMENT INORGANIC METALS CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:					PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07BH-18-01	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01	PRSS-07BH-04-02
Maxxam Laboratory ID:					R28765	R28792	R28793	R28794	R28795	R28797	R28800
Matrix:					Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)
Depth (mbpb):					0-0.61	0-0.61	0-0.61	0-0.61	0-0.61	0-0.61	0.61-1.22
Date Sampled:					28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	1-Mar-07	1-Mar-07	27-Feb-07
Parameters	DL (mg/kg)	ISQG	PEL	HHRA/ERA SSTLs							
Aluminum	80	-	-	-	4100	960	1100	3300	3700	4700	3500
Antimony	1	-	-	-	ND	ND	ND	ND	ND	ND	ND
Arsenic	1	5.9	17	17	<b><u>120</u></b>	<b><u>82</u></b>	<b><u>92</u></b>	<b><u>100</u></b>	<b><u>120</u></b>	<b><u>140</u></b>	<b><u>110</u></b>
Barium	10	-	-	-	90	110	76	77	87	79	78
Beryllium	1	-	-	0.8	ND	ND	ND	ND	ND	ND	ND
Boron	20	-	-	-	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.2	0.6	3.5	-	ND	ND	ND	ND	ND	ND	ND
Calcium	300	-	-	-	470	ND	350	370	1200	580	960
Chromium	1	37.3	90	-	15	8	15	19	19	20	19
Cobalt	1	-	-	-	4	1	1	3	5	6	5
Copper	10	35.7	197	-	33	30	<b><u>72</u></b>	<b><u>36</u></b>	35	<b><u>38</u></b>	<b><u>40</u></b>
Iron	30	-	-	51000	57000	160000	350000	110000	79000	76000	71000
Lead	1	35	91.3	-	<b><u>130</u></b>	22	20	<b><u>49</u></b>	<b><u>52</u></b>	<b><u>110</u></b>	<b><u>74</u></b>
Lithium	1	-	-	-	18	3	5	16	22	24	20
Magnesium	80	-	-	-	1100	250	600	840	1100	1200	830
Manganese	10	-	-	-	110	93	85	110	120	120	320
Molybdenum	1	-	-	-	10	6	5	7	7	11	7
Nickel	2	-	-	-	9	2	ND	8	12	14	11
Phosphorus	20	-	-	-	250	340	500	400	340	300	420
Potassium	400	-	-	-	2600	3900	2800	1400	2300	2400	2100
Selenium	0.6	-	-	1.5	3.6	1.5	2.3	3.3	4.3	4.7	3.9
Silver	1	-	-	-	ND	ND	ND	ND	ND	ND	ND
Sodium	400	-	-	-	1300	1000	3200	780	1600	1400	680
Strontium	2	-	-	-	64	20	22	26	49	47	48
Sulphur	1000	-	-	-	14000	15000	19000	8300	17000	16000	14000
Thallium	0.7	-	-	0.2	2.3	ND	ND	0.9	1.4	1.8	1.4
Tin	10	-	-	-	ND	ND	ND	ND	ND	ND	ND
Titanium	1	-	-	-	16	91	43	41	37	41	47
Uranium	1	-	-	-	ND	ND	ND	ND	ND	ND	ND
Vanadium	1	-	-	-	17	17	20	25	26	25	26
Zinc	50	123	315	-	ND	ND	ND	ND	ND	ND	ND
Mercury	0.01	0.17	0.486	-	<b><u>0.19</u></b>	0.1	<b><u>0.33</u></b>	<b><u>0.18</u></b>	<b><u>0.18</u></b>	<b><u>0.18</u></b>	0.14

**Notes:**

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ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Limit
- Bold** = parameter exceeds CCME FAL ISQG Guideline
- Bold and Underlined** = parameter exceeds CCME FAL PEL Guideline
- Italics* = parameter exceeds Human Health and Ecological Risk Assessment SSTL  
*Human Health And Ecological Risk Assessment* - Former Princess Colliery Site Sydney Mines, Nova Scotia  
Prepared for the PWGSC and the Cape Breton Development Corporation, September 29, 2006.
- GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-3

**SEDIMENT INORGANIC METALS CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:					PRSS-07BH-07-08	PRSS-07BH-08-05	PRSS-07BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02	PRSS-07BH-07-09	PRSS-07-BH-09-03
Maxxam Laboratory ID:					R28801	R28802	R28803	R28804	R28805	R28806	R28807
Matrix:					Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (NS)	Sediment (NS)
Depth (mbpb):					3.81-4.42	2.44-3.05	1.22-1.83	1.22-1.83	0.61-1.22	4.42-5.03	1.38-1.98
Date Sampled:					27-Feb-07	27-Feb-07	1-Mar-07	1-Mar-07	1-Mar-07	27-Feb-07	27-Feb-07
Parameters	DL (mg/kg)	ISQG	PEL	HHRA/ERA SSTLs							
Aluminum	80	-	-	-	5000	1700	2200	4100	8700	5600	940
Antimony	1	-	-	-	ND	ND	ND	ND	ND	ND	ND
Arsenic	1	5.9	17	17	<b><u>55</u></b>	<b><u>33</u></b>	<b><u>48</u></b>	<b><u>53</u></b>	<b><u>79</u></b>	<b><u>12</u></b>	<b><u>12</u></b>
Barium	10	-	-	-	62	26	54	74	77	37	14
Beryllium	1	-	-	0.8	2	2	2	2	2	ND	ND
Boron	20	-	-	-	ND	30	29	23	ND	ND	ND
Cadmium	0.2	0.6	3.5	-	0.4	0.3	0.3	0.3	0.5	0.2	ND
Calcium	300	-	-	-	3400	5300	5000	3000	1800	930	ND
Chromium	1	37.3	90	-	14	8	9	10	18	14	4
Cobalt	1	-	-	-	14	10	12	12	15	9	12
Copper	10	35.7	197	-	33	22	29	33	<b><u>60</u></b>	12	14
Iron	30	-	-	51000	35000	17000	25000	28000	48000	21000	9900
Lead	1	35	91.3	-	<b><u>76</u></b>	<b><u>69</u></b>	<b><u>77</u></b>	<b><u>89</u></b>	<b><u>89</u></b>	16	7
Lithium	1	-	-	-	37	13	19	36	36	40	5
Magnesium	80	-	-	-	1700	810	890	1000	1000	2200	260
Manganese	10	-	-	-	460	400	530	600	600	350	95
Molybdenum	1	-	-	-	6	4	4	5	5	2	ND
Nickel	2	-	-	-	24	18	20	20	20	16	16
Phosphorus	20	-	-	-	370	87	92	180	180	210	79
Potassium	400	-	-	-	1100	440	550	730	730	1000	ND
Selenium	0.6	-	-	1.5	<b><u>2.9</u></b>	<b><u>3.4</u></b>	<b><u>3.8</u></b>	<b><u>3.7</u></b>	<b><u>3.7</u></b>	0.7	ND
Silver	1	-	-	-	ND	ND	ND	ND	nd	ND	ND
Sodium	400	-	-	-	2300	1600	1100	1100	1100	1800	ND
Strontium	2	-	-	-	33	23	24	23	23	15	4
Sulphur	1000	-	-	-	17000	13000	18000	15000	15000	8500	3900
Thallium	0.7	-	-	0.2	ND	ND	ND	ND	nd	ND	ND
Tin	10	-	-	-	ND	ND	ND	ND	nd	ND	ND
Titanium	1	-	-	-	63	76	81	55	55	24	28
Uranium	1	-	-	-	ND	ND	ND	ND	nd	ND	ND
Vanadium	1	-	-	-	22	18	19	18	18	21	6
Zinc	50	123	315	-	<b><u>130</u></b>	<b><u>130</u></b>	<b><u>130</u></b>	<b><u>140</u></b>	<b><u>140</u></b>	54	63
Mercury	0.01	0.17	0.486	-	0.13	0.08	<b><u>0.31</u></b>	<b><u>0.53</u></b>	<b><u>0.24</u></b>	0.03	0.03

**Notes:**

- DL = laboratory detection limit
- nd = parameter not detected above DL
- mbpb = metres below pond bottom
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ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Limit
- Bold** = parameter exceeds CCME FAL ISQG Guideline
- Bold and Underlined** = parameter exceeds CCME FAL PEL Guideline
- Italics* = parameter exceeds Human Health and Ecological Risk Assessment SSTL  
*Human Health And Ecological Risk Assessment* - Former Princess Colliery Site Sydney Mines, Nova Scotia  
Prepared for the PWGSC and the Cape Breton Development Corporation, September 29, 2006.
- GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-3

**SEDIMENT INORGANIC METALS CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:					PRSS-07BH-12-03	PRSS-07BH-13-03	PRSS-07BH-16-03	PRSS-07BH-21-04	PRSS-07DUP-02
Maxxam Laboratory ID:					R28808	R28809	R28810	R28811	R28812
Matrix:					Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (BC)	Sediment (GS)
Depth (mbpb):					1.22-1.83	1.22-1.83	1.07-1.67	1.83-2.44	0.61-1.22
Date Sampled:					28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	28-Feb-07
Parameters	DL (mg/kg)	ISQG	PEL	HHRA/ERA SSTLs					
Aluminum	80	-	-	-	610	520	3900	10000	910
Antimony	1	-	-	-	ND	ND	ND	ND	ND
Arsenic	1	5.9	17	17	2	4	<u>93</u>	10	<u>85</u>
Barium	10	-	-	-	ND	ND	34	69	120
Beryllium	1	-	-	0.8	ND	ND	2	1	ND
Boron	20	-	-	-	ND	ND	ND	ND	ND
Cadmium	0.2	0.6	3.5	-	ND	ND	ND	0.2	ND
Calcium	300	-	-	-	ND	ND	590	390	ND
Chromium	1	37.3	90	-	2	2	15	22	9
Cobalt	1	-	-	-	2	1	10	25	1
Copper	10	35.7	197	-	ND	ND	29	23	35
Iron	30	-	-	51000	2700	3700	27000	28000	200000
Lead	1	35	91.3	-	1	1	29	23	23
Lithium	1	-	-	-	3	2	17	48	4
Magnesium	80	-	-	-	320	310	920	2500	240
Manganese	10	-	-	-	29	36	590	1100	94
Molybdenum	1	-	-	-	ND	ND	5	ND	5
Nickel	2	-	-	-	3	ND	14	29	2
Phosphorus	20	-	-	-	42	51	140	190	380
Potassium	400	-	-	-	ND	ND	680	740	4400
Selenium	0.6	-	-	1.5	ND	ND	1.7	0.8	2.2
Silver	1	-	-	-	ND	ND	ND	ND	ND
Sodium	400	-	-	-	ND	ND	ND	ND	1100
Strontium	2	-	-	-	ND	ND	16	7	23
Sulphur	1000	-	-	-	ND	ND	1200	ND	18000
Thallium	0.7	-	-	0.2	ND	ND	ND	ND	ND
Tin	10	-	-	-	ND	ND	ND	ND	ND
Titanium	1	-	-	-	47	46	37	35	N94
Uranium	1	-	-	-	ND	ND	ND	ND	ND
Vanadium	1	-	-	-	2	3	20	25	17
Zinc	50	123	315	-	ND	ND	ND	89	ND
Mercury	0.01	0.17	0.486	-	ND	ND	0.05	0.03	0.10

**Notes:**

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*ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Limit*
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- Italics* = parameter exceeds Human Health and Ecological Risk Assessment SSTL  
*Human Health And Ecological Risk Assessment - Former Princess Colliery Site Sydney Mines, Nova Scotia*  
 Prepared for the PWGSC and the Cape Breton Development Corporation, September 29, 2006.
- GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-4

**MAJOR ION LEACHATE CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Sample ID:				PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07BH-18-01	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01
Maxxam Laboratory ID:				R28765	R28792	R28793	R28794	R28795	R28797
Matrix:				Leachate (GS)	Leachate (GS)	Leachate (GS)	Leachate (GS)	Leachate (GS)	Leachate (GS)
Date Sampled:				28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	1-Mar-07	28-Mar-07
Parameter	DL (mg/L)	NSEL Disposal Guidelines	CCME MAL Guidelines						
<b>INORGANICS</b>									
Bromide	0.5	-	-	ND	ND	0.6	ND	0.8	1
Chloride	1	-	-	24	49.0	190	50	68	63
Fluoride	0.5	-	-	ND	ND	ND	ND	ND	ND
Nitrate	0.06	-	16	ND	ND	ND	ND	0.07	ND
Nitrite	0.06	-	-	ND	ND	ND	ND	ND	ND
Othophosphate	0.3	-	-	ND	ND	ND	ND	ND	ND
Sulphate	2	-	-	78	58	87.0	59.0	170	60.0

**Notes:**

1. DL = laboratory detection limit
2. nd = parameter not detected above DL
3. NSEL Disposal Guidelines = Attachment C - Acceptance Parameters for Contaminated Soil Leachate Results  
From the *Nova Scotia Department of the Environment Guidelines for Disposal of Contaminated Solids in Landfills*, March 22, 1994.
4. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment
5. CCME MAL Guidelines = Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines  
for the Protection of Marine Aquatic Life (MAL), 1999 updated 2006

TABLE E-4

**MAJOR ION LEACHATE CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Sample ID:				PRSS-07BH-04-02	PRSS-07BH-07-08	PRSS-07BH-08-05	PRSS-07BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02
Maxxam Laboratory ID:				R28800	R28801	R28802	R28803	R28804	R28805
Matrix:				Leachate (GS)	Leachate (BC)	Leachate (BC)	Leachate (BC)	Leachate (BC)	Leachate (BC)
Date Sampled:				27-Feb-07	27-Feb-07	27-Feb-07	1-Mar-07	1-Mar-07	5-Mar-07
Parameter	DL (mg/L)	NSEL Disposal Guidelines	CCME MAL Guidelines						
<b>INORGANICS</b>									
Bromide	0.5	*	-	ND	0.7	0.7	ND	ND	ND
Chloride	1	-	-	5	120	120	54	66	32
Fluoride	0.5	-	-	ND	ND	ND	ND	ND	ND
Nitrate	0.06	-	16	ND	ND	ND	ND	ND	ND
Nitrite	0.06	-	-	ND	ND	ND	ND	ND	ND
Othophosphate	0.3	*	-	ND	ND	ND	ND	ND	ND
Sulphate	2	*	-	28	110	9	90	140	59

**Notes:**

1. DL = laboratory detection limit
2. nd = parameter not detected above DL
3. NSEL Disposal Guidelines = Attachment C - Acceptance Parameters for Contaminated Soil Leachate Results  
From the *Nova Scotia Department of the Environment Guidelines for Disposal of Contaminated Solids in Landfills*, March 22, 1994.
4. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment
5. CCME MAL Guidelines = Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Marine Aquatic Life (MAL), 1999 updated 2006

TABLE E-4

**MAJOR ION LEACHATE CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Sample ID:				PRSS-07BH-07-09	PRSS-07BH-09-03	PRSS-07BH-12-03	PRSS-07BH-13-03	PRSS-07BH-16-03	PRSS-07BH-21-04	PRSS-07DUP-02
Maxxam Laboratory ID:				R28806	R28807	R28808	R28809	R28810	R28811	R28812
Matrix:				Leachate (NS)	Leachate (NS)	Leachate (NS)	Leachate (NS)	Leachate (NS)	Leachate (BC)	Leachate (GS)
Date Sampled:				27-Feb-07	27-Feb-07	28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	28-Feb-07
Parameter	DL (mg/L)	NSEL Disposal Guidelines	CCME MAL Guidelines							
<b>INORGANICS</b>										
Bromide	0.5	*	-	0.9	ND	ND	ND	ND	ND	ND
Chloride	1	-	-	150	10	2	23	10	11	43
Fluoride	0.5	-	-	ND	ND	ND	ND	ND	ND	ND
Nitrate	0.06	-	16	ND	ND	ND	ND	ND	ND	ND
Nitrite	0.06	-	-	ND	ND	ND	ND	ND	ND	ND
Othophosphate	0.3	*	-	ND	ND	ND	ND	ND	ND	ND
Sulphate	2	*	-	32	41	13	21	28	12	56

**Notes:**

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- NSEL Disposal Guidelines = Attachment C - Acceptance Parameters for Contaminated Soil Leachate Results  
From the *Nova Scotia Department of the Environment Guidelines for Disposal of Contaminated Solids in Landfills*, March 22, 1994.
- GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment
- CCME MAL Guidelines = Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Marine Aquatic Life (MAL), 1999 updated 2006

TABLE E-5

**ADDITIONAL SEDIMENT CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

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Sample ID:			PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07BH-18-01	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01
Maxxam Laboratory ID:			R28765	R28792	R28793	R28794	R28795	R28797
Matrix:			Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)	Sediment (GS)
Depth (mbpb):			0-0.61	0-0.61	0-0.61	0-0.61	0-0.61	0-0.61
Date Sampled:			28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	1-Mar-07	28-Feb-07
Parameter	Unit	DL						
<b>INDUSTRIAL</b>								
Dry Mass to Volume Ratio	n/a	n/a	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
Wet Mass to Volume Ratio	n/a	n/a	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
<b>INORGANICS</b>								
Total Kjeldahl Nitrogen	ug/g	30	1500	1000	966	2500	2060	2590
Ammonia-N	mg/kg	0.5	17	0.6	ND	19	18	7
Moisture	%	0.2	41	29	44	52	37	40
Organic Carbon	g/kg	2	85	60	99	100	130	170
Soluble (1:1) pH	pH	n/a	3.5	2.6	2.6	5.2	3.0	3.3
Reactive Silica	mg/kg	13	170	72	75	120	160	110

**Notes:**

1. DL = laboratory detection limit
2. nd = parameter not detected above DL
3. mbpb = metres below pond bottom
4. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment

TABLE E-5

**ADDITIONAL SEDIMENT CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Page 2 of 3

Sample ID:			PRSS-07BH-04-02	PRSS-07BH-07-08	PRSS-07BH-08-05	PRSS-07BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02
Maxxam Laboratory ID:			R28800	R28801	R28802	R28803	R28804	R28805
Matrix:			Sediment (GS)	Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (BC)	Sediment (BC)
Depth (mbpb):			0.61-1.22	3.81-4.42	2.44-3.05	1.22-1.83	1.22-1.83	0.61-1.22
Date Sampled:			27-Feb-07	27-Feb-07	27-Feb-07	1-Mar-07	1-Mar-07	5-Mar-07
Parameter	Unit	DL						
<b>INDUSTRIAL</b>								
Dry Mass to Volume Ratio	n/a	n/a	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
Wet Mass to Volume Ratio	n/a	n/a	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
<b>INORGANICS</b>								
Total Kjeldahl Nitrogen	ug/g	30	3820	4300	2980	3620	3280	2930
Ammonia-N	mg/kg	0.5	14	30	18	18	29	20
Moisture	%	0.2	36	44	35	34	43	40
Organic Carbon	g/kg	2	240	350	620	610	560	190
Soluble (1:1) pH	pH	n/a	5.3	6.8	8.1	7.6	6.9	5.5
Reactive Silica	mg/kg	13	47	16	4	6	8.8	62

**Notes:**

1. DL = laboratory detection limit
2. nd = parameter not detected above DL
3. mbpb = metres below pond bottom
4. GS = grey silt and clay layer, BC = black coal fines layer, NS = natural pond sediment



TABLE E-5

**ADDITIONAL SEDIMENT CHEMISTRY**  
**Public Works & Government Services Canada**  
**Edwards Pond, Sydney Mines, N.S.**  
**Jacques Whitford Project No. 1012896.04**

Page 3 of 3

Sample ID:			PRSS-07BH-07-09	PRSS-07BH-09-03	PRSS-07BH-12-03	PRSS-07BH-13-03	PRSS-07BH-16-03	PRSS-07BH-21-04	PRSS-07DUP-02
Maxxam Laboratory ID:			R28806	R28807	R28808	R28809	R28810	R28811	R28812
Matrix:			Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (NS)	Sediment (BC)	Sediment (GS)
Depth (mbpb):			4.42-5.03	1.38-1.98	1.22-1.83	1.22-1.83	1.07-1.67	1.83-2.44	0-0.61
Date Sampled:			27-Feb-07	27-Feb-07	28-Feb-07	28-Feb-07	28-Feb-07	1-Mar-07	28-Feb-07
Parameter	Unit	DL							
<b>INDUSTRIAL</b>									
Dry Mass to Volume Ratio	n/a	n/a	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
Wet Mass to Volume Ratio	n/a	n/a	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
<b>INORGANICS</b>									
Total Kjeldahl Nitrogen	ug/g	30	1480	925	72	58	423	272	990
Ammonia-N	mg/kg	0.5	25	1.2	ND	ND	2.9	ND	0.6
Moisture	%	0.2	38	2.1	19	18	20	16	28
Organic Carbon	g/kg	2	39	24	1.6	3.5	9.3	6.2	53.0
Soluble (1:1) pH	pH	n/a	7.9	3.7	3.3	3.1	4.8	6.9	2.6
Reactive Silica	mg/kg	13	13	65	54	57	4.1	19	62

**Notes:**

1. DL = laboratory detection limit
2. nd = parameter not detected above DL
3. mbpb = metres below pond bottom

RPC  
921 College Hill Rd,  
Fredericton, N.B. E3B 6Z9  
Report No.: 68195-IAS

Maxxam Analytics Inc  
90 Esplanade  
Sydney NS B1P 1A1  
Attn: Natalie Burke  
Job No.: A722757

March 27, 2007  
Fax: 902.539.6504

**Modified Acid-Base Accounting**  
Results based upon Sulfide

RPC ID	Client ID	Paste pH	Total Sulfur	Sulfate <sup>†</sup>	Sulfide	Acid Production Potential	Neutralizing Potential pH 8.3	Net NP pH 8.3	NP/AP
			%	%	%	Kg CaCO <sub>3</sub> /tonne			
68195-01A	R29011-01R PRSS-07BH-23-01	2.5	1.50	1.15	0.350	10.9	-9.2	-20.1	-0.8
68195-01B	Duplicate	2.5	1.50	1.15	0.350	10.9	-8.8	-19.8	-0.8
68195-02	R29012-01R PRSS-07BH-22-01	2.7	1.27	0.626	0.644	20.1	-5.5	-25.6	-0.3
68195-03	R29013-01R PRSS-07BH-16-01	2.4	1.44	1.12	0.320	10.0	-10.4	-20.4	-1.0
68195-04	R29014-01R PRSS-07BH-26-01	2.6	1.44	1.12	0.320	10.0	-10.8	-20.8	-1.1
68195-05	R29015-01R PRSS-07BH-29-01	3.0	1.30	0.836	0.464	14.5	-7.0	-21.5	-0.5
68195-06	R29016-01R PRSS-07BH-30-01	3.0	1.51	1.03	0.480	15.0	-6.6	-21.6	-0.4
68195-07	R29017-01R PRSS-07BH-06-04	7.0	1.12	0.060	1.06	33.1	7.0	-26.1	0.2
68195-08	R29018-01R PRSS-07BH-21-02	4.9	1.66	0.089	1.57	49.1	1.2	-47.8	0.0
68195-09	R29019-01R PRSS-07BH-23-02	4.2	1.11	0.236	0.874	27.3	-1.9	-29.2	-0.1
68195-10	R29020-01R PRSS-07BH-24-03	4.4	1.84	0.118	1.72	53.8	4.4	-49.4	0.1

RPC  
921 College Hill Rd,  
Fredericton, N.B. E3B 6Z9  
Report No.: 68195-IAS

Maxxam Analytics Inc  
90 Esplanade  
Sydney NS B1P 1A1  
Attn: Natalie Burke  
Job No.: A722757


March 27, 2007  
Fax: 902.539.6504


**Modified Acid-Base Accounting**  
Results based upon Sulfide

RPC ID	Client ID	Paste pH	Total Sulfur	Sulfate <sup>†</sup>	Sulfide	Acid Production Potential	Neutralizing Potential pH 8.3	Net NP pH 8.3	NP/AP
			%	%	%	Kg CaCO <sub>3</sub> /tonne			
68195-11	R29021-01R PRSS-07BH-25-04	6.9	0.538	0.029	0.509	15.9	17.5	1.6	1.1
68195-12	R29022-01R PRSS-07BH-07-04	7.0	1.47	0.079	1.39	43.5	6.2	-37.3	0.1
68195-13	R29023-01R PRSS-07BH-10-06	6.5	0.853	0.074	0.779	24.3	0.7	-23.6	0.0
68195-14	R29024-01R PRSS-07BH-09-05	4.4	0.816	0.074	0.742	23.2	-2.7	-25.8	-0.1
68195-15	R29025-01R PRSS-07BH-13-02	4.2	0.111	0.078	0.033	1.0	-1.9	-2.9	-1.8
68195-16	R29026-01R PRSS-07BH-17-03	5.1	0.011	< 0.005	0.011	0.3	-1.7	-2.1	-5.0
68195-17	R29027-01R PRSS-07BH-26-06	7.3	0.509	0.036	0.473	14.8	4.8	-10.0	0.3
68195-18	R29028-01R PRSS-07BH-28-04	6.4	0.322	0.039	0.283	8.8	0.2	-8.6	0.0
68195-19	R29029-01R PRSS-07DUP-01	4.4	2.81	0.076	2.73	85.4	4.4	-81.0	0.1

The modified acid/base accounting was determined by the Sobek method.  
A negative value for Net Neutralizing Potential indicates that the material is a net acid producer.

<sup>†</sup> Acid soluble, non-volatile sulfur species (sulfate).  
Sulfide was determined by difference.

  
A. Ross Kean, M.Sc.  
Department Head  
Inorganic Analytical Chemistry

  
Peter Crowhurst, B.Sc., C.Chem.  
Analytical Chemist  
Inorganic Analytical Chemistry

Your P.O. #: NSD016400  
Your Project #: 1012896.04/980  
Site: EDWARDS POND  
Your C.O.C. #: 303865

**Attention: WILLIE MCNEIL**

Jacques Whitford Limited  
PO Box 1231  
Sydney, NS  
B1P 6J9

**Report Date: 2007/03/27****CERTIFICATE OF ANALYSIS****MAXXAM JOB #: A722757****Received: 2007/03/12, 16:08**

Sample Matrix: Soil  
# Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Acid Rock Drainag in S (Sub from Sydney) ¶	19	2007/03/27	2007/03/27		

(1) This test was performed by Sydney to RPC Subcontract

**Encryption Key**

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

NATALIE BURKE, Sr. Project Manager  
Email: natalie.burke@maxxamanalytics.com  
Phone# (902) 567 1255

=====

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.

Total cover pages: 1

Page 1 of 4

Maxxam Job #: A722757  
Report Date: 2007/03/27

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R29011	R29012	R29013		
Sampling Date		2007/03/01	2007/03/01	2007/02/28		
COC Number		303865	303865	303865		
	Units	PRSS-07BH-23-01	PRSS-07BH-22-01	PRSS-07BH-16-01	RDL	QC Batch

<b>MISCELLANEOUS</b>						
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		R29014	R29015	R29016		
Sampling Date		2007/03/05	2007/03/05	2007/03/05		
COC Number		303865	303865	303865		
	Units	PRSS-07BH-26-01	PRSS-07BH-29-01	PRSS-07BH-30-01	RDL	QC Batch

<b>MISCELLANEOUS</b>						
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		R29017	R29018	R29019		
Sampling Date		2007/02/27	2007/03/01	2007/03/01		
COC Number		303865	303865	303865		
	Units	PRSS-07BH-06-04	PRSS-07BH-21-02	PRSS-07BH-23-02	RDL	QC Batch

<b>MISCELLANEOUS</b>						
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		R29020	R29021	R29022		
Sampling Date		2007/03/01	2007/03/05	2007/02/27		
COC Number		303865	303865	303865		
	Units	PRSS-07BH-24-03	PRSS-07BH-25-04	PRSS-07BH-07-04	RDL	QC Batch

<b>MISCELLANEOUS</b>						
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A722757  
Report Date: 2007/03/27

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R29023	R29024	R29025		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303865	303865	303865		
	Units	PRSS-07BH-10-06	PRSS-07BH-09-05	PRSS-07BH-13-02	RDL	QC Batch

<b>MISCELLANEOUS</b>						
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		R29026	R29027	R29028		
Sampling Date		2007/03/01	2007/03/05	2007/03/05		
COC Number		303865	303865	303865		
	Units	PRSS-07BH-17-03	PRSS-07BH-26-06	PRSS-07BH-28-04	RDL	QC Batch

<b>MISCELLANEOUS</b>						
Subcontract Parameter	N/A	ATTACHED	ATTACHED	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		R29029		
Sampling Date		2007/03/01		
COC Number		303865		
	Units	PRSS-07DUP-01	RDL	QC Batch

<b>MISCELLANEOUS</b>				
Subcontract Parameter	N/A	ATTACHED	N/A	1192879
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: A722757  
Report Date: 2007/03/27

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

**GENERAL COMMENTS**

Acid Rock Darinage analysis was performed by RPC. Results are attached.

**Results relate only to the items tested.**

Your P.O. #: NSD016400  
Your Project #: 1012896.04/980  
Site: EDWARDS POND  
Your C.O.C. #: 303867

**Attention: WILLIE MCNEIL**

Jacques Whitford Limited  
PO Box 1231  
Sydney, NS  
B1P 6J9

**Report Date: 2007/03/21**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: A722698**

**Received: 2007/03/12, 14:23**

Sample Matrix: Leachate  
# Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Anions in Water by Ion Chromatography	19	N/A	2007/03/16	ATL SOP 00170	Based on EPA 300.1

Sample Matrix: Soil  
# Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Mercury (CVAA) ¶	19	N/A	2007/03/20	ATL SOP 00026	Based on EPA245.5
Elements by ICPMS in soil	19	N/A	2007/03/19	METH2013	Based on EPA6020
Moisture	19	N/A	2007/03/13	METH5005	MOE Handbook 1983
MOISTURE ¶	19	N/A	2007/03/15	Ont SOP-0114	MOE HANDBOOK(1983)
Nitrogen Ammonia - soil (as N) ¶	19	N/A	2007/03/15	ATL SOP 00015	Based on EPA 350.1
PAH in sediment by GC/MS (Low Level)	19	2007/03/13	2007/03/19	ATL SOP 00148	Based on EPA8270
pH (1:1 extract, soil)	19	N/A	2007/03/21	METH2018	Based on SM4500-H+
Reactive Silica by Auto Colourimetry ¶	19	N/A	2007/03/19	ATL SOP 00022	Based on EPA 366.0
dry aqueous leach ¶	19	N/A	2007/03/18	ATL SOP 00033	Based on Cart.93 16.2
wet aqueous leach ¶	19	N/A	2007/03/14	ATL SOP 00033	Carter-93 16.2
Total Kjeldahl Nitrogen - Soil ¶	19	N/A	2007/03/20	ONT SOP-0823	EPA 351.2 Rev 2
Total Organic Carbon in Soil ¶	12	N/A	2007/03/19	ATL SOP 00044	LECO 203-601-224
Total Organic Carbon in Soil ¶	7	N/A	2007/03/20	ATL SOP 00044	LECO 203-601-224

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

- (1) This test was performed by Bedford
- (2) This test was performed by Maxxam Analytics Mississauga

../2



Your P.O. #: NSD016400  
Your Project #: 1012896.04/980  
Site: EDWARDS POND  
Your C.O.C. #: 303867

**Attention: WILLIE MCNEIL**

Jacques Whitford Limited  
PO Box 1231  
Sydney, NS  
B1P 6J9

**Report Date: 2007/03/21**

**CERTIFICATE OF ANALYSIS**

-2-

Encryption Key

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

NATALIE BURKE, Sr. Project Manager  
Email: natalie.burke@maxxamanalytics.com  
Phone# (902) 567 1255

=====  
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.

Total cover pages: 2

Page 2 of 40

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF LEACHATE

Maxxam ID		R28765	R28792		R28793		
Sampling Date		2007/02/28	2007/02/28		2007/02/28		
COC Number		303867	303867		303867		
	Units	PRSS-07BH-10-01	PRSS-07BH-14-01	RDL	PRSS-07BH-18-01	RDL	QC Batch

<b>INORGANICS</b>							
Bromide (Br-)	mg/L	ND	ND	0.5	0.6	0.5	1185593
Chloride (Cl)	mg/L	24	49	1	190	1	1185593
Fluoride (F-)	mg/L	ND	ND	0.5	ND	0.5	1185593
Nitrate (N)	mg/L	ND	ND	0.06	ND	0.06	1185593
Nitrite (N)	mg/L	ND	ND	0.06	ND	3	1185593
Orthophosphate (P)	mg/L	ND	ND	0.3	ND	0.3	1185593
Sulphate (SO4)	mg/L	78	58	2	87	2	1185593

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam ID		R28794	R28795		R28797		
Sampling Date		2007/03/01	2007/03/01		2007/02/28		
COC Number		303867	303867		303867		
	Units	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01	RDL	QC Batch	

<b>INORGANICS</b>							
Bromide (Br-)	mg/L	ND	0.8	0.6	0.5	1185593	
Chloride (Cl)	mg/L	50	68	63	1	1185593	
Fluoride (F-)	mg/L	ND	ND	ND	0.5	1185593	
Nitrate (N)	mg/L	ND	0.07	ND	0.06	1185593	
Nitrite (N)	mg/L	ND	ND	ND	0.06	1185593	
Orthophosphate (P)	mg/L	ND	ND	ND	0.3	1185593	
Sulphate (SO4)	mg/L	59	170	60	2	1185593	

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF LEACHATE

Maxxam ID		R28800		R28801		R28802		
Sampling Date		2007/02/27		2007/02/27		2007/02/27		
COC Number		303867		303867		303867		
	Units	PRSS-07BH-04-02	RDL	PRSS-07BH-07-08	PRSS-07BH-08-05	RDL	QC Batch	

<b>INORGANICS</b>								
Bromide (Br-)	mg/L	ND	0.5	0.7	0.7	0.5	1185593	
Chloride (Cl)	mg/L	5	1	120	120	1	1185593	
Fluoride (F-)	mg/L	ND	0.5	ND	ND	0.5	1185593	
Nitrate (N)	mg/L	ND	0.06	ND	ND	0.06	1185593	
Nitrite (N)	mg/L	ND	0.06	ND	ND	3	1185593	
Orthophosphate (P)	mg/L	ND	0.3	ND	ND	0.3	1185593	
Sulphate (SO4)	mg/L	28	2	110	9	2	1185593	

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam ID		R28803		R28804		R28805		
Sampling Date		2007/03/01		2007/03/01		2007/03/05		
COC Number		303867		303867		303867		
	Units	PRSS-07BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02	RDL	QC Batch		

<b>INORGANICS</b>								
Bromide (Br-)	mg/L	ND	ND	ND	0.5	1185593		
Chloride (Cl)	mg/L	54	66	32	1	1185593		
Fluoride (F-)	mg/L	ND	ND	ND	0.5	1185593		
Nitrate (N)	mg/L	ND	ND	ND	0.06	1185593		
Nitrite (N)	mg/L	ND	ND	ND	0.06	1185593		
Orthophosphate (P)	mg/L	ND	ND	ND	0.3	1185593		
Sulphate (SO4)	mg/L	90	140	59	2	1185593		

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF LEACHATE

Maxxam ID		R28806		R28807		R28808		
Sampling Date		2007/02/27		2007/02/27		2007/02/28		
COC Number		303867		303867		303867		
	Units	PRSS-07BH-07-09	RDL	PRSS-07BH-09-03	PRSS-07BH-12-03	RDL	QC Batch	

<b>INORGANICS</b>								
Bromide (Br-)	mg/L	0.9	0.5	ND	ND	0.5	1185593	
Chloride (Cl)	mg/L	150	1	10	2	1	1185593	
Fluoride (F-)	mg/L	ND	0.5	ND	ND	0.5	1185593	
Nitrate (N)	mg/L	ND	0.06	ND	ND	0.06	1185593	
Nitrite (N)	mg/L	ND	3	ND	ND	0.06	1185593	
Orthophosphate (P)	mg/L	ND	0.3	ND	ND	0.3	1185593	
Sulphate (SO4)	mg/L	32	2	41	13	2	1185593	

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam ID		R28809		R28810		R28811		R28812		
Sampling Date		2007/02/28		2007/02/28		2007/03/01		2007/02/28		
COC Number		303867		303867		303867		303867		
	Units	PRSS-07BH-13-03	PRSS-07BH-16-03	PRSS-07BH-21-04	PRSS-07DUP-02	RDL	QC Batch			

<b>INORGANICS</b>										
Bromide (Br-)	mg/L	ND	ND	ND	ND	0.5	1185593			
Chloride (Cl)	mg/L	23	10	11	43	1	1185593			
Fluoride (F-)	mg/L	ND	ND	ND	ND	0.5	1185593			
Nitrate (N)	mg/L	ND	ND	ND	ND	0.06	1185593			
Nitrite (N)	mg/L	ND	ND	ND	ND	0.06	1185593			
Orthophosphate (P)	mg/L	ND	ND	ND	ND	0.3	1185593			
Sulphate (SO4)	mg/L	21	28	12	56	2	1185593			

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF LEACHATE

Maxxam ID		R28812		
Sampling Date		2007/02/28		
COC Number		303867		
	Units	PRSS-07DUP-02 Lab-Dup	RDL	QC Batch

<b>INORGANICS</b>				
Bromide (Br-)	mg/L	ND	0.5	1185593
Chloride (Cl)	mg/L	46	1	1185593
Fluoride (F-)	mg/L	ND	0.5	1185593
Nitrate (N)	mg/L	ND	0.06	1185593
Nitrite (N)	mg/L	ND	0.06	1185593
Orthophosphate (P)	mg/L	ND	0.3	1185593
Sulphate (SO4)	mg/L	56	2	1185593

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R28765			R28765		
Sampling Date		2007/02/28			2007/02/28		
COC Number		303867			303867		
	Units	PRSS-07BH-10-01	RDL	QC Batch	PRSS-07BH-10-01 Lab-Dup	RDL	QC Batch

<b>INDUSTRIAL</b>							
Dry Mass to Volume Ratio	N/A	1:5	N/A	1186024		N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1183775		N/A	1183775
<b>INORGANICS</b>							
Total Kjeldahl Nitrogen	ug/g	1500	30	1186781		30	1186781
<b>INORGANICS</b>							
Ammonia-N	mg/kg	17	0.5	1184170		0.5	1184170
Moisture	%	41	1	1184274	41	0.2	1184753
Organic Carbon (TOC)	g/kg	85	2	1186742			
Soluble (1:1) pH	pH	3.5	N/A	1188135			
Reactive Silica (SiO <sub>2</sub> )	mg/kg	170	13	1186055			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam ID		R28792		R28793		
Sampling Date		2007/02/28		2007/02/28		
COC Number		303867		303867		
	Units	PRSS-07BH-14-01	RDL	PRSS-07BH-18-01	RDL	QC Batch

<b>INDUSTRIAL</b>						
Dry Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1183775
<b>INORGANICS</b>						
Total Kjeldahl Nitrogen	ug/g	1000	30	966	30	1186781
<b>INORGANICS</b>						
Ammonia-N	mg/kg	0.6	0.4	ND	0.5	1184170
Moisture	%	29	1	44	1	1184274
Organic Carbon (TOC)	g/kg	60	0.3	99	0.7	1186104
Soluble (1:1) pH	pH	2.6	N/A	2.6	N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	72	2.5	75	2.5	1186055
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R28794	R28794		
Sampling Date		2007/03/01	2007/03/01		
COC Number		303867	303867		
	Units	PRSS-07BH-19-01	PRSS-07BH-19-01 Lab-Dup	RDL	QC Batch

<b>INDUSTRIAL</b>					
Dry Mass to Volume Ratio	N/A	1:5		N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5		N/A	1183775
<b>INORGANICS</b>					
Total Kjeldahl Nitrogen	ug/g	2500	2510	30	1186781
<b>INORGANICS</b>					
Ammonia-N	mg/kg	19		0.6	1184170
Moisture	%	52		1	1184274
Organic Carbon (TOC)	g/kg	100		2	1186742
Soluble (1:1) pH	pH	5.2		N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	120		2.5	1186055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

Maxxam ID		R28795		R28797		
Sampling Date		2007/03/01		2007/02/28		
COC Number		303867		303867		
	Units	PRSS-07BH-21-01	RDL	PRSS-07BH-25-01	RDL	QC Batch

<b>INDUSTRIAL</b>						
Dry Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1183775
<b>INORGANICS</b>						
Total Kjeldahl Nitrogen	ug/g	2060	30	2590	30	1186781
<b>INORGANICS</b>						
Ammonia-N	mg/kg	18	1	7.1	0.5	1184170
Moisture	%	37	1	40	1	1184274
Organic Carbon (TOC)	g/kg	130	5	170	5	1186742
Soluble (1:1) pH	pH	3.0	N/A	3.3	N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	160	13	110	2.5	1186055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						



Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R28800			R28801		
Sampling Date		2007/02/27			2007/02/27		
COC Number		303867			303867		
	Units	PRSS-07BH-04-02	RDL	QC Batch	PRSS-07BH-07-08	RDL	QC Batch

<b>INDUSTRIAL</b>							
Dry Mass to Volume Ratio	N/A	1:5	N/A	1186024	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1183775	1:5	N/A	1183775
<b>INORGANICS</b>							
Total Kjeldahl Nitrogen	ug/g	3820	30	1186781	4300	30	1186781
<b>INORGANICS</b>							
Ammonia-N	mg/kg	14	0.4	1184170	30	2	1184170
Moisture	%	36	1	1184274	44	1	1184274
Organic Carbon (TOC)	g/kg	240	4	1186742	350	2	1186104
Soluble (1:1) pH	pH	5.3	N/A	1188135	6.8	N/A	1188135
Reactive Silica (SiO2)	mg/kg	47	2.5	1186055	16	2.5	1186055

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam ID		R28802		R28803		
Sampling Date		2007/02/27		2007/03/01		
COC Number		303867		303867		
	Units	PRSS-07BH-08-05	RDL	PRSS-07BH-22-03	RDL	QC Batch

<b>INDUSTRIAL</b>						
Dry Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1183775
<b>INORGANICS</b>						
Total Kjeldahl Nitrogen	ug/g	2980	30	3620	30	1186781
<b>INORGANICS</b>						
Ammonia-N	mg/kg	18	0.8	18	0.8	1184170
Moisture	%	35	1	34	1	1184274
Organic Carbon (TOC)	g/kg	620	4	610	5	1186104
Soluble (1:1) pH	pH	8.1	N/A	7.6	N/A	1188135
Reactive Silica (SiO2)	mg/kg	4.3	2.5	6.0	2.5	1186055

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R28804			R28805		
Sampling Date		2007/03/01			2007/03/05		
COC Number		303867			303867		
	Units	PRSS-07BH-23-03	RDL	QC Batch	PRSS-07BH-25-02	RDL	QC Batch

<b>INDUSTRIAL</b>							
Dry Mass to Volume Ratio	N/A	1:5	N/A	1186024	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1183775	1:5	N/A	1183775
<b>INORGANICS</b>							
Total Kjeldahl Nitrogen	ug/g	3280	30	1186781	2930	30	1186781
<b>INORGANICS</b>							
Ammonia-N	mg/kg	29	1	1184170	20	0.9	1184170
Moisture	%	43	1	1184274	40	1	1184274
Organic Carbon (TOC)	g/kg	560	4	1186104	190	5	1186742
Soluble (1:1) pH	pH	6.9	N/A	1188135	5.5	N/A	1188135
Reactive Silica (SiO2)	mg/kg	8.8	2.5	1186055	62	2.5	1186055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam ID		R28805			R28806		
Sampling Date		2007/03/05			2007/02/27		
COC Number		303867			303867		
	Units	PRSS-07BH-25-02 Lab-Dup	RDL	QC Batch	PRSS-07BH-07-09	RDL	QC Batch

<b>INDUSTRIAL</b>							
Dry Mass to Volume Ratio	N/A		N/A	1186024	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A		N/A	1183775	1:5	N/A	1183775
<b>INORGANICS</b>							
Total Kjeldahl Nitrogen	ug/g		30	1186781	1480	30	1186781
<b>INORGANICS</b>							
Ammonia-N	mg/kg		0.9	1184170	25	1	1184170
Moisture	%		1	1184274	38	1	1184274
Organic Carbon (TOC)	g/kg	160	4	1186742	39	0.2	1186104
Soluble (1:1) pH	pH			1188135	7.9	N/A	1188135
Reactive Silica (SiO2)	mg/kg			1186055	13	2.5	1186055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

## RESULTS OF ANALYSES OF SOIL

Maxxam ID		R28807		R28808		
Sampling Date		2007/02/27		2007/02/28		
COC Number		303867		303867		
	Units	PRSS-07BH-09-03	RDL	PRSS-07BH-12-03	RDL	QC Batch

<b>INDUSTRIAL</b>						
Dry Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1:5	N/A	1183775
<b>INORGANICS</b>						
Total Kjeldahl Nitrogen	ug/g	925	30	72	3	1186781
<b>INORGANICS</b>						
Ammonia-N	mg/kg	1.2	0.3	ND	0.3	1184170
Moisture	%	21	1	19	1	1184274
Organic Carbon (TOC)	g/kg	24	0.2	1.6	0.2	1186104
Soluble (1:1) pH	pH	3.7	N/A	3.3	N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	65	2.5	54	2.5	1186055
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam ID		R28809	R28809	R28810		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-13-03	PRSS-07BH-13-03 Lab-Dup	PRSS-07BH-16-03	RDL	QC Batch

<b>INDUSTRIAL</b>						
Dry Mass to Volume Ratio	N/A	1:5		1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	1:5	1:5	N/A	1183775
<b>INORGANICS</b>						
Total Kjeldahl Nitrogen	ug/g	58		423	3	1186781
<b>INORGANICS</b>						
Ammonia-N	mg/kg	ND	0.3	2.9	0.3	1184170
Moisture	%	18	17	20	1	1184274
Organic Carbon (TOC)	g/kg	3.5		9.3	0.2	1186104
Soluble (1:1) pH	pH	3.1		4.8	N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	57		41	2.5	1186055
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### RESULTS OF ANALYSES OF SOIL

Maxxam ID		R28811			R28812		
Sampling Date		2007/03/01			2007/02/28		
COC Number		303867			303867		
	Units	PRSS-07BH-21-04	RDL	QC Batch	PRSS-07DUP-02	RDL	QC Batch

<b>INDUSTRIAL</b>							
Dry Mass to Volume Ratio	N/A	1:5	N/A	1186024	1:5	N/A	1186024
Wet Mass to Volume Ratio	N/A	1:5	N/A	1183775	1:5	N/A	1183775
<b>INORGANICS</b>							
Total Kjeldahl Nitrogen	ug/g	272	3	1186781	990	30	1186781
<b>INORGANICS</b>							
Ammonia-N	mg/kg	ND	2	1184170	0.6	0.4	1184170
Moisture	%	16	1	1184274	28	1	1184274
Organic Carbon (TOC)	g/kg	6.2	0.2	1186104	53	1	1186742
Soluble (1:1) pH	pH	6.9	N/A	1188135	2.6	N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	19	2.5	1186055	62	2.5	1186055
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam ID		R28812		
Sampling Date		2007/02/28		
COC Number		303867		
	Units	PRSS-07DUP-02	RDL	QC Batch
		Lab-Dup		

<b>INDUSTRIAL</b>				
Dry Mass to Volume Ratio	N/A	1:5	N/A	1186024
<b>INORGANICS</b>				
Soluble (1:1) pH	pH	2.5	N/A	1188135
Reactive Silica (SiO <sub>2</sub> )	mg/kg	60	2.5	1186055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28765	R28792	R28793		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07BH-18-01	RDL	QC Batch

ELEMENTS						
Mercury (Hg)	mg/kg	0.19	0.10	0.33	0.01	1187120
<b>Elements (ICP-MS)</b>						
Aluminum (Al)	mg/kg	4100	960	1100	80	1186422
Antimony (Sb)	mg/kg	ND	ND	ND	1	1186422
Arsenic (As)	mg/kg	120	82	92	1	1186422
Barium (Ba)	mg/kg	90	110	76	10	1186422
Beryllium (Be)	mg/kg	ND	ND	ND	1	1186422
Boron (B)	mg/kg	ND	ND	ND	20	1186422
Cadmium (Cd)	mg/kg	ND	ND	ND	0.2	1186422
Calcium (Ca)	mg/kg	470	ND	350	300	1186422
Chromium (Cr)	mg/kg	15	8	15	1	1186422
Cobalt (Co)	mg/kg	4	1	1	1	1186422
Copper (Cu)	mg/kg	33	30	72	10	1186422
Iron (Fe)	mg/kg	57000	160000	350000	30	1186422
Lead (Pb)	mg/kg	130	22	20	1	1186422
Lithium (Li)	mg/kg	18	3	5	1	1186422
Magnesium (Mg)	mg/kg	1100	250	600	80	1186422
Manganese (Mn)	mg/kg	110	93	85	10	1186422
Molybdenum (Mo)	mg/kg	10	6	5	1	1186422
Nickel (Ni)	mg/kg	9	2	ND	2	1186422
Phosphorus (P)	mg/kg	250	340	500	20	1186422
Potassium (K)	mg/kg	2600	3900	2800	400	1186422
Selenium (Se)	mg/kg	3.6	1.5	2.3	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	ND	1	1186422
Sodium (Na)	mg/kg	1300	1000	3200	400	1186422
Strontium (Sr)	mg/kg	64	20	22	2	1186422
Sulphur (S)	mg/kg	14000	15000	19000	1000	1186422
Thallium (Tl)	mg/kg	2.3	ND	ND	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	ND	10	1186422
Titanium (Ti)	mg/kg	16	91	43	1	1186422
Uranium (U)	mg/kg	ND	ND	ND	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28765	R28792	R28793		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07BH-18-01	RDL	QC Batch

Vanadium (V)	mg/kg	17	17	20	1	1186422
Zinc (Zn)	mg/kg	ND	ND	ND	50	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28794	R28795	R28797		
Sampling Date		2007/03/01	2007/03/01	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01	RDL	QC Batch

ELEMENTS						
Mercury (Hg)	mg/kg	0.18	0.18	0.18	0.01	1187120
<b>Elements (ICP-MS)</b>						
Aluminum (Al)	mg/kg	3300	3700	4700	80	1186422
Antimony (Sb)	mg/kg	ND	ND	ND	1	1186422
Arsenic (As)	mg/kg	100	120	140	1	1186422
Barium (Ba)	mg/kg	77	87	79	10	1186422
Beryllium (Be)	mg/kg	ND	ND	ND	1	1186422
Boron (B)	mg/kg	ND	ND	ND	20	1186422
Cadmium (Cd)	mg/kg	ND	ND	ND	0.2	1186422
Calcium (Ca)	mg/kg	370	1200	580	300	1186422
Chromium (Cr)	mg/kg	19	19	20	1	1186422
Cobalt (Co)	mg/kg	3	5	6	1	1186422
Copper (Cu)	mg/kg	36	35	38	10	1186422
Iron (Fe)	mg/kg	110000	79000	76000	30	1186422
Lead (Pb)	mg/kg	49	52	110	1	1186422
Lithium (Li)	mg/kg	16	22	24	1	1186422
Magnesium (Mg)	mg/kg	840	1100	1200	80	1186422
Manganese (Mn)	mg/kg	110	120	120	10	1186422
Molybdenum (Mo)	mg/kg	7	7	11	1	1186422
Nickel (Ni)	mg/kg	8	12	14	2	1186422
Phosphorus (P)	mg/kg	400	340	300	20	1186422
Potassium (K)	mg/kg	1400	2300	2400	400	1186422
Selenium (Se)	mg/kg	3.3	4.3	4.7	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	ND	1	1186422
Sodium (Na)	mg/kg	780	1600	1400	400	1186422
Strontium (Sr)	mg/kg	26	49	47	2	1186422
Sulphur (S)	mg/kg	8300	17000	16000	1000	1186422
Thallium (Tl)	mg/kg	0.9	1.4	1.8	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	ND	10	1186422
Titanium (Ti)	mg/kg	41	37	41	1	1186422
Uranium (U)	mg/kg	ND	ND	ND	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch



Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28794	R28795	R28797		
Sampling Date		2007/03/01	2007/03/01	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-19-01	PRSS-07BH-21-01	PRSS-07BH-25-01	RDL	QC Batch

Vanadium (V)	mg/kg	25	26	25	1	1186422
Zinc (Zn)	mg/kg	ND	ND	ND	50	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28800	R28801	R28802		
Sampling Date		2007/02/27	2007/02/27	2007/02/27		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-04-02	PRSS-07BH-07-08	PRSS-07BH-08-05	RDL	QC Batch

ELEMENTS						
Mercury (Hg)	mg/kg	0.14	0.13	0.08	0.01	1187120
<b>Elements (ICP-MS)</b>						
Aluminum (Al)	mg/kg	3500	5000	1700	80	1186422
Antimony (Sb)	mg/kg	ND	ND	ND	1	1186422
Arsenic (As)	mg/kg	110	55	33	1	1186422
Barium (Ba)	mg/kg	78	62	26	10	1186422
Beryllium (Be)	mg/kg	ND	2	2	1	1186422
Boron (B)	mg/kg	ND	ND	30	20	1186422
Cadmium (Cd)	mg/kg	ND	0.4	0.3	0.2	1186422
Calcium (Ca)	mg/kg	960	3400	5300	300	1186422
Chromium (Cr)	mg/kg	19	14	8	1	1186422
Cobalt (Co)	mg/kg	5	14	10	1	1186422
Copper (Cu)	mg/kg	40	33	22	10	1186422
Iron (Fe)	mg/kg	71000	35000	17000	30	1186422
Lead (Pb)	mg/kg	74	76	69	1	1186422
Lithium (Li)	mg/kg	20	37	13	1	1186422
Magnesium (Mg)	mg/kg	830	1700	810	80	1186422
Manganese (Mn)	mg/kg	320	460	400	10	1186422
Molybdenum (Mo)	mg/kg	7	6	4	1	1186422
Nickel (Ni)	mg/kg	11	24	18	2	1186422
Phosphorus (P)	mg/kg	420	370	87	20	1186422
Potassium (K)	mg/kg	2100	1100	440	400	1186422
Selenium (Se)	mg/kg	3.9	2.9	3.4	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	ND	1	1186422
Sodium (Na)	mg/kg	680	2300	1600	400	1186422
Strontium (Sr)	mg/kg	48	33	23	2	1186422
Sulphur (S)	mg/kg	14000	17000	13000	1000	1186422
Thallium (Tl)	mg/kg	1.4	ND	ND	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	ND	10	1186422
Titanium (Ti)	mg/kg	47	63	76	1	1186422
Uranium (U)	mg/kg	ND	ND	ND	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28800	R28801	R28802		
Sampling Date		2007/02/27	2007/02/27	2007/02/27		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-04-02	PRSS-07BH-07-08	PRSS-07BH-08-05	RDL	QC Batch

Vanadium (V)	mg/kg	26	22	18	1	1186422
Zinc (Zn)	mg/kg	ND	130	130	50	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28803	R28804	R28805		
Sampling Date		2007/03/01	2007/03/01	2007/03/05		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02	RDL	QC Batch

ELEMENTS						
Mercury (Hg)	mg/kg	0.31	0.53	0.24	0.01	1187120
<b>Elements (ICP-MS)</b>						
Aluminum (Al)	mg/kg	2200	4100	8700	80	1186422
Antimony (Sb)	mg/kg	ND	ND	ND	1	1186422
Arsenic (As)	mg/kg	48	53	79	1	1186422
Barium (Ba)	mg/kg	54	74	77	10	1186422
Beryllium (Be)	mg/kg	2	2	2	1	1186422
Boron (B)	mg/kg	29	23	ND	20	1186422
Cadmium (Cd)	mg/kg	0.3	0.3	0.5	0.2	1186422
Calcium (Ca)	mg/kg	5000	3000	1800	300	1186422
Chromium (Cr)	mg/kg	9	10	18	1	1186422
Cobalt (Co)	mg/kg	12	12	15	1	1186422
Copper (Cu)	mg/kg	29	33	60	10	1186422
Iron (Fe)	mg/kg	25000	28000	48000	30	1186422
Lead (Pb)	mg/kg	77	89	72	1	1186422
Lithium (Li)	mg/kg	19	36	48	1	1186422
Magnesium (Mg)	mg/kg	890	1000	1600	80	1186422
Manganese (Mn)	mg/kg	530	600	490	10	1186422
Molybdenum (Mo)	mg/kg	4	5	7	1	1186422
Nickel (Ni)	mg/kg	20	20	34	2	1186422
Phosphorus (P)	mg/kg	92	180	800	20	1186422
Potassium (K)	mg/kg	550	730	720	400	1186422
Selenium (Se)	mg/kg	3.8	3.7	3.0	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	ND	1	1186422
Sodium (Na)	mg/kg	1100	1100	590	400	1186422
Strontium (Sr)	mg/kg	24	23	27	2	1186422
Sulphur (S)	mg/kg	18000	15000	16000	1000	1186422
Thallium (Tl)	mg/kg	ND	ND	0.8	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	ND	10	1186422
Titanium (Ti)	mg/kg	81	55	55	1	1186422
Uranium (U)	mg/kg	ND	ND	1	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28803	R28804	R28805		
Sampling Date		2007/03/01	2007/03/01	2007/03/05		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-22-03	PRSS-07BH-23-03	PRSS-07BH-25-02	RDL	QC Batch

Vanadium (V)	mg/kg	19	18	23	1	1186422
Zinc (Zn)	mg/kg	130	140	260	50	1186422

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28806	R28807	R28808		
Sampling Date		2007/02/27	2007/02/27	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-07-09	PRSS-07BH-09-03	PRSS-07BH-12-03	RDL	QC Batch

ELEMENTS						
Mercury (Hg)	mg/kg	0.03	0.03	ND	0.01	1187120
<b>Elements (ICP-MS)</b>						
Aluminum (Al)	mg/kg	5600	940	610	80	1186422
Antimony (Sb)	mg/kg	ND	ND	ND	1	1186422
Arsenic (As)	mg/kg	12	12	2	1	1186422
Barium (Ba)	mg/kg	37	14	ND	10	1186422
Beryllium (Be)	mg/kg	ND	ND	ND	1	1186422
Boron (B)	mg/kg	ND	ND	ND	20	1186422
Cadmium (Cd)	mg/kg	0.2	ND	ND	0.2	1186422
Calcium (Ca)	mg/kg	930	ND	ND	300	1186422
Chromium (Cr)	mg/kg	14	4	2	1	1186422
Cobalt (Co)	mg/kg	9	12	2	1	1186422
Copper (Cu)	mg/kg	12	14	ND	10	1186422
Iron (Fe)	mg/kg	21000	9900	2700	30	1186422
Lead (Pb)	mg/kg	16	7	1	1	1186422
Lithium (Li)	mg/kg	40	5	3	1	1186422
Magnesium (Mg)	mg/kg	2200	260	320	80	1186422
Manganese (Mn)	mg/kg	350	95	29	10	1186422
Molybdenum (Mo)	mg/kg	2	ND	ND	1	1186422
Nickel (Ni)	mg/kg	16	16	3	2	1186422
Phosphorus (P)	mg/kg	210	79	42	20	1186422
Potassium (K)	mg/kg	1000	ND	ND	400	1186422
Selenium (Se)	mg/kg	0.7	ND	ND	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	ND	1	1186422
Sodium (Na)	mg/kg	1800	ND	ND	400	1186422
Strontium (Sr)	mg/kg	15	4	ND	2	1186422
Sulphur (S)	mg/kg	8500	3900	ND	1000	1186422
Thallium (Tl)	mg/kg	ND	ND	ND	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	ND	10	1186422
Titanium (Ti)	mg/kg	24	28	47	1	1186422
Uranium (U)	mg/kg	ND	ND	ND	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28806	R28807	R28808		
Sampling Date		2007/02/27	2007/02/27	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-07-09	PRSS-07BH-09-03	PRSS-07BH-12-03	RDL	QC Batch

Vanadium (V)	mg/kg	21	6	2	1	1186422
Zinc (Zn)	mg/kg	54	63	ND	50	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch



Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28809	R28809	R28810		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-13-03	PRSS-07BH-13-03 Lab-Dup	PRSS-07BH-16-03	RDL	QC Batch

ELEMENTS						
Mercury (Hg)	mg/kg	ND		0.05	0.01	1187120
<b>Elements (ICP-MS)</b>						
Aluminum (Al)	mg/kg	520	520	3900	80	1186422
Antimony (Sb)	mg/kg	ND	ND	ND	1	1186422
Arsenic (As)	mg/kg	4	4	93	1	1186422
Barium (Ba)	mg/kg	ND	ND	34	10	1186422
Beryllium (Be)	mg/kg	ND	ND	2	1	1186422
Boron (B)	mg/kg	ND	ND	ND	20	1186422
Cadmium (Cd)	mg/kg	ND	ND	ND	0.2	1186422
Calcium (Ca)	mg/kg	ND	ND	590	300	1186422
Chromium (Cr)	mg/kg	2	2	15	1	1186422
Cobalt (Co)	mg/kg	1	ND	10	1	1186422
Copper (Cu)	mg/kg	ND	ND	29	10	1186422
Iron (Fe)	mg/kg	3700	3700	27000	30	1186422
Lead (Pb)	mg/kg	1	1	29	1	1186422
Lithium (Li)	mg/kg	2	2	17	1	1186422
Magnesium (Mg)	mg/kg	310	310	920	80	1186422
Manganese (Mn)	mg/kg	36	35	590	10	1186422
Molybdenum (Mo)	mg/kg	ND	ND	5	1	1186422
Nickel (Ni)	mg/kg	ND	ND	14	2	1186422
Phosphorus (P)	mg/kg	51	56	140	20	1186422
Potassium (K)	mg/kg	ND	ND	680	400	1186422
Selenium (Se)	mg/kg	ND	ND	1.7	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	ND	1	1186422
Sodium (Na)	mg/kg	ND	ND	ND	400	1186422
Strontium (Sr)	mg/kg	ND	ND	16	2	1186422
Sulphur (S)	mg/kg	ND	ND	1200	1000	1186422
Thallium (Tl)	mg/kg	ND	ND	ND	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	ND	10	1186422
Titanium (Ti)	mg/kg	46	41	37	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28809	R28809	R28810		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-13-03	PRSS-07BH-13-03 Lab-Dup	PRSS-07BH-16-03	RDL	QC Batch

Uranium (U)	mg/kg	ND	ND	ND	1	1186422
Vanadium (V)	mg/kg	3	3	20	1	1186422
Zinc (Zn)	mg/kg	ND	ND	ND	50	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28811	R28812		
Sampling Date		2007/03/01	2007/02/28		
COC Number		303867	303867		
	Units	PRSS-07BH-21-04	PRSS-07DUP-02	RDL	QC Batch

ELEMENTS					
Mercury (Hg)	mg/kg	0.03	0.10	0.01	1187120
<b>Elements (ICP-MS)</b>					
Aluminum (Al)	mg/kg	10000	910	80	1186422
Antimony (Sb)	mg/kg	ND	ND	1	1186422
Arsenic (As)	mg/kg	10	85	1	1186422
Barium (Ba)	mg/kg	69	120	10	1186422
Beryllium (Be)	mg/kg	1	ND	1	1186422
Boron (B)	mg/kg	ND	ND	20	1186422
Cadmium (Cd)	mg/kg	0.2	ND	0.2	1186422
Calcium (Ca)	mg/kg	390	ND	300	1186422
Chromium (Cr)	mg/kg	22	9	1	1186422
Cobalt (Co)	mg/kg	25	1	1	1186422
Copper (Cu)	mg/kg	23	35	10	1186422
Iron (Fe)	mg/kg	28000	200000	30	1186422
Lead (Pb)	mg/kg	23	23	1	1186422
Lithium (Li)	mg/kg	48	4	1	1186422
Magnesium (Mg)	mg/kg	2500	240	80	1186422
Manganese (Mn)	mg/kg	1100	94	10	1186422
Molybdenum (Mo)	mg/kg	ND	5	1	1186422
Nickel (Ni)	mg/kg	29	2	2	1186422
Phosphorus (P)	mg/kg	190	380	20	1186422
Potassium (K)	mg/kg	740	4400	400	1186422
Selenium (Se)	mg/kg	0.8	2.2	0.6	1186422
Silver (Ag)	mg/kg	ND	ND	1	1186422
Sodium (Na)	mg/kg	ND	1100	400	1186422
Strontium (Sr)	mg/kg	7	23	2	1186422
Sulphur (S)	mg/kg	ND	18000	1000	1186422
Thallium (Tl)	mg/kg	ND	ND	0.7	1186422
Tin (Sn)	mg/kg	ND	ND	10	1186422
Titanium (Ti)	mg/kg	35	94	1	1186422
Uranium (U)	mg/kg	ND	ND	1	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		R28811	R28812		
Sampling Date		2007/03/01	2007/02/28		
COC Number		303867	303867		
	Units	PRSS-07BH-21-04	PRSS-07DUP-02	RDL	QC Batch

Vanadium (V)	mg/kg	25	17	1	1186422
Zinc (Zn)	mg/kg	89	ND	50	1186422

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28765	R28792	R28793		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-10-01	PRSS-07BH-14-01	PRSS-07BH-18-01	RDL	QC Batch

PAHs						
1-Methylnaphthalene	mg/kg	1.2	0.46	0.63	0.005	1182872
2-Methylnaphthalene	mg/kg	1.5	0.64	0.88	0.005	1182872
Acenaphthene	mg/kg	0.070	0.006	0.010	0.005	1182872
Acenaphthylene	mg/kg	ND	ND	ND	0.005	1182872
Anthracene	mg/kg	0.12	0.010	0.020	0.005	1182872
Benzo(a)anthracene	mg/kg	0.16	0.050	0.060	0.005	1182872
Benzo(a)pyrene	mg/kg	0.070	0.020	0.040	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.080	0.030	0.060	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.080	0.030	0.050	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.090	0.040	0.050	0.005	1182872
Chrysene	mg/kg	0.20	0.050	0.080	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	0.020	0.010	0.020	0.005	1182872
Fluoranthene	mg/kg	0.23	0.070	0.12	0.005	1182872
Fluorene	mg/kg	0.15	0.010	0.020	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.030	0.010	0.020	0.005	1182872
Naphthalene	mg/kg	1.2	0.50	0.63	0.005	1182872
Perylene	mg/kg	0.020	ND	0.007	0.005	1182872
Phenanthrene	mg/kg	1.1	0.33	0.44	0.005	1182872
Pyrene	mg/kg	0.27	0.090	0.13	0.005	1182872
Surrogate Recovery (%)						
D10-Anthracene	%	111	115	116		1182872
D14-Terphenyl	%	91	96	93		1182872
D8-Acenaphthylene	%	101	108	107		1182872

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28794		R28795		
Sampling Date		2007/03/01		2007/03/01		
COC Number		303867		303867		
	Units	PRSS-07BH-19-01	RDL	PRSS-07BH-21-01	RDL	QC Batch

PAHs						
1-Methylnaphthalene	mg/kg	1.6	0.01	1.5	0.005	1182872
2-Methylnaphthalene	mg/kg	2.3	0.01	3.5	0.005	1182872
Acenaphthene	mg/kg	0.05	0.01	0.040	0.005	1182872
Acenaphthylene	mg/kg	ND	0.01	ND	0.005	1182872
Anthracene	mg/kg	0.14	0.01	0.060	0.005	1182872
Benzo(a)anthracene	mg/kg	0.18	0.01	0.14	0.005	1182872
Benzo(a)pyrene	mg/kg	0.11	0.01	0.080	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.14	0.01	0.10	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.09	0.01	0.070	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.13	0.01	0.090	0.005	1182872
Chrysene	mg/kg	0.22	0.01	0.19	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	0.03	0.01	0.030	0.005	1182872
Fluoranthene	mg/kg	0.32	0.01	0.22	0.005	1182872
Fluorene	mg/kg	0.14	0.01	0.11	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	0.01	0.030	0.005	1182872
Naphthalene	mg/kg	1.8 (1)	0.01	1.6	0.005	1182872
Perylene	mg/kg	0.02	0.01	0.010	0.005	1182872
Phenanthrene	mg/kg	1.3	0.01	1.3	0.005	1182872
Pyrene	mg/kg	0.36	0.01	0.26	0.005	1182872
<b>Surrogate Recovery (%)</b>						
D10-Anthracene	%	109		115		1182872
D14-Terphenyl	%	86		89		1182872
D8-Acenaphthylene	%	92		99		1182872

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch  
( 1 ) PAH RDL(s) elevated due to high moisture.

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28797	R28800	R28801		
Sampling Date		2007/02/28	2007/02/27	2007/02/27		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-25-01	PRSS-07BH-04-02	PRSS-07BH-07-08	RDL	QC Batch

<b>PAHs</b>						
1-Methylnaphthalene	mg/kg	1.4	1.8	4.5	0.005	1182872
2-Methylnaphthalene	mg/kg	1.9	4.3	6.1	0.005	1182872
Acenaphthene	mg/kg	0.070	0.32	0.19	0.005	1182872
Acenaphthylene	mg/kg	ND	0.010	0.010	0.005	1182872
Anthracene	mg/kg	0.14	0.23	0.19	0.005	1182872
Benzo(a)anthracene	mg/kg	0.15	0.27	0.29	0.005	1182872
Benzo(a)pyrene	mg/kg	0.080	0.15	0.15	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.090	0.14	0.11	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.070	0.090	0.10	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.10	0.15	0.16	0.005	1182872
Chrysene	mg/kg	0.19	0.32	0.26	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	0.020	0.030	0.030	0.005	1182872
Fluoranthene	mg/kg	0.23	0.45	0.42	0.005	1182872
Fluorene	mg/kg	0.15	0.48	0.34	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.030	0.040	0.040	0.005	1182872
Naphthalene	mg/kg	1.5	1.7	3.7	0.005	1182872
Perylene	mg/kg	0.010	0.020	0.070	0.005	1182872
Phenanthrene	mg/kg	1.3	3.2	1.9	0.005	1182872
Pyrene	mg/kg	0.28	0.57	0.54	0.005	1182872
<b>Surrogate Recovery (%)</b>						
D10-Anthracene	%	114	113	109		1182872
D14-Terphenyl	%	89	84	82		1182872
D8-Acenaphthylene	%	97	90	92		1182872

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch



Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28802	R28803	R28804		
Sampling Date		2007/02/27	2007/03/01	2007/03/01		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-08-05	PRSS-07BH-22-03	PRSS-07BH-23-03	RDL	QC Batch

<b>PAHs</b>						
1-Methylnaphthalene	mg/kg	8.4	4.6	5.7	0.005	1182872
2-Methylnaphthalene	mg/kg	12	5.9	6.7	0.005	1182872
Acenaphthene	mg/kg	0.33	0.30	0.44	0.005	1182872
Acenaphthylene	mg/kg	0.020	0.010	0.020	0.005	1182872
Anthracene	mg/kg	0.25	0.35	0.45	0.005	1182872
Benzo(a)anthracene	mg/kg	0.34	0.31	0.41	0.005	1182872
Benzo(a)pyrene	mg/kg	0.14	0.14	0.18	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.10	0.090	0.16	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.090	0.080	0.12	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.15	0.14	0.20	0.005	1182872
Chrysene	mg/kg	0.29	0.28	0.36	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	0.030	0.030	0.040	0.005	1182872
Fluoranthene	mg/kg	0.40	0.46	0.62	0.005	1182872
Fluorene	mg/kg	0.50	0.49	0.54	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.030	0.040	0.050	0.005	1182872
Naphthalene	mg/kg	10	3.5	4.0	0.005	1182872
Perylene	mg/kg	0.020	0.020	0.040	0.005	1182872
Phenanthrene	mg/kg	3.8	3.1	4.1	0.005	1182872
Pyrene	mg/kg	0.65	0.63	0.80	0.005	1182872
<b>Surrogate Recovery (%)</b>						
D10-Anthracene	%	97	97	99		1182872
D14-Terphenyl	%	80	77	82		1182872
D8-Acenaphthylene	%	83	84	86		1182872

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28805	R28806	R28807		
Sampling Date		2007/03/05	2007/02/27	2007/02/27		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-25-02	PRSS-07BH-07-09	PRSS-07BH-09-03	RDL	QC Batch

PAHs						
1-Methylnaphthalene	mg/kg	1.1	0.45	0.38	0.005	1182872
2-Methylnaphthalene	mg/kg	1.7	0.65	0.42	0.005	1182872
Acenaphthene	mg/kg	0.11	0.020	0.030	0.005	1182872
Acenaphthylene	mg/kg	0.009	ND	ND	0.005	1182872
Anthracene	mg/kg	0.18	0.040	0.040	0.005	1182872
Benzo(a)anthracene	mg/kg	0.20	0.060	0.060	0.005	1182872
Benzo(a)pyrene	mg/kg	0.14	0.040	0.040	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.17	0.030	0.030	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.090	0.040	0.030	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.17	0.040	0.040	0.005	1182872
Chrysene	mg/kg	0.22	0.050	0.050	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	0.030	0.010	0.009	0.005	1182872
Fluoranthene	mg/kg	0.43	0.080	0.090	0.005	1182872
Fluorene	mg/kg	0.22	0.060	0.050	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.070	0.020	0.010	0.005	1182872
Naphthalene	mg/kg	1.1	0.36	0.24	0.005	1182872
Perylene	mg/kg	0.040	0.12	0.010	0.005	1182872
Phenanthrene	mg/kg	1.2	0.30	0.29	0.005	1182872
Pyrene	mg/kg	0.45	0.10	0.11	0.005	1182872
Surrogate Recovery (%)						
D10-Anthracene	%	113	111	115		1182872
D14-Terphenyl	%	83	90	91		1182872
D8-Acenaphthylene	%	89	103	105		1182872

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28808	R28809	R28809		
Sampling Date		2007/02/28	2007/02/28	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-12-03	PRSS-07BH-13-03	PRSS-07BH-13-03 Lab-Dup	RDL	QC Batch

<b>PAHs</b>						
1-Methylnaphthalene	mg/kg	0.070	0.040	0.040	0.005	1182872
2-Methylnaphthalene	mg/kg	0.080	0.040	0.050	0.005	1182872
Acenaphthene	mg/kg	ND	ND	ND	0.005	1182872
Acenaphthylene	mg/kg	ND	ND	ND	0.005	1182872
Anthracene	mg/kg	0.006	0.005	ND	0.005	1182872
Benzo(a)anthracene	mg/kg	0.010	0.009	0.009	0.005	1182872
Benzo(a)pyrene	mg/kg	0.006	0.005	0.005	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.007	0.006	0.005	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.009	0.006	0.006	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.007	0.005	0.006	0.005	1182872
Chrysene	mg/kg	0.008	0.006	0.006	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	ND	ND	ND	0.005	1182872
Fluoranthene	mg/kg	0.020	0.010	0.010	0.005	1182872
Fluorene	mg/kg	ND	ND	ND	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.005	ND	ND	0.005	1182872
Naphthalene	mg/kg	0.060	0.020	0.030	0.005	1182872
Perylene	mg/kg	ND	ND	ND	0.005	1182872
Phenanthrene	mg/kg	0.040	0.030	0.020	0.005	1182872
Pyrene	mg/kg	0.020	0.020	0.020	0.005	1182872
<b>Surrogate Recovery (%)</b>						
D10-Anthracene	%	122	115	120		1182872
D14-Terphenyl	%	101	91	96		1182872
D8-Acenaphthylene	%	121	104	111		1182872

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

### SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		R28810	R28811	R28812		
Sampling Date		2007/02/28	2007/03/01	2007/02/28		
COC Number		303867	303867	303867		
	Units	PRSS-07BH-16-03	PRSS-07BH-21-04	PRSS-07DUP-02	RDL	QC Batch

PAHs						
1-Methylnaphthalene	mg/kg	0.020	0.040	0.47	0.005	1182872
2-Methylnaphthalene	mg/kg	0.020	0.050	0.70	0.005	1182872
Acenaphthene	mg/kg	ND	ND	0.006	0.005	1182872
Acenaphthylene	mg/kg	ND	ND	ND	0.005	1182872
Anthracene	mg/kg	ND	ND	0.010	0.005	1182872
Benzo(a)anthracene	mg/kg	0.010	0.009	0.040	0.005	1182872
Benzo(a)pyrene	mg/kg	0.007	0.005	0.020	0.005	1182872
Benzo(b)fluoranthene	mg/kg	0.020	0.005	0.030	0.005	1182872
Benzo(g,h,i)perylene	mg/kg	0.010	0.005	0.030	0.005	1182872
Benzo(k)fluoranthene	mg/kg	0.010	0.005	0.030	0.005	1182872
Chrysene	mg/kg	0.020	0.005	0.050	0.005	1182872
Dibenz(a,h)anthracene	mg/kg	ND	ND	0.010	0.005	1182872
Fluoranthene	mg/kg	0.030	0.008	0.070	0.005	1182872
Fluorene	mg/kg	ND	ND	0.010	0.005	1182872
Indeno(1,2,3-cd)pyrene	mg/kg	0.005	ND	0.010	0.005	1182872
Naphthalene	mg/kg	0.010	0.040	0.54	0.005	1182872
Perylene	mg/kg	ND	0.040	0.005	0.005	1182872
Phenanthrene	mg/kg	0.11	0.020	0.33	0.005	1182872
Pyrene	mg/kg	0.060	0.020	0.080	0.005	1182872
Surrogate Recovery (%)						
D10-Anthracene	%	113	110	116		1182872
D14-Terphenyl	%	95	95	91		1182872
D8-Acenaphthylene	%	113	113	104		1182872

ND = Not detected  
RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Job #: A722698  
Report Date: 2007/03/21

Jacques Whitford Limited  
Client Project #: 1012896.04/980  
Project name: EDWARDS POND  
Your P.O. #: NSD016400  
Sampler Initials:

**GENERAL COMMENTS**

Sample R28793-01: The reporting limit for nitrite was elevated due to the high concentration of chloride in the sample.

Sample R28801-01: The reporting limit for nitrite was elevated due to the high concentration of chloride in the sample.

Sample R28802-01: The reporting limit for nitrite was elevated due to the high concentration of chloride in the sample.

Sample R28806-01: The reporting limit for nitrite was elevated due to the high concentration of chloride in the sample.

**Results relate only to the items tested.**

Jacques Whitford Limited  
Attention: WILLIE MCNEIL  
Client Project #: 1012896.04/980  
P.O. #: NSD016400  
Project name: EDWARDS POND

Quality Assurance Report  
Maxxam Job Number: KA722698

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1182872 TML	MATRIX SPIKE [R28809-01]	D10-Anthracene	2007/03/19		113	%	30 - 130
		D14-Terphenyl	2007/03/19		102	%	30 - 130
		D8-Acenaphthylene	2007/03/19		105	%	30 - 130
		1-Methylnaphthalene	2007/03/19		106	%	40 - 140
		2-Methylnaphthalene	2007/03/19		108	%	40 - 140
		Acenaphthene	2007/03/19		104	%	40 - 140
		Acenaphthylene	2007/03/19		95	%	40 - 140
		Anthracene	2007/03/19		109	%	40 - 140
		Benzo(a)anthracene	2007/03/19		99	%	40 - 140
		Benzo(a)pyrene	2007/03/19		104	%	40 - 140
		Benzo(b)fluoranthene	2007/03/19		103	%	40 - 140
		Benzo(g,h,i)perylene	2007/03/19		100	%	40 - 140
		Benzo(k)fluoranthene	2007/03/19		109	%	40 - 140
		Chrysene	2007/03/19		93	%	40 - 140
		Dibenz(a,h)anthracene	2007/03/19		100	%	40 - 140
		Fluoranthene	2007/03/19		99	%	40 - 140
		Fluorene	2007/03/19		109	%	40 - 140
		Indeno(1,2,3-cd)pyrene	2007/03/19		101	%	40 - 140
		Naphthalene	2007/03/19		97	%	40 - 140
		Perylene	2007/03/19		99	%	40 - 140
	Phenanthrene	2007/03/19		105	%	40 - 140	
	Spiked Blank	Pyrene	2007/03/19		99	%	40 - 140
		D10-Anthracene	2007/03/19		117	%	30 - 130
		D14-Terphenyl	2007/03/19		104	%	30 - 130
		D8-Acenaphthylene	2007/03/19		110	%	30 - 130
		1-Methylnaphthalene	2007/03/19		113	%	40 - 140
		2-Methylnaphthalene	2007/03/19		115	%	40 - 140
		Acenaphthene	2007/03/19		110	%	40 - 140
		Acenaphthylene	2007/03/19		106	%	40 - 140
		Anthracene	2007/03/19		122	%	40 - 140
		Benzo(a)anthracene	2007/03/19		108	%	40 - 140
		Benzo(a)pyrene	2007/03/19		113	%	40 - 140
		Benzo(b)fluoranthene	2007/03/19		115	%	40 - 140
		Benzo(g,h,i)perylene	2007/03/19		120	%	40 - 140
		Benzo(k)fluoranthene	2007/03/19		117	%	40 - 140
		Chrysene	2007/03/19		105	%	40 - 140
		Dibenz(a,h)anthracene	2007/03/19		116	%	40 - 140
		Fluoranthene	2007/03/19		111	%	40 - 140
		Fluorene	2007/03/19		116	%	40 - 140
		Indeno(1,2,3-cd)pyrene	2007/03/19		118	%	40 - 140
		Method Blank	Naphthalene	2007/03/19		104	%
	Perylene		2007/03/19		115	%	40 - 140
	Phenanthrene		2007/03/19		114	%	40 - 140
	Pyrene		2007/03/19		109	%	40 - 140
	D10-Anthracene		2007/03/19		109	%	30 - 130
	D14-Terphenyl		2007/03/19		90	%	30 - 130
	D8-Acenaphthylene		2007/03/19		102	%	30 - 130
	1-Methylnaphthalene		2007/03/19	ND, RDL=0.005		mg/kg	
	2-Methylnaphthalene		2007/03/19	ND, RDL=0.005		mg/kg	
	Acenaphthene		2007/03/19	ND, RDL=0.005		mg/kg	
Acenaphthylene	2007/03/19	ND, RDL=0.005		mg/kg			
Anthracene	2007/03/19	ND, RDL=0.005		mg/kg			
Benzo(a)anthracene	2007/03/19	ND, RDL=0.005		mg/kg			
Benzo(a)pyrene	2007/03/19	ND, RDL=0.005		mg/kg			

Jacques Whitford Limited  
Attention: WILLIE MCNEIL  
Client Project #: 1012896.04/980  
P.O. #: NSD016400  
Project name: EDWARDS POND

### Quality Assurance Report (Continued)

Maxxam Job Number: KA722698

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1182872 TML	Method Blank	Benzo(b)fluoranthene	2007/03/19	ND, RDL=0.005		mg/kg	
		Benzo(g,h,i)perylene	2007/03/19	ND, RDL=0.005		mg/kg	
		Benzo(k)fluoranthene	2007/03/19	ND, RDL=0.005		mg/kg	
		Chrysene	2007/03/19	ND, RDL=0.005		mg/kg	
		Dibenz(a,h)anthracene	2007/03/19	ND, RDL=0.005		mg/kg	
		Fluoranthene	2007/03/19	ND, RDL=0.005		mg/kg	
		Fluorene	2007/03/19	ND, RDL=0.005		mg/kg	
		Indeno(1,2,3-cd)pyrene	2007/03/19	ND, RDL=0.005		mg/kg	
		Naphthalene	2007/03/19	ND, RDL=0.005		mg/kg	
		Perylene	2007/03/19	ND, RDL=0.005		mg/kg	
		Phenanthrene	2007/03/19	ND, RDL=0.005		mg/kg	
		Pyrene	2007/03/19	ND, RDL=0.005		mg/kg	
	RPD [R28809-01]	1-Methylnaphthalene	2007/03/19	0		%	50
		2-Methylnaphthalene	2007/03/19	22.2		%	50
		Acenaphthene	2007/03/19	NC		%	50
		Acenaphthylene	2007/03/19	NC		%	50
		Anthracene	2007/03/19	NC		%	50
		Benzo(a)anthracene	2007/03/19	NC		%	50
		Benzo(a)pyrene	2007/03/19	NC		%	50
		Benzo(b)fluoranthene	2007/03/19	NC		%	50
		Benzo(g,h,i)perylene	2007/03/19	NC		%	50
		Benzo(k)fluoranthene	2007/03/19	NC		%	50
		Chrysene	2007/03/19	NC		%	50
		Dibenz(a,h)anthracene	2007/03/19	NC		%	50
		Fluoranthene	2007/03/19	NC		%	50
		Fluorene	2007/03/19	NC		%	50
		Indeno(1,2,3-cd)pyrene	2007/03/19	NC		%	50
		Naphthalene	2007/03/19	NC		%	50
		Perylene	2007/03/19	NC		%	50
		Phenanthrene	2007/03/19	NC		%	50
		Pyrene	2007/03/19	NC		%	50
1183775 JPU	Method Blank	Wet Mass to Volume Ratio	2007/03/14	1:5, RDL=0		N/A	
	RPD [R28809-01]	Wet Mass to Volume Ratio	2007/03/14	0		%	N/A
1184170 JOA	REAGENT BLANK	Ammonia-N	2007/03/15	ND, RDL=0.25		mg/kg	
	MATRIX SPIKE						
	[R28809-01]	Ammonia-N	2007/03/15		100	%	80 - 120
	RPD [R28809-01]	Ammonia-N	2007/03/15	NC		%	25
1184274 APN	Method Blank	Moisture	2007/03/13	ND, RDL=1		%	
	RPD [R28809-01]	Moisture	2007/03/13	4.2		%	N/A
1184753 FOT	RPD [R28765-01]	Moisture	2007/03/15	0		%	50
1185593 MBU	MATRIX SPIKE						
	[R28812-02]	Bromide (Br-)	2007/03/16		107	%	80 - 120
		Nitrate (N)	2007/03/16		113	%	80 - 120
		Nitrite (N)	2007/03/16		96	%	80 - 120
		Orthophosphate (P)	2007/03/16		90	%	80 - 120
	LEACH. BLANK						
		Bromide (Br-)	2007/03/16	ND, RDL=0.5		mg/L	
		Chloride (Cl)	2007/03/16	ND, RDL=1		mg/L	
		Fluoride (F-)	2007/03/16	ND, RDL=0.5		mg/L	
		Nitrate (N)	2007/03/16	ND, RDL=0.06		mg/L	
		Nitrite (N)	2007/03/16	ND, RDL=0.06		mg/L	
		Orthophosphate (P)	2007/03/16	ND, RDL=0.3		mg/L	
		Sulphate (SO4)	2007/03/16	ND, RDL=2		mg/L	
	QC STANDARD						
		Bromide (Br-)	2007/03/16		105	%	N/A
		Chloride (Cl)	2007/03/16		111	%	80 - 120
		Fluoride (F-)	2007/03/16		110	%	80 - 120



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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1185593 MBU	QC STANDARD	Nitrate (N)	2007/03/16		111	%	80 - 120
		Nitrite (N)	2007/03/16		112	%	80 - 120
		Orthophosphate (P)	2007/03/16		103	%	80 - 120
		Sulphate (SO4)	2007/03/16		110	%	80 - 120
	Spiked Blank	Bromide (Br-)	2007/03/16		104	%	80 - 120
		Chloride (Cl)	2007/03/16		103	%	80 - 120
		Fluoride (F-)	2007/03/16		94	%	80 - 120
		Nitrate (N)	2007/03/16		101	%	80 - 120
		Nitrite (N)	2007/03/16		102	%	80 - 120
		Orthophosphate (P)	2007/03/16		106	%	80 - 120
		Sulphate (SO4)	2007/03/16		104	%	80 - 120
	Method Blank	Bromide (Br-)	2007/03/16	ND, RDL=0.5		mg/L	
		Chloride (Cl)	2007/03/16	ND, RDL=1		mg/L	
		Fluoride (F-)	2007/03/16	ND, RDL=0.5		mg/L	
		Nitrate (N)	2007/03/16	ND, RDL=0.06		mg/L	
		Nitrite (N)	2007/03/16	ND, RDL=0.06		mg/L	
		Orthophosphate (P)	2007/03/16	ND, RDL=0.3		mg/L	
		Sulphate (SO4)	2007/03/16	ND, RDL=2		mg/L	
	RPD [R28812-02]	Bromide (Br-)	2007/03/16	NC		%	25
		Chloride (Cl)	2007/03/16	6.5		%	25
		Fluoride (F-)	2007/03/16	NC		%	25
		Nitrate (N)	2007/03/16	NC		%	25
		Nitrite (N)	2007/03/16	NC		%	25
		Orthophosphate (P)	2007/03/16	NC		%	25
		Sulphate (SO4)	2007/03/16	0.8		%	25
1186024 JPU	Method Blank	Dry Mass to Volume Ratio	2007/03/18	1:5, RDL=0		N/A	
	RPD [R28812-01]	Dry Mass to Volume Ratio	2007/03/18	0		%	N/A
1186055 JOA	MATRIX SPIKE [R28812-01]	Reactive Silica (SiO2)	2007/03/19		105	%	80 - 120
	Method Blank	Reactive Silica (SiO2)	2007/03/19	ND, RDL=2.5		mg/kg	
	RPD [R28812-01]	Reactive Silica (SiO2)	2007/03/19	3.1		%	25
1186104 CAC	QC STANDARD	Organic Carbon (TOC)	2007/03/19		88	%	75 - 125
	Method Blank	Organic Carbon (TOC)	2007/03/19	ND, RDL=0.2		g/kg	
1186422 SMK	MATRIX SPIKE [R28809-01]	Antimony (Sb)	2007/03/19		106	%	60 - 130
		Arsenic (As)	2007/03/19		111	%	60 - 130
		Barium (Ba)	2007/03/19		124	%	60 - 130
		Cadmium (Cd)	2007/03/19		120	%	60 - 130
		Copper (Cu)	2007/03/19		116	%	60 - 130
		Lead (Pb)	2007/03/19		96	%	60 - 130
		Magnesium (Mg)	2007/03/19		108	%	60 - 130
		Molybdenum (Mo)	2007/03/19		117	%	60 - 130
		Nickel (Ni)	2007/03/19		124	%	60 - 130
		Phosphorus (P)	2007/03/19		114	%	60 - 130
		Selenium (Se)	2007/03/19		105	%	60 - 130
		Silver (Ag)	2007/03/19		108	%	60 - 130
		Sodium (Na)	2007/03/19		91	%	60 - 130
		Strontium (Sr)	2007/03/19		111	%	60 - 130
		Thallium (Tl)	2007/03/19		91	%	60 - 130
		Tin (Sn)	2007/03/19		115	%	60 - 130
		Titanium (Ti)	2007/03/19		111	%	60 - 130
		Uranium (U)	2007/03/19		109	%	60 - 130
	QC STANDARD	Arsenic (As)	2007/03/19		95	%	60 - 130
		Barium (Ba)	2007/03/19		78	%	60 - 130
		Cadmium (Cd)	2007/03/19		98	%	60 - 130

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1186422 SMK	QC STANDARD	Calcium (Ca)	2007/03/19		84	%	60 - 130
		Chromium (Cr)	2007/03/19		76	%	60 - 130
		Cobalt (Co)	2007/03/19		93	%	60 - 130
		Copper (Cu)	2007/03/19		84	%	60 - 130
		Iron (Fe)	2007/03/19		84	%	60 - 130
		Lead (Pb)	2007/03/19		109	%	60 - 130
		Lithium (Li)	2007/03/19		76	%	60 - 130
		Magnesium (Mg)	2007/03/19		82	%	60 - 130
		Manganese (Mn)	2007/03/19		104	%	60 - 130
		Molybdenum (Mo)	2007/03/19		82	%	60 - 130
		Nickel (Ni)	2007/03/19		89	%	60 - 130
		Phosphorus (P)	2007/03/19		76	%	60 - 130
		Strontium (Sr)	2007/03/19		86	%	60 - 130
		Sulphur (S)	2007/03/19		73	%	60 - 130
		Uranium (U)	2007/03/19		84	%	60 - 130
		Vanadium (V)	2007/03/19		71	%	60 - 130
		Zinc (Zn)	2007/03/19		109	%	60 - 130
	Spiked Blank	Aluminum (Al)	2007/03/19		96	%	N/A
		Antimony (Sb)	2007/03/19		96	%	N/A
		Arsenic (As)	2007/03/19		92	%	N/A
		Barium (Ba)	2007/03/19		102	%	N/A
		Beryllium (Be)	2007/03/19		87	%	N/A
		Boron (B)	2007/03/19		77	%	N/A
		Cadmium (Cd)	2007/03/19		100	%	N/A
		Calcium (Ca)	2007/03/19		111	%	N/A
		Chromium (Cr)	2007/03/19		99	%	N/A
		Cobalt (Co)	2007/03/19		89	%	N/A
		Copper (Cu)	2007/03/19		84	%	N/A
		Iron (Fe)	2007/03/19		107	%	N/A
		Lead (Pb)	2007/03/19		93	%	N/A
		Lithium (Li)	2007/03/19		101	%	N/A
		Magnesium (Mg)	2007/03/19		97	%	N/A
		Manganese (Mn)	2007/03/19		106	%	N/A
		Molybdenum (Mo)	2007/03/19		102	%	N/A
		Nickel (Ni)	2007/03/19		85	%	N/A
		Phosphorus (P)	2007/03/19		88	%	N/A
		Potassium (K)	2007/03/19		101	%	N/A
	Method Blank	Selenium (Se)	2007/03/19		83	%	N/A
		Silver (Ag)	2007/03/19		98	%	N/A
		Sodium (Na)	2007/03/19		84	%	N/A
		Strontium (Sr)	2007/03/19		96	%	N/A
		Sulphur (S)	2007/03/19		78	%	N/A
		Thallium (Tl)	2007/03/19		92	%	N/A
		Tin (Sn)	2007/03/19		95	%	N/A
		Titanium (Ti)	2007/03/19		95	%	N/A
		Uranium (U)	2007/03/19		97	%	N/A
		Vanadium (V)	2007/03/19		105	%	N/A
		Zinc (Zn)	2007/03/19		94	%	N/A
		Aluminum (Al)	2007/03/19	ND, RDL=80		mg/kg	
		Antimony (Sb)	2007/03/19	ND, RDL=1		mg/kg	
		Arsenic (As)	2007/03/19	ND, RDL=1		mg/kg	
		Barium (Ba)	2007/03/19	ND, RDL=10		mg/kg	
		Beryllium (Be)	2007/03/19	ND, RDL=1		mg/kg	
		Boron (B)	2007/03/19	ND, RDL=20		mg/kg	
		Cadmium (Cd)	2007/03/19	ND, RDL=0.2		mg/kg	

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1186422 SMK	Method Blank	Calcium (Ca)	2007/03/19	ND, RDL=300		mg/kg	
		Chromium (Cr)	2007/03/19	ND, RDL=1		mg/kg	
		Cobalt (Co)	2007/03/19	ND, RDL=1		mg/kg	
		Copper (Cu)	2007/03/19	ND, RDL=10		mg/kg	
		Iron (Fe)	2007/03/19	ND, RDL=30		mg/kg	
		Lead (Pb)	2007/03/19	ND, RDL=1		mg/kg	
		Lithium (Li)	2007/03/19	ND, RDL=1		mg/kg	
		Magnesium (Mg)	2007/03/19	ND, RDL=80		mg/kg	
		Manganese (Mn)	2007/03/19	ND, RDL=10		mg/kg	
		Molybdenum (Mo)	2007/03/19	ND, RDL=1		mg/kg	
		Nickel (Ni)	2007/03/19	ND, RDL=2		mg/kg	
		Phosphorus (P)	2007/03/19	ND, RDL=20		mg/kg	
		Potassium (K)	2007/03/19	ND, RDL=400		mg/kg	
		Selenium (Se)	2007/03/19	ND, RDL=0.6		mg/kg	
		Silver (Ag)	2007/03/19	ND, RDL=1		mg/kg	
		Sodium (Na)	2007/03/19	ND, RDL=400		mg/kg	
		Strontium (Sr)	2007/03/19	ND, RDL=2		mg/kg	
		Sulphur (S)	2007/03/19	ND, RDL=1000		mg/kg	
		Thallium (Tl)	2007/03/19	ND, RDL=0.7		mg/kg	
		Tin (Sn)	2007/03/19	ND, RDL=10		mg/kg	
		Titanium (Ti)	2007/03/19	ND, RDL=1		mg/kg	
		Uranium (U)	2007/03/19	ND, RDL=1		mg/kg	
		Vanadium (V)	2007/03/19	ND, RDL=1		mg/kg	
		Zinc (Zn)	2007/03/19	ND, RDL=50		mg/kg	
	RPD [R28809-01]	Aluminum (Al)	2007/03/19	0.8		%	35
		Antimony (Sb)	2007/03/19	NC		%	35
		Arsenic (As)	2007/03/19	NC		%	35
		Barium (Ba)	2007/03/19	NC		%	35
		Beryllium (Be)	2007/03/19	NC		%	35
		Boron (B)	2007/03/19	NC		%	35
		Cadmium (Cd)	2007/03/19	NC		%	35
		Calcium (Ca)	2007/03/19	NC		%	35
		Chromium (Cr)	2007/03/19	NC		%	35
		Cobalt (Co)	2007/03/19	NC		%	35
		Copper (Cu)	2007/03/19	NC		%	35
		Iron (Fe)	2007/03/19	0.5		%	35
		Lead (Pb)	2007/03/19	NC		%	35
		Lithium (Li)	2007/03/19	NC		%	35
		Magnesium (Mg)	2007/03/19	NC		%	35
		Manganese (Mn)	2007/03/19	NC		%	35
		Molybdenum (Mo)	2007/03/19	NC		%	35
		Nickel (Ni)	2007/03/19	NC		%	35
		Phosphorus (P)	2007/03/19	NC		%	35
		Potassium (K)	2007/03/19	NC		%	35
		Selenium (Se)	2007/03/19	NC		%	35
		Silver (Ag)	2007/03/19	NC		%	35
		Sodium (Na)	2007/03/19	NC		%	35
		Strontium (Sr)	2007/03/19	NC		%	35
		Sulphur (S)	2007/03/19	NC		%	35
		Thallium (Tl)	2007/03/19	NC		%	35
		Tin (Sn)	2007/03/19	NC		%	35
		Titanium (Ti)	2007/03/19	10.3		%	35
		Uranium (U)	2007/03/19	NC		%	35
		Vanadium (V)	2007/03/19	NC		%	35
		Zinc (Zn)	2007/03/19	NC		%	35

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Maxxam Job Number: KA722698

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1186742 CAC	QC STANDARD	Organic Carbon (TOC)	2007/03/20		106	%	75 - 125
	Method Blank	Organic Carbon (TOC)	2007/03/20	ND, RDL=0.2		g/kg	
	RPD [R28805-01]	Organic Carbon (TOC)	2007/03/20	22.0		%	35
1186781 DRM	MATRIX SPIKE						
	[R28794-01]	Total Kjeldahl Nitrogen	2007/03/20		NC (1)	%	N/A
	QC STANDARD	Total Kjeldahl Nitrogen	2007/03/20		104	%	N/A
	Spiked Blank	Total Kjeldahl Nitrogen	2007/03/20		105	%	N/A
	Method Blank	Total Kjeldahl Nitrogen	2007/03/20	ND, RDL=3		ug/g	
	RPD [R28794-01]	Total Kjeldahl Nitrogen	2007/03/20	0.4		%	40
1187120 SSI	MATRIX SPIKE	Mercury (Hg)	2007/03/20		110	%	75 - 125
	QC STANDARD	Mercury (Hg)	2007/03/20		99	%	75 - 125
	Spiked Blank	Mercury (Hg)	2007/03/20		98	%	75 - 125
	Method Blank	Mercury (Hg)	2007/03/20	ND, RDL=0.01		mg/kg	
	RPD	Mercury (Hg)	2007/03/20	NC		%	35
1188135 MSA	QC STANDARD	Soluble (1:1) pH	2007/03/21		100	%	N/A
	Method Blank	Soluble (1:1) pH	2007/03/21	7.9, RDL=0		pH	
	RPD [R28812-01]	Soluble (1:1) pH	2007/03/21	1.6		%	25

ND = Not detected

N/A = Not Applicable

NC = Non-calculable

RPD = Relative Percent Difference

QC Standard = Quality Control Standard

SPIKE = Fortified sample

(1) TKN recovery in the matrix spiked sample was not calculated. Because of the high concentration of this compound in the parent sample, the relative difference between the spiked and un-spiked concentrations is not sufficiently significant to permit reliable recovery calculation.