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Our ref: C806-COR-HSD-ENV-021131

Attn: Mr. C.C. Chiu

By Hand

Dear Mr. Chiu,

**Hong Kong Section of Guangzhou-Shenzhen Hong Kong Express Rail Link (XRL)  
Environmental Permit (No. EP-349/2009/B)  
Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS)  
Works Area III**

Subsequent to the approval of the Revised Contamination Assessment Plan on 11 August 2011, I am pleased to enclose herewith 6 hard copies and 1 electronic copy of the captioned report for your consideration and approval. Please be advised that the report has been duly certified and verified by the ET Leader and IEC respectively

Should you have any queries regarding the above, please feel free to contact our Natalie Ip (Tel: 2688 1260) or Michelle Chau (Tel: 2688 1954).

Yours sincerely,



Richard Kwan  
Environment Manager

Encl.


c.c. Mott MacDonald (Attn: Dr Anne Kerr) (w/ enclosure)

RK/NI/MC/wc

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –  
SHENZHEN – HONG KONG EXPRESS RAIL LINK  
(No. EP-349/2009/B)

Supplementary Contamination Assessment Report  
for Shek Kong Stabling Sidings (SSS)  
Works Area III

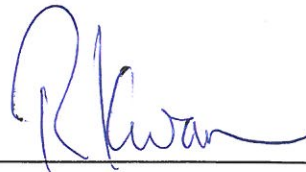
Verified by:   
Position: Independent Environmental Checker  
Date: 31 August 2011

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –  
SHENZHEN – HONG KONG EXPRESS RAIL LINK  
(No. EP-349/2009/B)

Supplementary Contamination Assessment Report  
for Shek Kong Stabling Sidings (SSS)  
Works Area III

Certified by:



Position:



Environmental Team Leader

Date:

29 AUG 2011



Supplementary Contamination Assessment Report  
for Shek Kong Stabling Sidings (SSS) Works Area III  
(Sites B, F, G, U, V and W)

Prepared for:

**MTR Corporation Limited  
Maeda-China State Joint Venture**

Prepared by:

**Teemway Engineering Limited  
ENVIRON Hong Kong Limited**

Date:

**August 2011**

Reference No.:

**R1971\_V1.2**

Prepared by:



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## 1.0 INTRODUCTION

### 1.1 Background Information

- 1.1.1 The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (hereinafter referred to "the XRL" or "the Project") is a committed cross boundary transport infrastructure between Hong Kong and Guangzhou. The Hong Kong section of the XRL is about 26km from new terminus in West Kowloon to the boundary of Huang Gang, where it will connect with the XRL Mainland section.
- 1.1.2 The Project is a designated project under the Environmental Impact Assessment Ordinance (EIAO) (Cap.499). An Environmental Impact Assessment (EIA) for the Project was conducted and approved by the Environmental Protection Department of the Hong Kong Special Administrative Region (EPD) under the EIAO on 28 September 2009 (Register No. AEIAR-143/2009). During the EIA stage, a land contamination assessment was conducted to assess the contamination status and identify the extent of contamination of the Project along the proposed alignment. Historical and current landuses and operations of the study areas were reviewed and assessed. A Contamination Assessment Plan (CAP) and a Contamination Assessment Report and Remediation Action Plan (CAR-RAP) have been approved by EPD. As stated in the approved CAP and CAR-RAP, some areas of the Project were restricted to access and land contamination assessment could not be conducted in the EIA stage. Supplementary site appraisal and site investigation should be conducted to have a comprehensive land contamination assessment for the Project.
- 1.1.3 Moreover, an Environmental Permit (EP) (EP-349/2009) was granted on 16 October 2009 and a varied EP (EP-349/2009/B) was also granted on 24 January 2011 by the EPD. As stipulated in Condition 2.21 of the varied EP, the Permit Holder, MTR Corporation Limited (MTRCL) shall carry out further site appraisal and site investigation regarding potential land contamination in accordance with the approved EIA report. A revised CAP, describing the sampling and testing proposal for the potential land contamination areas which were restricted to access or site investigation (SI) works could not be conducted in the EIA stage, has been submitted to EPD in June 2011 and EPD has been approved on 11 August 2011. Upon the SI and laboratory analysis works have been conducted, a supplementary CAR or CAR-RAP shall be submitted to EPD for approval.
- 1.1.4 As mentioned in the approved CAP in the approved EIA report, there are a total of 14 potential land contamination areas (i.e. Sites B, F, G, I, L, M, N, O, P, Q, R, U, V and W) within the Shek Kong Stabling Sidings Works Area (the SSS Works Area) of the Project required further land contamination assessment and investigation.
- 1.1.5 As advised by MTRCL, construction works within the SSS works area are to be undertaken by two contracts, namely Contract 823A and Contract 823B. Due to the contractual arrangement, land resumption progress and the latest construction programme, the SSS works area is sub-divided into 3 works areas:



(1) Works Area for 823A

- Works Area I; and
- Works Area II.

(2) Works Area for 823B

- Works Area III.

Details and locations of the sub-divided works area are mentioned in the letter from MTRCL enclosed in **Appendix A**.

- 1.1.6 In the view that construction works of the SSS Works Area has been separated into two contracts, namely Contract 823A and Contract 823B and the land resumption progress of the potential land contamination areas granted to MTRCL is different among the 14 potential land contamination areas, the relevant land contamination submissions (i.e. revised CAP, supplementary CAR and supplementary RAP) for the respective works areas would be submitted separately for EPD's individual endorsement under the works area sub-divided as mentioned in Section 1.1.5 above. Therefore, for Contract 823B, revised CAP, supplementary CAR and supplementary RAP, if necessary, for SSS Works Area III (Sites B, F, G, U, V & W) will be submitted. This supplementary CAR is corresponding to the revised CAP approved by EPD on 11 August 2011.
- 1.1.7 Maeda-China State Joint Venture (MCJV) was commissioned by MTRCL to undertake the construction works of the SSS Works Area. As mentioned above, construction works of the SSS Works Area has been separated into two contracts, namely Contract 823A and Contract 823B. For Contract 823B, MCJV commissioned Teemway Engineering Limited (Teemway) to undertake the supplementary land contamination assessment and the preparation of revised CAP, supplementary CAR and supplementary RAP, if necessary, to cater for the abovementioned EP requirements. As appointed by Teemway, ENVIRON Hong Kong Limited is responsible to prepare the revised CAP, supplementary CAR and supplementary RAP, if necessary.
- 1.1.8 This supplementary CAR is prepared for the supplementary land contamination assessment (Stage II SI) as recommended in Section 9.35 (v) of the approved EIA report and covers the potential land contamination areas identified in the approved EIA report under Contract 823B, i.e. Works Area III (Sites B, F, G, U, V and W) only. The Stage II SI for the Works Areas I & II under Contact 823A will be conducted under separate consultancy.
- 1.1.9 The potential land contamination areas identified in the approved EIA report under Contract 823B, i.e. Works Area III (Sites B, F, G, U, V and W), are shown in **Figures 1 to 3**.

## 1.2 Objectives of this CAR

- 1.2.1 As presented above, this supplementary CAR covers the Stage II SI as recommended in the approved EIA report for Works Area III (Sites B, F, G, U, V & W). Since there is no potential land contamination activities were identified in sites

B1, B3, U, V and W according to the corresponding approved revised CAP and no site investigation works required to be conducted at these sites, this supplementary CAR presents the details of the site investigation works conducted at sites B2, F and G and laboratory analysis results of the samples collected at sites B2, F and G only.

1.2.2 This supplementary CAR serves to report the results, findings, interpretation and conclusions of the site investigation and laboratory testing works for EPD's agreement.

### **1.3 Report Structure**

1.3.1 The remainder of this supplementary CAR is structured as follows:

- Section 2 presents the legislation and guidelines used for the land contamination assessment;
- Section 3 presents the details of site investigation (SI) works, including methodology, preparation works, as-constructed details and observations;
- Section 4 presents the methodology of land contamination assessment and laboratory analysis results and discussions; and
- Section 5 presents the conclusions of this supplementary CAR.

## 2.0 LEGISLATION and GUIDELINES

- 2.1.1 This supplementary CAR has been prepared following the guidance and steps outlined in the EPD published guidelines listed below:
- Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management (RBRGs), dated December 2007;
  - Guidance Note for Contaminated Land Assessment and Remediation, dated 15 August 2007; and
  - Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Station, Boatyards and Car Repairing/Dismantling Workshops.
- 2.1.2 The RBRGs was promulgated for use on 15 August 2007. Hence, for contamination assessment purpose of this supplementary land contamination assessment, the RBRGs criteria were adopted.
- 2.1.3 Requirements stipulated in the EP granted by the EPD under the EIAO shall also be followed.
- 2.1.4 Moreover, the approved CAP in the approved EIA report should also be considered when preparing this supplementary CAR.

### 3.0 SITE INVESTIGATION

#### 3.1 Introduction

- 3.1.1 As mentioned in the approved CAR-RAP, site investigation works have been completed for the 4 out of 7 proposed boreholes and 4 out of 6 proposed boreholes for sites F and G respectively in the EIA stage. For the remaining proposed boreholes in sites F and G, access was not available and site investigation works could not be conducted in the EIA stage. As recommended in the approved CAR-RAP, the remaining proposed boreholes in sites F and G are required to be investigated in this supplementary site investigation stage, Stage II SI for Works Area III.
- 3.1.2 Also, as mentioned in Section 1.2.1, supplementary site investigation works would be conducted for sites B2, F and G only in this Stage II SI for Works Area III.
- 3.1.3 Supplementary site investigation works for sites B2, F & G were carried out at the locations where access was not available and site investigation works could not be conducted in the EIA stage according to the approved revised CAP from 12 to 21 February 2011 for sites F & G while 11 March to 1 April 2011 for site B2. The site investigation works was undertaken by Teemway Engineering Limited with site supervision by land contamination specialist of ENVIRON. The sampling exercise and results were taken to be authentic and used for the purpose of this assessment. The details and observations of the site investigation works will be presented in this section.

#### 3.2 Sampling Strategy and Locations

- 3.2.1 Based on previous on-site operations and information obtained from various Government Departments presented in the approved revised CAP and on-site inspections results presented in the approved revised CAP, the sampling strategy, which covers all the identified 'hot spot' locations, has been developed and presented in the approved revised CAP.
- 3.2.2 According to the approved revised CAP, it was recommended that supplementary soil samples be collected at selected locations of the identified hot spots in the Scrap Yard and Workshop Areas of site B2, Parking and Vacant Areas of site F and Packaging and Scrap Storage Areas of site G for the purpose of the land contamination assessment. The sampling schedule proposed in the approved revised CAP is shown in **Appendix D**.
- 3.2.3 Borehole drilling was carried out at thirty-five (35) sampling locations, namely B-01 to B30, F-05 to F07, G-05 and G-06, for land contamination assessment as per the approved revised CAP. The as-constructed land contamination sampling locations are shown in **Figures 4 to 6**. The proposed and as-constructed sampling locations are summarized in **Table 1**.

3.2.4 For sites F and G, site investigation works have been completed at eight (8) sampling locations, namely F-01 to F-04 and G-01 to G-04, in the EIA stage. The results of these eight sampling locations have been presented in the approved CAR-RAP in the EIA stage.

**Table 1** Land Contamination Sampling Locations

Site ID	Borehole ID	Proposed Sampling Location in revised CAP		As-built Sampling Location	
		Easting	Northing	Easting	Northing
B (Area B2)	B-01	827265	832983	827265	832983
	B-02	827248	833003	827248	833003
	B-03	827246	832985	827246	832985
	B-04	827233	832998	827233	832998
	B-05	827225	833012	827225	833012
	B-06	827224	832981	827224	832981
	B-07	827212	832998	827212	832998
	B-08	827205	832983	827205	832983
	B-09	827216	832964	827216	832964
	B-10	827205	833009	827205	833009
	B-11	827187	833008	827187	833008
	B-12	827186	832989	827186	832989
	B-13	827187	832974	827187	832974
	B-14	827167	833015	827167	833015
	B-15	827173	832997	827173	832997
	B-16	827174	832980	827174	832980
	B-17	827163	833006	827163	833006
	B-18	827161	832990	827161	832990
	B-19	827145	832986	827145	832986
	B-20	827147	833024	827147	833024
	B-21	827145	833006	827145	833006
	B-22	827125	833057	827125	833057
	B-23	827130	833033	827130	833033
	B-24	827128	833021	827128	833021
	B-25	827125	833009	827125	833009
	B-26	827116	833045	827116	833045
	B-27	827106	833037	827106	833037
	B-28	827107	833016	827107	833016
	B-29	827089	833049	827089	833049
	B-30	827088	833034	827088	833034
F	F-01 <sup>(1)</sup>	--	--	826841	833525
	F-02 <sup>(1)</sup>	--	--	826809	833523
	F-03 <sup>(1)</sup>	--	--	826819	833504
	F-04 <sup>(1)</sup>	--	--	826829	833512
	F-05	826818	833518	826818	833518
	F-06	826821	833529	826821	833529
	F-07	826831	833516	826831	833516
G	G-01 <sup>(1)</sup>	--	--	827158	833052

	G-02 <sup>(1)</sup>	--	--	827153	833069
	G-03 <sup>(1)</sup>	--	--	827135	833065
	G-04 <sup>(1)</sup>	--	--	827128	833074
	G-05	827166	833073	827166	833073
	G-06	827146	833057	827146	833057

Note:

(1) Site investigation works for F-01 to F-04 and G-01 to G-04 have been completed in the EIA Stage.

3.2.5 The details of the field observation, sampling depths and particulars of the fieldwork for this Stage II SI for Works Area III are summarized in **Table 2** below.

**Table 2** As-constructed Details of Land Contamination Sampling Locations

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
B (Area B2)	B-01	E: 827265 N: 832983 Elevation: +21.28mPD	0.5m, 1.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish and yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.50m bgl.</li> </ul>
	B-02	E: 827248 N: 833003 Elevation: +20.88mPD	0.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			1.5m, 3.0m		<ul style="list-style-type: none"> <li>Yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.50m bgl.</li> </ul>
			4.5m, 6.0m		<ul style="list-style-type: none"> <li>Light greyish and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.50m bgl.</li> </ul>

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
	B-03 <sup>(2)</sup>	E: 827246 N: 832985 Elevation: +20.96mPD	0.5m	4	<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m		<ul style="list-style-type: none"> <li>• Yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.55m bgl.</li> </ul>
			6.3m		<ul style="list-style-type: none"> <li>• Light greyish and reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.55m bgl.</li> </ul>
	B-04	E: 827233 N: 832998 Elevation: +20.86mPD	0.5m, 1.5m	5	<ul style="list-style-type: none"> <li>• Yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Yellowish and reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 2.77m bgl.</li> </ul>
	B-05 <sup>(3)</sup>	E: 827225 N: 833012 Elevation: +20.84mPD	1.5m, 3.0m, 4.5m, 6.0m	4	<ul style="list-style-type: none"> <li>• Reddish and yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.52m bgl.</li> </ul>
	B-06	E: 827224 N: 832981 Elevation: +20.92mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
			1.5m, 3.0m		<ul style="list-style-type: none"> <li>Yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 2.74m bgl.</li> </ul>
			4.5m, 6.0m		<ul style="list-style-type: none"> <li>Light greyish and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 2.74m bgl.</li> </ul>
	B-07	E:827212 N: 832998 Elevation: +20.73mPD	0.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish brown and pink dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.38m bgl.</li> </ul>
	B-08	E: 827205 N: 832983 Elevation: +20.86mPD	0.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish and yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.78m bgl.</li> </ul>
	B-09	E: 827216 N: 832964 Elevation: +21.01mPD	0.7m	5	<ul style="list-style-type: none"> <li>Brownish grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>



Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
	B-10	E: 827205 N: 833009 Elevation: +20.47mPD	1.5m, 3.0m, 4.5m, 6.0m	5	<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 4.30m bgl.</li> </ul>
			0.5m, 1.5m		<ul style="list-style-type: none"> <li>• Yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.23m bgl.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.23m bgl.</li> </ul>
	B-11	E: 827187 N: 833008 Elevation: +20.56mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Brownish grey dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m		<ul style="list-style-type: none"> <li>• Brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.10m bgl.</li> </ul>
			4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.10m bgl.</li> </ul>
	B-12	E: 827186 N: 832989 Elevation: +20.30mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Brownish grey and grey dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
			1.4m		<ul style="list-style-type: none"> <li>Yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 4.00m bgl.</li> </ul>
	B-13	E: 827187 N: 832974 Elevation: +20.43mPD	0.5m, 1.5m, 3.0m, 4.5m, 6.0m	5	<ul style="list-style-type: none"> <li>Brown and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 5.50m bgl.</li> </ul>
	B-14	E: 827167 N: 833015 Elevation: +19.82mPD	0.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 0.40m bgl.</li> </ul>
			1.2m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish brown and pink dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 0.40m bgl.</li> </ul>
	B-15	E: 827173 N: 832997 Elevation: +20.08mPD	0.5m	5	<ul style="list-style-type: none"> <li>Brownish grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
1.5m, 3.0m, 4.5m, 6.0m			<ul style="list-style-type: none"> <li>Brown and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 0.98m bgl.</li> </ul>		

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
	B-16	E: 827174 N: 832980 Elevation: +19.77mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m		<ul style="list-style-type: none"> <li>• Reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Greyish and yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
	B-17	E: 827163 N: 833006 Elevation: +19.80mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m		<ul style="list-style-type: none"> <li>• Yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.90m bgl.</li> </ul>
	B-18	E: 827161 N: 832990 Elevation: +19.66mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
	B-19	E: 827145 N: 832986 Elevation: +19.51mPD	1.5m, 3.0m, 4.5m, 6.0m	5	<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 3.92m bgl.</li> </ul>
			0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 4.07m bgl.</li> </ul>
			0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.22m bgl.</li> </ul>
			0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
	B-20	E: 827147 N: 833024 Elevation: +19.52mPD	1.5m, 3.0m, 4.5m, 6.0m	5	<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.22m bgl.</li> </ul>
			0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.22m bgl.</li> </ul>
			0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.10m bgl.</li> </ul>
			0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
B-21	E: 827145 N: 833006 Elevation: +19.43mPD	1.5m, 3.0m, 4.5m, 6.0m	5	<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.10m bgl.</li> </ul>	
		0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>	
		1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.10m bgl.</li> </ul>	
		0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>	
		1.5m, 3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.10m bgl.</li> </ul>	
		0.5m		<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>	

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
	B-22	E: 827125 N: 833057 Elevation: +19.18mPD	0.5m, 1.5m, 3.0m	5	<ul style="list-style-type: none"> <li>• Greyish brown and reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 2.72m bgl.</li> </ul>
			4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Light greyish and yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 2.72m bgl.</li> </ul>
	B-23	E: 827130 N: 833033 Elevation: +19.42mPD	0.5m, 1.5m	5	<ul style="list-style-type: none"> <li>• Greyish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Reddish brown and pink dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 2.70m bgl.</li> </ul>
	B-24	E: 827128 N: 833021 Elevation: +19.43mPD	0.5m	5	<ul style="list-style-type: none"> <li>• Brownish grey and grey dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• No groundwater was encountered.</li> </ul>
			1.5m		<ul style="list-style-type: none"> <li>• Yellowish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.46m bgl.</li> </ul>
3.0m, 4.5m, 6.0m			<ul style="list-style-type: none"> <li>• Reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 1.46m bgl.</li> </ul>		

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
	B-25	E: 827125 N: 833009 Elevation: +19.58mPD	0.5m, 1.5m	5	<ul style="list-style-type: none"> <li>Greyish brown and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Light greyish and yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 3.50m bgl.</li> </ul>
	B-26	E: 827116 N: 833045 Elevation: +19.35mPD	0.5m, 1.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish brown and pink dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 2.78m bgl.</li> </ul>
B-27	E: 827106 N: 833037 Elevation: +19.21mPD	0.5m, 1.5m, 3.0m	5	<ul style="list-style-type: none"> <li>Greyish brown and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>	
		4.5m, 6.0m		<ul style="list-style-type: none"> <li>Light greyish and yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 3.10m bgl.</li> </ul>	
B-28	E: 827107 N: 833016 Elevation: +19.19mPD	0.5m	5	<ul style="list-style-type: none"> <li>Brownish grey and grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>	

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation	
			1.5m		<ul style="list-style-type: none"> <li>Yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>	
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 2.90m bgl.</li> </ul>	
	B-29	E: 827089 N: 833049 Elevation: +18.75mPD	0.5m, 1.5m	5	<ul style="list-style-type: none"> <li>Greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>	
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Reddish brown and pink dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 3.04m bgl.</li> </ul>	
	B-30		E: 827088 N: 833034 Elevation: +18.82mPD	0.5m	5	<ul style="list-style-type: none"> <li>Brownish grey and grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
				1.5m		<ul style="list-style-type: none"> <li>Yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
3.0m, 4.5m, 6.0m				<ul style="list-style-type: none"> <li>Reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 3.10m bgl.</li> </ul>		

Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
F	F-05	E: 826818 N: 833518 Elevation: +13.12mPD	0.5m, 1.5m, 3.0m, 4.5m, 6.5m	5	<ul style="list-style-type: none"> <li>Greyish brown and yellowish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 2.70m bgl.</li> </ul>
			0.5m, 1.5m		<ul style="list-style-type: none"> <li>Grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
	F-06	E: 826821 N: 833529 Elevation: +13.10mPD	3.0m, 4.5m, 6.4m	5	<ul style="list-style-type: none"> <li>Yellowish brown and greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.60m bgl.</li> </ul>
			0.5m, 1.5 m		<ul style="list-style-type: none"> <li>Grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
	F-07	E: 826831 N: 833516 Elevation: +13.18mPD	3.0m, 4.5m, 6.0m	5	<ul style="list-style-type: none"> <li>Yellowish brown and greyish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 2.80m bgl.</li> </ul>
			0.5m, 1.5 m		<ul style="list-style-type: none"> <li>Grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
G	G-05	E: 827166 N: 833073 Elevation: +18.85mPD	0.5m, 1.5 m	5	<ul style="list-style-type: none"> <li>Brownish grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.40m bgl.</li> </ul>
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>Yellowish and reddish brown dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>Groundwater was first encountered at 1.40m bgl.</li> </ul>
	G-06	E: 827146 N: 833057 Elevation: +18.89mPD	0.5m, 1.5 m	5	<ul style="list-style-type: none"> <li>Brownish grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>
			0.5m, 1.5 m		<ul style="list-style-type: none"> <li>Brownish grey dry soil samples.</li> <li>No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>No groundwater was encountered.</li> </ul>



Site ID	Borehole ID	As-constructed Coordinates during Fieldworks	Sampling Depth, bgl <sup>(1)</sup>	No. of Soil Samples Collected	Observation
			3.0m, 4.5m, 6.0m		<ul style="list-style-type: none"> <li>• Yellowish and reddish brown dry soil samples.</li> <li>• No petroleum or solvent smell, staining and unnatural colour was encountered.</li> <li>• Groundwater was first encountered at 2.30m bgl.</li> </ul>
Remarks: (1) bgl denotes below ground level. (2) No soil sample can be collected at B-03 4.5m because of the cobble and gravel nature. (3) No soil sample can be collected at B-05 0.5m because there is no soil existed under the concrete cover and only gravel and rock fragments existed till 1.5m bgl.					

### 3.3 Soil Sampling Methodology

- 3.3.1 Boreholes were constructed by Teemway Engineering Limited (SI contractor) by means of rotary drilling method. For safety reason, inspection pits were excavated to inspect the presence of underground utilities at the drillhole locations. The boring using drill rigs were then performed from the base of the inspection pit to the maximum boring depth of around 6m bgl. Small distributed grab samples were collected during inspection pit excavation and U100 soil samples (stainless steel) were collected during borehole drilling. All the soil samples were scooped by stainless steel spoon into the containers provided by the laboratory and headspace within the containers were minimized.
- 3.3.2 Strata logging for drillholes were undertaken during the course of drilling/excavation and sampling by a qualified geologist. The drilllog records, attached in **Appendix B**, included the general stratigraphic descriptions, depth of sampling, sample notation and level of groundwater (if encountered). The presence of rocks/ boulders/ cobbles and foreign materials such as metals, wood and plastics were recorded, if encountered.
- 3.3.3 All equipment in contact with the ground was thoroughly decontaminated between each excavation, drilling and sampling event to minimize the potential for cross contamination. The equipment (including drilling pit, digging tools and samplers) was washed by phosphate-free detergent, rinsed by distilled / deionized water and finally decontaminated by steam cleaning/ high-pressure hot water jet.

### 3.4 Groundwater Sampling Methodology

- 3.4.1 A total of thirty-four (34) temporary groundwater monitoring wells, including twenty-nine (29), three (3) and two (2) temporary groundwater monitoring wells at sites B2, F and G, respectively, were installed at the boreholes which groundwater was encountered, after the drilling works completed for groundwater sampling purpose. No groundwater was encountered at B-16, therefore, no groundwater monitoring well

was installed at B-16. 50mm in diameter  $\mu$ -PVC pipes and sand packs comprising of 1-2mm size of clean coarse sand were used for the temporary groundwater well installation. Machine slotted  $\mu$ -PVC pipes were used at the range of 1.0m above and 2.0m below the water table first encountered or to the end of the monitoring well. Bentonite and cement layers were installed on top of the sand packs layer in order to isolate surface water from flowing into the temporary groundwater monitoring wells.

- 3.4.2 After the temporary groundwater monitoring wells installed, groundwater was purged until the temporary groundwater monitoring wells were dry or at least five times of the volume of groundwater within the borehole by using Telfon bailer or mechanical water pump.
- 3.4.3 The groundwater level and thickness of any light non-aqueous phase liquid (LNAPL) floating on top of the groundwater were detected at each temporary groundwater monitoring well by SI contractor after 2 hours of purging and before the collection of groundwater samples.
- 3.4.4 Prior to sampling, three consecutive stable readings of temperature, electrical conductivity and pH value were measured. Groundwater samples were taken by Telfon bailer after new equilibrium reached after purging. The measurement results are presented in Appendix E.
- 3.4.5 The Telfon bailer was thoroughly decontaminated between each sampling event to minimize the potential for cross contamination. The bailer was washed by phosphate-free detergent, then rinsed by distilled / deionized water and finally decontaminated by steam cleaning/ high-pressure hot water jet.

### 3.5 QA/QC Programme and Sample Delivery

- 3.5.1 The soil and groundwater samples collected along with the field QA/QC samples were properly labelled and then preserved on-site by placing them within an ice chest below 4°C but not frozen. The whole ice chest was delivered to the appointed laboratory, ALS Technichem (HK) Pty Ltd. (ALS), on the same day of sample collection, accompanied with the completed chain-of-custody (COC) forms.
- 3.5.2 A field QA/QC program was incorporated into the land contamination investigation. Since the site investigation works were conducted at site B2 and sites F & G in different time period, two field QA/QC programs were adopted. For sites F & G, one soil field duplicate sample, one groundwater field duplicate sample, two equipment blank samples, one field blank sample and one trip blank sample were collected. For site B2, seven soil field duplicate sample, two groundwater field duplicate sample, four equipment blank samples, eight field blank sample and eight trip blank sample were collected. The trip blank sample was pre-prepared in the laboratory, stored with the samples in the sample cooler, and delivered with the samples to the laboratory. The field QA/QC samples collected or prepared are summarized in **Table 3** and **Table 4** below.

**Table 3** Collected QA/QC Samples for the Site Investigation (Site B2)

QA/QC Sample	Sample ID <sup>(1)</sup>	Associated Sample
Soil Duplicate Sample	B-42 4.5m	Soil sample B-04 4.5m
	B-41 4.5m	Soil sample B-08 4.5m
	B-40 4.5m	Soil sample B-21 4.5m
	B-46 4.5m	Soil sample B-22 4.5m
	B-44 3.0m	Soil sample B-23 3.0m
	B-45 3.0m	Soil sample B-26 3.0m
	B-43 0.5m	Soil sample B-28 0.5m
Groundwater Duplicate Sample	B-40-GW	Groundwater sample B-03
	B-41-GW	Groundwater sample B-10
Equipment Blank Sample	Equipment Blank - 1 (28 Mar 2011)	Soil sample B-03 3.0m
	Equipment Blank - 2 (30 Mar 2011)	Soil sample B-24 4.5m
	Equipment Blank - 3 (31 Mar 2011)	Soil sample B-23 6.0m
	Equipment Blank - GW (2 Apr 2011)	Groundwater sample B-05
Field Blank Sample	Field Blank - 1 (23 Mar 2011)	Soil samples B-08 1.5m, 3.0m, 4.5m, 6.0m; B-09 0.7m, 1.5m, 3.0m, 4.5m, 6.0m; B-13 1.5m, 3.0m, 4.5m, 6.0m
	Field Blank - 2 (24 Mar 2011)	Soil samples B-06 0.5m, 1.5m, 3.0m, 4.5m, 6.0m; B-07 0.5m, 1.5m; B-10 0.5m
	Field Blank - 3 (28 Mar 2011)	Soil samples B-02 4.5m, 6.0m, B-03 1.5m, 3.0m, 6.3m; B-28 1.5m; B-30 4.5m, 6.0m
	Field Blank - 4 (30 Mar 2011)	Soil samples B-20 0.5m, 1.5m, 3.0m, 4.5m, 6.0m; B-22 0.5m; B-23 0.5m; B-24 0.5m, 1.5m, 3.0m, 4.5m, 6.0m; B-26 0.5m ; B-27 0.5m, 1.5m, 3.0m, 4.5m, 6.0m
	Field Blank - 5 (31 Mar 2011)	Soil samples B-23 1.5m, 3.0m; B-26 1.5m, 3.0m
	Field Blank - 6 (31 Mar 2011)	Soil samples B-23 4.5m, 6.0m; B-26 4.5m, 6.0m
	Field Blank - 7 (1 Apr 2011)	Soil samples B-22 1.5m, 3.0m, 4.5m, 6.0m
	Field Blank - GW	GW samples B-05, B-20, B-22, B-23, B-24, B-26, B-27, B-28, B-29

QA/QC Sample	Sample ID <sup>(1)</sup>	Associated Sample
Trip Blank Sample	Trip Blank - 1 (23 Mar 2011)	Soil samples B-08 1.5m, 3.0m, 4.5m, 6.0m ; B-09 0.7m, 1.5m, 3.0m, 4.5m, 6.0m ; B-13 1.5m, 3.0m, 4.5m, 6.0m
	Trip Blank - 2 (24 Mar 2011)	Soil samples B-06 0.5m, 1.5m, 3.0m, 4.5m, 6.0m; B-07 0.5m, 1.5m; B-10 0.5m
	Trip Blank - 3 (28 Mar 2011)	Soil samples B-02 4.5m, 6.0m, B-03 1.5m, 3.0m, 6.3m; B-28 1.5m; B-30 4.5m, 6.0m
	Trip Blank - 4 (29 Mar 2011)	GW samples B-01, B-02, B-03, B-04, B-06, B-07, B-08, B-09, B-10, B-11, B-12, B-13, B-14, B-15, B-17, B-18, B-19, B-21, B-25, B-30
	Trip Blank - 5 (30 Mar 2011)	Soil samples B-20 0.5m, 1.5m, 3.0m, 4.5m, 6.0m; B-22 0.5m; B-23 0.5m; B-24 0.5m, 1.5m, 3.0m, 4.5m, 6.0m; B-26 0.5m; B-27 0.5m, 1.5m, 3.0m, 4.5m, 6.0m
	Trip Blank - 6 (31 Mar 2011)	Soil samples B-23 1.5m, 3.0m, 4.5m, 6.0m; B-26 1.5m, 3.0m, 4.5m, 6.0m
	Trip Blank - 7 (1 Apr 2011)	Soil samples B-22 1.5m, 3.0m, 4.5m, 6.0m
	Trip Blank - GW	GW samples B-05, B-20, B-22, B-23, B-24, B-26, B-27, B-28, B-29
<p>Note :</p> <p>(1) Laboratory testing results presented in Appendix E-1.</p>		

**Table 4** Collected QA/QC Samples for the Site Investigation (Sites F & G)

QA/QC Sample	Sample ID <sup>(1)</sup>	Associated Sample
Soil Duplicate Sample	G-09 4.5m	Soil sample G-05 4.5m
Groundwater Duplicate Sample	G-09	Groundwater sample G-06
Equipment Blank Sample	Equipment Blank (21 Feb 2011)	Soil sample G-05 1.5m
	Equipment Blank-2 (24 Feb 2011)	Groundwater sample G-05
Field Blank Sample	Field Blank (21 Feb 2011)	Soil sample G-05 1.5m
Trip Blank Sample	Trip Blank (21 Feb 2011)	Soil samples G-05 1.5m, 3.0m, 4.5m & 6.0m

QA/QC Sample	Sample ID <sup>(1)</sup>	Associated Sample
Note :		
(1) Laboratory testing results presented in Appendix E-2.		

### 3.6 Groundwater Level and On-site Measurements

#### 3.6.1 Groundwater Level

The groundwater levels were measured by SI contractor after the temporary groundwater monitoring wells were installed. The static groundwater levels are summarized in **Table 5** below and the groundwater monitoring well diagram for each borehole are shown in **Appendix G**.

**Table 5**      Static Groundwater Levels

Site ID	Temporary Groundwater Well	First appeared groundwater level (m bgl)	Static groundwater level (m bgl)	Elevation of well ground level (mPD)	GW elevation (mPD)	Well depth (m bgl)	Depth to the Well Screen Top (m bgl)
B (Area B2)	B-01	4.50	1.50	21.28	19.78	6.00	3.00
	B-02	4.50	1.50	20.88	19.38	6.00	3.00
	B-03	4.50	1.55	20.96	19.41	6.30	3.30
	B-04	6.00	2.77	20.86	18.09	6.00	3.00
	B-05	4.50	1.52	20.84	19.32	6.00	3.00
	B-06	6.00	2.74	20.92	18.18	6.00	3.00
	B-07	4.50	1.38	20.73	19.35	6.00	3.00
	B-08	4.50	1.78	20.86	19.08	6.00	3.00
	B-09	4.50	4.30	21.01	16.71	6.00	3.00
	B-10	4.50	1.23	20.47	19.24	6.00	3.00
	B-11	4.50	1.10	20.56	19.46	6.00	3.00
	B-12	4.50	4.00	20.30	16.30	6.00	3.00
	B-13	4.50	5.50	20.43	14.93	6.00	3.00
	B-14	3.00	0.40	19.82	19.42	6.00	3.00
	B-15	4.50	0.98	20.08	19.10	6.00	3.00
	B-17	4.50	1.90	19.80	17.90	6.00	3.00
	B-18	6.00	3.92	19.66	15.74	6.00	3.00
	B-19	6.00	4.07	19.51	15.44	6.00	3.00
	B-20	3.00	1.22	19.52	18.30	6.00	3.00
	B-21	3.00	1.10	19.43	18.33	6.00	3.00
	B-22	4.50	2.72	19.18	16.46	6.00	3.00
	B-23	4.50	2.70	19.42	16.72	6.00	3.00
	B-24	4.50	1.46	19.43	17.97	6.00	3.00
	B-25	6.00	3.50	19.58	16.08	6.00	3.00
	B-26	4.50	2.78	19.35	16.57	6.00	3.00
	B-27	6.00	3.10	19.21	16.11	6.00	3.00
	B-28	4.50	2.90	19.19	16.29	6.00	3.00

Site ID	Temporary Groundwater Well	First appeared groundwater level (m bgl)	Static groundwater level (m bgl)	Elevation of well ground level (mPD)	GW elevation (mPD)	Well depth (m bgl)	Depth to the Well Screen Top (m bgl)
	B-29	6.00	3.04	18.75	15.71	6.00	3.00
	B-30	6.00	3.10	18.82	15.72	6.00	3.00
F	F-05	3.00	2.70	13.12	10.42	6.50	2.00
	F-06	1.50	1.60	13.10	11.50	6.40	2.00
	F-07	3.00	2.80	13.18	10.38	6.00	2.00
G	G-05	2.50	1.40	18.85	17.45	6.00	2.00
	G-06	3.00	2.30	18.89	16.59	6.00	2.00

From the static groundwater levels recorded, the groundwater levels among the three and two temporary groundwater monitoring wells in sites F and G, respectively, are generally at similar levels in equilibrium. As both sites F and G are located in inland area in Kam Tin district and the two sites are located at the east side of nullah, it is believed that groundwater generally flows in a west direction to the nullah.

For site B2, B-13, B-18, B-19, B-29 and B-30 are measured to have a relatively low groundwater levels. Among the twenty-nine temporary groundwater wells in site B2, they are generally at similar levels in equilibrium. Also, as site B2 is located in inland area in Kam Tin district and at the northeast side of nullah, it is believed that groundwater generally flows in a southwest direction to the nullah.

### 3.6.2 Temperature, Electrical Conductivity and pH Value Measurements

Prior to sampling, three consecutive stable readings of temperature, electrical conductivity and pH value were measured at each temporary groundwater monitoring well. The measurement results are presented in **Appendix E**.

### 3.6.3 LNAPL Measurement

The thickness of any LNAPL floating on top of the groundwater were detected at each temporary groundwater monitoring well after 2 hours of purging and before the collection of groundwater samples. No LNAPL was detected at all thirty-four temporary groundwater monitoring wells.

## 4.0 ASSESSMENT METHODOLOGY AND LABORATORY ANALYSIS

### 4.1 Introduction

4.1.1 This Section presents the assessment methodology for land contamination and the laboratory analytical results for the samples collected during the site investigation works.

### 4.2 Assessment Methodology

4.2.1 According to the RBRGs, all laboratory test methods must be accredited by the Hong Kong Laboratory Accreditation Scheme (HOKLAS) or one of its Mutual Recognition Arrangement partners. ALS is fully accredited by HOKLAS.

4.2.2 Samples should be representative of field conditions. At each sampling location, soil samples were collected using pre-cleaned sampling equipment. All sample containers were provided by ALS who guarantee their sterilization and preservative contents. One equipment blank sample was collected per machine and bailer and one in twenty samples was collected for field duplicate sample, field blank sample and trip blank sample as QA/QC samples during the field investigation. Precision was calculated as the relative percent difference (RPD) between the original sample and the blind duplicate.

4.2.3 The COC forms for the samples delivered from the field were endorsed by ALS. This was performed to ensure all the samples collected from the field were safely delivered to the laboratory for analysis.

### 4.3 Laboratory Testing Parameters

4.3.1 For the soil and groundwater samples collected from each of the sampling locations, the samples were analyzed on the parameters proposed in the revised CAP. The laboratory analysis parameters and the corresponding RBRGs criteria are detailed in **Appendix C** and the sampling schedule proposed in the revised CAP is shown in **Appendix D**.

4.3.2 Since future land uses of the Project areas will be industrial use or railway development, RBRGs for industrial area (i.e. industrial) shall be adopted for soil and groundwater assessment.

### 4.4 Interpretation of Laboratory Analytical Results

4.4.1 Typical land contamination assessment process is summarized in **Table 6** below.

**Table 6** Land Contamination Assessment Process

Step	Necessary Information
1. Identify land use and select Chemicals of Concern	<ul style="list-style-type: none"> <li>• Past land uses and activities</li> <li>• Current use of site and activities</li> <li>• Future use of site and expected activities</li> </ul>

Step	Necessary Information
	<ul style="list-style-type: none"> <li>• Maps and aerial photos of historic, current and future (if available) site layout and operations</li> <li>• Chemicals of Concern selection based on past and current activities</li> <li>• Previous Site Investigation Report</li> </ul>
2. Assess laboratory data for COCs	<ul style="list-style-type: none"> <li>• Soil and groundwater analytical data with method reporting limits less than RBRGs</li> <li>• Soil and groundwater Chemicals of Concern concentrations to be representative of vertical and horizontal extent of contamination</li> <li>• Basic QA/QC evaluation of laboratory data noting spurious results or other reported problems</li> </ul>
3. Compare maximum detected concentrations to RBRGs and NAPL trigger criteria	<ul style="list-style-type: none"> <li>• Sample concentrations reported as mass/mass (soil) and mass/volume (water)</li> <li>• Comparison of maximum concentrations in soil samples to RBRGs and <math>C_{sat}</math> (Soil Saturation Limit)</li> <li>• Comparison of maximum concentrations in groundwater samples to RBRGs and solubility limits</li> </ul>
4. Point-by-point comparison	<ul style="list-style-type: none"> <li>• Point-by-point tabulation of all chemicals, sample numbers, locations, and depths and indicate any exceedance of the soil RBRGs and <math>C_{sat}</math></li> <li>• Point-by-point tabulation of all chemicals, sample numbers, locations, and depths and indicate any exceedance of the groundwater RBRGs and solubility limits</li> </ul>
5. Establish whether Non-Aqueous Phase Liquid (NAPL) is present	<ul style="list-style-type: none"> <li>• Record of field observations including visual and odour evidence of NAPL plus field instrument readings</li> </ul>
6. Incorporate results into Contamination Assessment Report (CAR)	<ul style="list-style-type: none"> <li>• Conclusions regarding need for remediation</li> <li>• Discussion of information gaps and uncertainties, if applicable</li> </ul>

4.4.2 Step 1 was conducted and presented in the revised CAP. The laboratory analytical results are interpreted (Step 2) and Steps 3 to 6 are followed for incorporation into this supplementary CAR.

Step 3 - Compare maximum detected concentrations to RBRGs and NAPL trigger criteria

4.4.3 Data summary tables for soil and/or groundwater will be included. All detected chemicals will be listed by chemical category, e.g. volatile organic chemicals (VOCs), semi-volatile organic chemicals (SVOCs), etc. Additional statistics and information shall be included as follow:

- Frequency of Detection – the number of times a chemical was detected divided by total number of samples collected and analyzed for that parameter.
- Range of Detected Concentration – the minimum and maximum detected concentrations for each chemical.
- Range of Method Reporting Limits – the minimum and maximum method reporting limits reported by the laboratory for each chemical.



- Analytical Method – reference for the method used to analyze each chemical.
- Land Use Category – list the relevant land use categories.
- RBRG – list the lowest of the appropriate RBRG(s) for soil and groundwater for all the land use categories applicable for the site.
- Soil Saturation Limit (C<sub>sat</sub>) or solubility limit – for the soil and groundwater data summary, list the soil saturation or solubility limit.

#### Step 4 - Point-by-point comparison

- 4.4.4 A point-by-point comparison involves tabulation of all sample numbers, concentrations, locations and depths of all samples. Checks are to be performed for samples that exceed the soil RBRG or soil saturation limit (C<sub>sat</sub>) and the groundwater RBRG or solubility limit. A site figure will be submitted indicating the distribution of contamination for samples that exceed an RBRG or NAPL trigger criterion.

#### Step 5 - Establish whether NAPL is present

- 4.4.5 If the maximum detected chemical concentration in soil exceeds the C<sub>sat</sub>, or the maximum detected chemical concentration in groundwater exceeds the solubility limit, additional assessment is required to determine whether NAPL may be present.
- 4.4.6 C<sub>sat</sub> and solubility limits represent the initial NAPL screen for soil in unsaturated subsurface zones and groundwater, respectively. The decision on whether or not the soil or groundwater at a site contains NAPL or other non-natural free liquids will likely require professional judgment and a weight-of-evidence approach to balance out potentially conflicting information. The evidence may include information on the historic land use activities at the site, soil boring logs, as well as soil, groundwater and soil vapour concentrations of various chemicals. An industry “rule of thumb” for groundwater DNAPL contamination is that DNAPL may be present where groundwater concentrations have been observed in excess of 1% of the effective solubility of the compound detected. This is an approximation and should be considered as an indicator of the likely presence of DNAPL, it should be used in conjunction with the site specific details listed above.
- 4.4.7 Field observations are considered in determining the potential occurrence of NAPL. Records should be kept to indicate whether any of the following three field conditions was observed during sampling collection:
- Stained, unnaturally colored, or wet soil above the water table. The presence of NAPL may be obvious based on visual evidence of liquids in the soil, especially if the appearance is of a coloured (or opaque) liquid or of a viscous liquid.
  - Petroleum or solvent odours in soil or groundwater samples.
  - Presence of sheen on water samples or bailer, or oily residual on soil samples or split spoon sampler.
- 4.4.8 If any of the above field conditions was observed, NAPL is likely to be present and remediation is required. In this instance the rules below are likely to apply, although situations may vary on a site by site basis:
- (1) Site concentration greater than RBRG

If the field assessment indicates no trace of NAPL then the remediation goal will be the RBRG. If the field assessment indicates NAPL as present, then NAPL removal will be necessary and the lower of the RBRG or Csat or solubility limit will be the clean-up criterion.

(2) Site concentration less than RBRG

If the field assessment indicates no trace of NAPL then remediation is not required. If the field assessment indicates NAPL as present, then NAPL removal will be necessary and the lower of the RBRG or Csat or solubility limit will be the clean-up criterion.

Step 6 - Incorporate results into CAR

- 4.4.9 The contamination assessment results will be included in the CAR along with recommendations for further actions. The presence of the following conditions indicates that contamination exists and remedial action is required at the site:
- Any detected chemical concentration in soil or groundwater exceeded an RBRG;
  - Any detected chemical concentration in soil exceeds a NAPL trigger criterion and/or a chemical concentration in groundwater exceeds the solubility limit, as well as other evidence suggests that NAPL is of concern.

**4.5 Laboratory Analytical Results**

- 4.5.1 The analytical results for the soil and groundwater samples collected from sites B2, F & G are summarized in **Table 7** to **Table 10** and are discussed in the following sections. The detailed results of the laboratory analyses along with the QA/QC information are presented in **Appendix E**.
- 4.5.2 In order to provide a full picture on the extent of contamination at sites F and G, analytical results of the sampling points within the same site carried out in Stage I SI works extracted from the approved CAR-RAP in the approved EIA report are presented in **Table 11** and **Table 12**.

**Table 7** Soil Analytical Results (Sites F & G) (all results in mg/kg dry weight)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	F-05 0.5m	F-05 1.5m	F-05 3.0m	F-05 4.5m	F-05 6.5m	F-06 0.5m	F-06 1.5m	F-06 3.0m	F-06 4.5m	F-06 6.4m
<b>% Moisture Content</b>	NA	NA	0.1	10.0	14.5	16.1	22.9	23.1	7.1	11.9	21.6	15.7	21.9
<b>Metals</b>													
Cadmium	653	NA	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	10,000	NA	1	10	18	12	10	6	10	11	21	9	12
Lead	2,290	NA	1	54	78	56	61	14	44	56	71	35	72
Nickel	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	1	139	98	75	49	133	107	72	86	184	122
Mercury	38.4	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trivalent Chromium	10,000	NA	1	11	14	7	3	9	10	13	8	6	7
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHS</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	602	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
bis-(2-Ethylhexyl)phthalate	91.8	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>PCBs</b>	0.748	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Cyanide</b>	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: F-05-0.5m = Borehole F-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **ND** value = Exceedance of Soil Saturation Limit; **Bold** and Underline value = Exceedance of RBRGs.

(a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

(c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 7** Soil Analytical Results (Sites F & G) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	F-07 0.5m	F-07 1.5m	F-07 3.0m	F-07 4.5m	F-07 6.0m	G-05 0.5m	G-05 1.5m	G-05 3.0m	G-05 <sup>(c)</sup> 4-5m	G-05 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	11.9	22.1	25.5	27.1	17.1	12.0	15.1	22.2	29.5	23.5
<b>Metals</b>													
Cadmium	653	NA	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Copper	10,000	NA	1	9	12	13	22	25	6	12	15	18	21
Lead	2,290	NA	1	52	54	70	62	33	22	49	48	189	35
Nickel	10,000	NA	1	NA	NA	NA	NA	NA	5	5	5	5	6
Zinc	10,000	NA	1	71	84	80	189	179	50	78	92	77	134
Mercury	38.4	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Trivalent Chromium	10,000	NA	1	9	10	6	7	7	10	12	7	7	4
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
bis-(2-Ethylhexyl)phthalate	91.8	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
PCBs	0.748	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Cyanide	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND

Note: F-05-0.5m = Borehole F-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value = Exceedance of Soil Saturation Limit; **Bold and Underline** value = Exceedance of RBRGs.

(a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

(c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 7** Soil Analytical Results (Sites F & G) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	G-06 0.5m	G-06 1.5m	G-06 3.0m	G-06 4.5m	G-06 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	15.0	14.3	15.2	19.8	27.6
<b>Metals</b>								
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND
Copper	10,000	NA	1	10	12	14	15	12
Lead	2,290	NA	1	37	84	45	109	50
Nickel	10,000	NA	1	9	6	4	3	2
Zinc	10,000	NA	1	94	71	62	108	50
Mercury	38.4	NA	1	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	19	27	9	5	2
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND
<b>TPHs</b>								
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND
<b>SVOCs</b>								
bis-(2-Ethylhexyl)phthalate	91.8	NA	5	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND

Note: F-05-0.5m = Borehole F-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **ND** value = Exceedance of Soil Saturation Limit; **Bold** and Underline value = Exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-01 0.5m	B-01 1.5m	B-01 3.0m	B-01 4.5m	B-01 6.0m	B-02 0.5m	B-02 1.5m	B-02 3.0m	B-02 4.5m	B-02 6.0m
% Moisture Content	NA	NA	0.1	11.9	15.3	16.6	16.2	24.7	9.6	14.8	14.5	16.0	20.2
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND
Copper	10,000	NA	1	26	38	17	40	23	45	13	12	10	19
Lead	2,290	NA	1	67	37	77	198	137	57	44	105	24	92
Nickel	10,000	NA	1	4	7	5	3	6	5	7	5	2	4
Zinc	10,000	NA	1	137	82	48	96	140	170	94	118	37	81
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	9	14	14	8	6	21	19	15	2	6
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VOCs	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCBs	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyanide	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-03 0.5m	B-03 1.5m	B-03 3.0m	B-03 6.3m	B-04 0.5m	B-04 1.5m	B-04 3.0m	B-04 <sup>(c)</sup> 4.5m	B-04 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	14.1	14.7	14.2	23.9	11.1	16.5	13.8	17.6	20.6
<b>Metals</b>												
Cadmium	653	NA	0.2	0.2	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	23	10	15	29	12	7	12	13	45
Lead	2,290	NA	1	100	44	98	78	37	35	79	94	62
Nickel	10,000	NA	1	8	5	5	12	3	5	4	4	3
Zinc	10,000	NA	1	111	86	106	336	82	71	95	64	124
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	10	22	16	11	8	17	14	12	10
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>												
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>												
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND



Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-05 1.5m	B-05 3.0m	B-05 4.5m	B-05 6.0m	B-06 0.5m	B-06 1.5m	B-06 3.0m	B-06 4.5m	B-06 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	16.0	15.2	18.4	12.6	15.7	15.9	13.5	12.1	17.8
<b>Metals</b>												
Cadmium	653	NA	0.2	ND	ND	ND	ND	1.0	ND	ND	ND	ND
Copper	10,000	NA	1	10	15	10	25	80	8	11	28	24
Lead	2,290	NA	1	43	88	53	46	103	30	47	214	72
Nickel	10,000	NA	1	6	5	2	1	8	6	5	2	5
Zinc	10,000	NA	1	90	111	35	59	445	67	81	57	114
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	19	26	8	3	24	18	24	8	23
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>												
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>												
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-07 0.5m	B-07 1.5m	B-07 3.0m	B-07 4.5m	B-07 6.0m	B-08 0.5m	B-08 1.5m	B-08 3.0m	B-08 <sup>(c)</sup> 4.5m	B-08 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	12.3	16.5	17.0	24.6	25.5	11.0	14.8	15.4	17.5	18.2
<b>Metals</b>													
Cadmium	653	NA	0.2	0.2	ND	ND	ND	ND	0.3	ND	ND	ND	ND
Copper	10,000	NA	1	10	13	171	319	20	39	14	12	14	29
Lead	2,290	NA	1	100	48	88	139	128	58	36	42	68	116
Nickel	10,000	NA	1	4	5	5	7	4	6	5	6	4	5
Zinc	10,000	NA	1	109	84	164	374	81	220	80	86	67	90
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	7	19	15	9	4	16	26	38	7	8
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-09 0.7m	B-09 1.5m	B-09 3.0m	B-09 4.5m	B-09 6.0m	B-10 0.5m	B-10 1.5m	B-10 3.0m	B-10 4.5m	B-10 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	9.3	15.0	14.6	11.9	19.9	12.9	16.9	19.4	21.0	22.4
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	0.5	ND	ND	ND	ND	ND
Copper	10,000	NA	1	8	11	12	161	39	37	9	50	20	16
Lead	2,290	NA	1	23	38	52	156	270	138	37	117	106	95
Nickel	10,000	NA	1	2	6	6	3	4	5	5	6	2	6
Zinc	10,000	NA	1	56	86	87	177	138	123	78	110	49	48
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	7	20	20	9	12	9	18	17	5	5
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-11 0.5m	B-11 1.5m	B-11 3.0m	B-11 4.5m	B-11 6.0m	B-12 0.5m	B-12 1.4m	B-12 3.0m	B-12 4.5m	B-12 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	16.4	19.8	11.3	22.7	21.1	16.7	20.4	16.3	20.6	20.6
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	14	10	59	17	16	9	10	17	16	16
Lead	2,290	NA	1	38	38	118	125	95	38	39	65	123	123
Nickel	10,000	NA	1	6	6	5	1	3	4	6	4	3	3
Zinc	10,000	NA	1	199	69	175	25	53	200	89	74	74	69
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	18	17	15	1	6	8	16	8	4	6
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	685	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	1,640	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	1.74	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	0.686	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	1.81	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	0.981	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	0.556	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	0.627	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	1.11	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	2.17	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	1.93	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	1.68	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	7.95	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	3.72	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND



Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-13 0.5m	B-13 1.5m	B-13 3.0m	B-13 4.5m	B-13 6.0m	B-14 0.5m	B-14 1.2m	B-14 3.0m	B-14 4.5m	B-14 6.0m
% Moisture Content	NA	NA	0.1	11.7	15.8	15.8	13.8	24.6	14.2	21.8	16.5	26.3	29.4
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	18	14	61	78	43	9	5	22	18	33
Lead	2,290	NA	1	83	45	115	177	169	38	21	76	76	38
Nickel	10,000	NA	1	6	5	5	9	5	3	5	5	5	13
Zinc	10,000	NA	1	91	92	108	177	96	113	47	85	86	145
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	19	14	11	16	5	7	9	13	2	14
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VOCs	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCBs	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyanide	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit; **Bold** value denotes exceedance of Soil Saturation Limit; **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-15 0.5m	B-15 1.5m	B-15 3.0m	B-15 4.5m	B-15 6.0m	B-16 0.5m	B-16 1.5m	B-16 3.0m	B-16 4.5m	B-16 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	13.5	18.4	24.3	23.4	26.2	13.5	13.0	16.8	24.5	13.4
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	6	7	21	39	10	7	20	67	70	88
Lead	2,290	NA	1	38	28	103	94	33	15	136	193	99	177
Nickel	10,000	NA	1	3	4	6	4	3	7	7	7	4	7
Zinc	10,000	NA	1	66	73	106	82	42	39	127	207	117	206
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	6	11	12	6	2	9	10	8	2	8
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-17 0.5m	B-17 1.5m	B-17 3.0m	B-17 4.5m	B-17 6.0m	B-18 0.5m	B-18 1.5m	B-18 3.0m	B-18 4.5m	B-18 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	14.7	24.4	16.7	21.5	26.8	15.6	14.3	20.5	22.1	25.7
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	17	9	12	14	15	12	20	16	32	18
Lead	2,290	NA	1	42	36	55	101	213	55	86	76	168	95
Nickel	10,000	NA	1	4	6	5	4	4	6	7	4	6	4
Zinc	10,000	NA	1	205	73	114	59	64	117	101	55	91	76
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	11	13	20	9	3	25	14	5	12	4
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-19 0.5m	B-19 1.5m	B-19 3.0m	B-19 4.5m	B-19 6.0m	B-20 0.5m	B-20 1.5m	B-20 3.0m	B-20 4.5m	B-20 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	15.5	14.1	20.7	26.2	22.5	11.8	14.9	16.6	18.1	17.4
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	34	19	30	11	59	5	17	16	15	63
Lead	2,290	NA	1	73	81	128	72	47	29	60	48	74	119
Nickel	10,000	NA	1	6	5	5	3	19	2	6	4	5	3
Zinc	10,000	NA	1	134	82	95	58	253	51	96	100	94	124
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	11	20	5	5	21	5	26	10	6	5
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND



Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-21 0.5m	B-21 1.5m	B-21 3.0m	B-21 <sup>(c)</sup> 4.5m	B-21 6.0m	B-22 0.5m	B-22 1.5m	B-22 3.0m	B-22 <sup>(c)</sup> 4.5m	B-22 6.0m
% Moisture Content	NA	NA	0.1	14.3	16.4	17.4	16.5	18.6	15.4	13.0	16.7	25.1	18.0
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	10	23	18	26	21	9	23	23	16	16
Lead	2,290	NA	1	36	61	102	250	96	74	47	53	158	76
Nickel	10,000	NA	1	4	6	5	5	5	7	4	5	4	2
Zinc	10,000	NA	1	168	103	71	153	139	122	72	96	54	76
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	9	45	22	34	14	14	34	14	7	5
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-23 0.5m	B-23 1.5m	B-23 <sup>(c)</sup> 3.0m	B-23 4.5m	B-23 6.0m	B-24 0.5m	B-24 1.5m	B-24 3.0m	B-24 4.5m	B-24 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	13.4	16.8	14.0	18.6	23.8	12.7	16.0	13.4	16.0	19.0
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	10	54	13	12	12	8	21	46	15	63
Lead	2,290	NA	1	40	46	47	153	206	35	53	70	127	99
Nickel	10,000	NA	1	6	7	4	4	3	3	6	3	4	3
Zinc	10,000	NA	1	97	119	82	51	68	76	106	100	108	140
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	15	22	21	6	5	9	21	16	4	11
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-25 0.5m	B-25 1.5m	B-25 3.0m	B-25 4.5m	B-25 6.0m	B-26 0.5m	B-26 1.5m	B-26 <sup>(c)</sup> 3.0m	B-26 4.5m	B-26 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	17.2	15.8	14.7	15.1	13.6	12.7	17.2	13.6	19.8	14.4
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	14	21	26	14	15	11	12	36	20	11
Lead	2,290	NA	1	48	57	71	73	116	53	44	73	65	39
Nickel	10,000	NA	1	7	5	4	3	3	6	6	4	4	ND
Zinc	10,000	NA	1	131	88	109	69	83	331	98	89	80	19
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	28	20	18	14	10	10	22	20	9	ND
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-27 0.5m	B-27 1.5m	B-27 3.0m	B-27 4.5m	B-27 6.0m	B-28 <sup>(c)</sup> 0.5m	B-28 1.5m	B-28 3.0m	B-28 4.5m	B-28 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	11.9	16.5	13.2	13.9	18.3	17.0	15.0	12.0	17.9	19.1
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	8	14	18	18	17	12	40	72	28	12
Lead	2,290	NA	1	33	45	58	142	177	56	151	196	68	74
Nickel	10,000	NA	1	4	6	5	4	4	6	7	4	4	5
Zinc	10,000	NA	1	82	97	115	89	72	118	165	154	134	96
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	7	13	18	8	4	10	14	18	15	7
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND



Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 8** Soil Analytical Results (Site B2) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	B-29 0.5m	B-29 1.5m	B-29 3.0m	B-29 4.5m	B-29 6.0m	B-30 0.5m	B-30 1.5m	B-30 3.0m	B-30 4.5m	B-30 6.0m
<b>% Moisture Content</b>	NA	NA	0.1	13.3	14.4	12.9	15.5	23.0	10.4	15.4	14.0	16.4	23.9
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	10,000	NA	1	19	16	16	16	22	36	27	19	99	45
Lead	2,290	NA	1	230	52	54	53	346	221	106	68	44	193
Nickel	10,000	NA	1	6	7	4	4	5	6	7	4	4	5
Zinc	10,000	NA	1	136	106	104	90	70	197	134	134	142	114
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	12	23	7	5	5	25	10	15	5	6
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
Acenaphthene	10,000	60.2	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	10,000	19.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	10,000	2.56	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	91.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	9.18	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	17.8	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1,140	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	10,000	54.7	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	453	125	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	10,000	28	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	10,000	NA	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: B-05 0.5m = Borehole B-05 at depth of 0.5 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value denotes exceedance of Soil Saturation Limit, **Bold** and underline value denotes exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

**Table 9** Groundwater Analytical Results (Sites F & G) (all results in mg/L)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Solubility Limit	Lab Report Limit	F-05	F-06	F-07	G-05	G-06 <sup>(c)</sup>
<b>Metals</b>								
Mercury	6.79	NA	0.0005	NA	NA	NA	ND	ND
<b>TPHs</b>								
C6-C8	1,150	5.23	0.02	ND	ND	ND	ND	ND
C9-C16	9,980	2.8	0.5	ND	ND	0.8	ND	ND
C17-C35	178	2.8	0.5	ND	0.6	<b>4.0</b>	2.4	1.2
<b>VOCs</b>								
Chloroform	11.3	7.920	0.005	ND	ND	ND	ND	ND
Methyl tert-butyl Ether	1,810	NA <sup>(d)</sup>	0.005	ND	ND	ND	0.007	ND
<b>SVOCs</b>	Various	Various	Various	NA	NA	NA	ND	ND
<b>PCBs</b>	5.11	0.031	1.0	NA	NA	NA	ND	ND

Note: mg/L = milligram per litre, NA = Not available, ND = Not detectable/below detection limit, **NA** value = Exceedance of Solubility Limit, **NA** and **Underline** value = Exceedance of RBRGs.

(a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

(c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

(d) This value indicates that the solubility limit exceeds the "ceiling limit" therefore the RBRG applies.

**Table 10** Groundwater Analytical Results (Site B2) (all results in mg/L)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Solubility Limit	Lab Report Limit	B-01	B-02	B-03 <sup>(c)</sup>	B-04	B-05	B-06	B-07	B-08	B-09	B-10 <sup>(c)</sup>
<b>Metals</b>													
Mercury	6.79	NA	0.0005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	1,150	5.23	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	9,980	2.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	178	2.8	0.5	1.0	1.1	0.8	1.6	ND	1.8	ND	0.6	1.1	ND
<b>VOCs</b>													
Chloroform	11.3	7,920	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl Ether	1,810	NA <sup>(d)</sup>	0.005	0.034	0.051	0.039	0.045	0.040	0.035	ND	ND	0.019	ND
<b>SVOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	5.11	0.031	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: mg/L = milligram per litre, NA = Not available, ND = Not detectable/ below detection limit, **Bold** value = Exceedance of Solubility Limit; **Bold** and Underline value = Exceedance of RBRGs.

(a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

(c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.

(d) This value indicates that the solubility limit exceeds the "ceiling limit" therefore the RBRG applies.

**Table 10** Groundwater Analytical Results (Site B2) (all results in mg/L) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Solubility Limit	Lab Report Limit	B-11	B-12	B-13	B-14	B-15	B-17	B-18	B-19	B-20	B-21
<b>Metals</b>													
Mercury	6.79	NA	0.0005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	1,150	5.23	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	9,980	2.8	0.5	ND	ND	1.4	ND	1.4	ND	ND	0.7	ND	ND
C17-C35	178	2.8	0.5	ND	1.3	<b>3.9</b>	ND	<b>3.3</b>	0.6	<b>3.8</b>	1.3	ND	0.9
<b>VOCs</b>													
Chloroform	11.3	7,920	0.005	ND	ND	ND	ND	ND	ND	ND	0.012	ND	0.007
Methyl tert-butyl Ether	1,810	NA <sup>(d)</sup>	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	5.11	0.031	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: mg/L = milligram per litre, NA = Not available, ND = Not detectable/ below detection limit, **Bold** value = Exceedance of Solubility Limit; **Bold** and Underline value = Exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.
- (d) This value indicates that the solubility limit exceeds the "ceiling limit" therefore the RBRG applies.
- (e) No groundwater was encountered at B-16 sampling location during drilling activities. Therefore, no groundwater sample can be collected at B-16.

**Table 10** Groundwater Analytical Results (Site B2) (all results in mg/L) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Solubility Limit	Lab Report Limit	B-22	B-23	B-24	B-25	B-26	B-27	B-28	B-29	B-30
<b>Metals</b>												
Mercury	6.79	NA	0.0005	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHS</b>												
C6-C8	1,150	5.23	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	9,980	2.8	0.5	1.2	0.6	ND	ND	0.6	0.7	ND	ND	ND
C17-C35	178	2.8	0.5	2.3	1.0	ND	2.7	1.0	2.1	ND	0.5	1.7
<b>VOCs</b>												
Chloroform	11.3	7,920	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl Ether	1,810	NA <sup>(d)</sup>	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>PCBs</b>	5.11	0.031	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: mg/L = milligram per litre, NA = Not available, ND = Not detectable/below detection limit, **ND** value = Exceedance of Solubility Limit; **Bold** and Underline value = Exceedance of RBRGs.

- (a) Only detected parameters were summarized and presented in the table. Laboratory testing reports of all parameters tested are presented in **Appendix E**.
- (b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.
- (c) Field duplicate samples were collected from this sampling location, and higher result was presented in the table where the duplicate sample results differed.
- (d) This value indicates that the solubility limit exceeds the "ceiling limit" therefore the RBRG applies.
- (e) No groundwater was encountered at B-16 sampling location during drilling activities. Therefore, no groundwater sample can be collected at B-16.

**Table 11** Soil Analytical Results Extracted from the Approved EIA Report (Sites F & G) (all results in mg/kg dry weight)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	F-01 0.50- 0.95m	F-01 1.50- 1.95m	F-01 3.00- 3.45m	F-01 4.50- 4.95m	F-01 6.00- 6.45m	F-02 0.50- 0.95m	F-02 1.50- 1.95m	F-02 3.00- 3.45m	F-02 4.50- 4.95m	F-02 6.00- 6.45m
% Moisture Content	NA	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals</b>													
Cadmium	653	NA	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	2,290	NA	1	57	56	84	43	123	91	50	75	509	14
Nickel	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	38.4	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trivalent Chromium	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	1,960	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	9	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	700	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VOCs	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
bis-(2-Ethylhexyl)phthalate	91.8	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs	0.748	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: F-01-0.50-0.95m = Borehole F-01 at depth of 0.50 to 0.95 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value = Exceedance of Soil Saturation Limit; **Bold** and Underline value = Exceedance of RBRGs.

(a) Analysis results are extracted from the approved CAR-RAP in the approved EIA report (AEIAR-143/2009). Only detected parameters were summarized and presented in the table.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.



**Table 11** Soil Analytical Results Extracted from the Approved EIA Report (Sites F & G) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	F-03 0.50- 0.95m	F-03 1.50- 1.95m	F-03 6.00- 6.45m	F-04 0.50- 0.95m	F-04 1.50- 1.95m	F-04 3.00- 3.45m	F-04 4.50- 4.95m	F-04 6.00- 6.45m	G-01 0.50- 0.95m	G-01 1.50- 1.95m
<b>% Moisture Content</b>	NA	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals</b>													
Cadmium	653	NA	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Copper	10,000	NA	1	11	17	13	NA	NA	NA	NA	NA	7	23
Lead	2,290	NA	1	110	74	30	32	61	107	44	28	30	46
Nickel	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	6	6
Zinc	10,000	NA	1	337	118	250	NA	NA	NA	NA	NA	70	82
Mercury	38.4	NA	1	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	8	9	7	NA	NA	NA	NA	NA	12	20
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND
<b>TPHS</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
bis-(2-Ethylhexyl)phthalate	91.8	NA	5	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND
<b>PCBs</b>	0.748	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
<b>Cyanide</b>	10,000	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND

Note: F-01-0.50-0.95m = Borehole F-01 at depth of 0.50 to 0.95 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value = Exceedance of Soil Saturation Limit; **Bold** and Underline value = Exceedance of RBRGs.

(a) Analysis results are extracted from the approved CAR-RAP in the approved EIA report (AEIAR-143/2009). Only detected parameters were summarized and presented in the table.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

**Table 11** Soil Analytical Results Extracted from the Approved EIA Report (Sites F & G) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	G-01 4.50- 4.95m	G-02 0.50- 0.95m	G-02 1.50- 1.95m	G-02 3.00- 3.45m	G-02 4.50- 4.95m	G-03 0.50- 0.95m	G-03 1.50- 1.95m	G-03 3.00- 3.45m	G-04 0.50- 0.95m	G-04 1.50- 1.95m
<b>% Moisture Content</b>	NA	NA	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Metals</b>													
Cadmium	653	NA	0.2	ND	0.3	ND	0.3	ND	ND	ND	ND	0.4	ND
Copper	10,000	NA	1	30	19	46	15	9	30	9	15	50	10
Lead	2,290	NA	1	55	59	139	155	86	55	23	63	36	40
Nickel	10,000	NA	1	7	10	4	3	2	7	3	5	6	8
Zinc	10,000	NA	1	130	169	98	241	87	130	140	117	209	84
Mercury	38.4	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trivalent Chromium	10,000	NA	1	13	23	13	11	4	13	8	16	11	17
Hexavalent Chromium	1,960	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>TPHs</b>													
C6-C8	10,000	1,000	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	10,000	3,000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	10,000	5,000	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>SVOCs</b>													
bis-(2- Ethylhexyl)phthalate	91.8	NA	5	ND	ND	ND	ND	ND	12.2	ND	ND	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: F-01-0.50-0.95m = Borehole F-01 at depth of 0.50 to 0.95 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value = Exceedance of Soil Saturation Limit; **Bold** and Underline value = Exceedance of RBRGs.

(a) Analysis results are extracted from the approved CAR-RAP in the approved EIA report (AEIAR-143/2009). Only detected parameters were summarized and presented in the table.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

**Table 11** Soil Analytical Results Extracted from the Approved EIA Report (Sites F & G) (all results in mg/kg dry weight) (Cont.)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Soil Saturation Limit (Csat)	Lab Report Limit	G-04 3.00- 3.45m	G-04 4.50- 4.95m
% Moisture Content	NA	NA	0.1	NA	NA
<b>Metals</b>					
Cadmium	653	NA	0.2	ND	ND
Copper	10,000	NA	1	12	11
Lead	2,290	NA	1	54	35
Nickel	10,000	NA	1	4	4
Zinc	10,000	NA	1	262	168
Mercury	38.4	NA	1	ND	ND
Trivalent Chromium	10,000	NA	1	10	4
Hexavalent Chromium	1,960	NA	1	ND	ND
<b>TPHs</b>					
C6-C8	10,000	1,000	5	ND	ND
C9-C16	10,000	3,000	200	ND	ND
C17-C35	10,000	5,000	500	ND	ND
<b>VOCs</b>	Various	Various	Various	ND	ND
<b>SVOCs</b>					
bis-(2- Ethylhexyl)phthalate	91.8	NA	5	ND	ND
<b>PCBs</b>	0.748	NA	0.1	ND	ND
<b>Cyanide</b>	10,000	NA	1	ND	ND

Note: F-01-0.50-0.95m = Borehole F-01 at depth of 0.50 to 0.95 meters below ground level, NA = Not available, ND = Not detectable/below detection limit, **Bold** value = Exceedance of Soil Saturation Limit; **Bold** and Underline value = Exceedance of RBRGs.

(a) Analysis results are extracted from the approved CAR-RAP in the approved EIA report (AEIAR-143/2009). Only detected parameters were summarized and presented in the table.  
(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

**Table 12** Groundwater Analytical Results Extracted from the Approved EIA Report (Sites F & G) (all results in mg/L)

Parameters <sup>(a)</sup>	RBRGs (Industrial) <sup>(b)</sup>	Solubility Limit	Lab Report Limit	F-01	F-02	F-03	F-04	G-01	G-02	G-03	G-04
<b>Metals</b>											
Mercury	6.79	NA	0.0005	NA	NA	NA	NA	ND	ND	ND	ND
<b>TPHs</b>											
C6-C8	1,150	5.23	0.02	ND	ND	ND	ND	ND	ND	ND	ND
C9-C16	9,980	2.8	0.5	ND	ND	ND	ND	ND	ND	ND	ND
C17-C35	178	2.8	0.5	ND	ND	ND	ND	ND	ND	1.1	ND
<b>VOCs</b>											
Chloroform	11.3	7.920	0.005	NA	NA	0.008	NA	0.006	ND	ND	0.005
Methyl tert-butyl Ether	1,810	NA <sup>(c)</sup>	0.005	NA	NA	ND	NA	0.007	ND	ND	ND
<b>SVOCs</b>	Various	Various	Various	NA	NA	ND	NA	ND	ND	ND	ND
<b>PCBs</b>	5.11	0.031	1.0	NA	NA	NA	NA	ND	ND	ND	ND

Note: mg/L = milligram per litre; NA = Not available, ND = Not detectable/ below detection limit, **bold** value = Exceedance of Solubility Limit; **bold** and underline value = Exceedance of RBRGs.

(a) Analysis results are extracted from the approved CAR-RAP in the approved EIA report (AEIAR-143/2009). Only detected parameters were summarized and presented in the table.

(b) Risk-Based Remediation Goals (RBRGs) criteria for industrial category.

(c) This value indicates that the solubility limit exceeds the "ceiling limit" therefore the RBRG applies.

#### 4.5.3 Results for Soil Samples

4.5.3.1 In Stage II SI works, one hundred and forty-eight (148) soil samples were collected from the thirty (30) boreholes at site B2 while twenty-five (25) soil samples were collected from the five (5) boreholes at sites F & G. The analytical results indicate that the concentrations of Chemicals of Concern at all soil samples collected from sites B2, F & G comply with the relevant RBRGs (industrial) and soil saturation limits.

#### 4.5.4 Results for Groundwater Samples

4.5.4.1 During the Stage II SI, groundwater was encountered at twenty-nine (29) boreholes at site B2 while at all five boreholes at sites F & G. A total of thirty-four (34) groundwater samples were collected from the boreholes with temporary groundwater monitoring wells installed at sites B2, F & G. The concentrations of Chemicals of Concern at all groundwater samples comply with the relevant RBRGs (industrial) and solubility limit except the groundwater sample collected from B-13, B-15, B-18 and F-07 with Petroleum Carbon Ranges of C17-C35 exceeding the solubility limit but lower than the RBRGs (industrial).

4.5.4.2 Petroleum Carbon Ranges of C17-C35 was detected from B-13, B-15, B-18 and F-07 at concentration of 3.9 mg/L, 3.3 mg/L, 3.8 mg/L and 4.0mg/L, respectively, which are lower than that in RBRGs (industrial) of 10,000mg/L but exceeding the solubility limit of 2.8mg/L.

4.5.4.3 The detection limits of benzo (b) & benzo (k) fluoranthene as a combined testing parameter was found greater than the RBRG (industrial) of benzo (b) fluoranthene. No relevant RBRG (industrial) of benzo (k) fluoranthene was available for comparison. Since the results of laboratory analysis for benzo (b) & benzo (k) fluoranthene were all below detection limits, remediation is considered not necessary.

#### 4.5.5 QA /QC Sample Results and Data Usability

##### Field QA/QC Sample Results

4.5.5.1 Assessment of field QA/QC sample results included checking of relative percent difference (RPD) for field duplicate samples, equipment blank, field blank and trip blank samples.

4.5.5.2 The RPD was used to assess the sampling and laboratory reproducibility and precision. The United States Environment Protection Authority (USEPA) acceptable limits for RPD are less than 30% for groundwater and less than 50% for soil. No RPD is required where the sample result is below two times the laboratory detection limits or below the laboratory detection limits.

- 4.5.5.3 The RPD values calculated from the detected results for the soil duplicate sample (G-09-4.5m) collected at sites F & G were within the 50% acceptance limit.
- 4.5.5.4 For site B2, the RPD values calculated from the detected results for all soil duplicate samples collected were within the 50% acceptance limit except the following soil duplicate samples:
- (B-46 4.5m): Trivalent Chromium and Lead with RPD values of 71% and 70%;
  - (B-44 3.0m): Trivalent Chromium with RPD values of 61%; and
  - (B-45 3.0m): Copper with RPD values of 53%.
- 4.5.5.5 Although the abovementioned RPD values were found elevated for more than 50%, no discrepancies were observed during sampling on site and analysis in the laboratory. In addition, since no RBRGs (industrial) exceedance was found in the samples and remediation is not necessary, the results of RPD would not influence the outcome of this assessment.
- 4.5.5.6 The RPD values calculated from the detected results for the groundwater duplicate samples (B-40-GW) and (B-41-GW) collected at site B2 and (G-09) collected at sites F & G were within the 30% acceptance limit.

#### Equipment Blank, Field Blank and Trip Blank Sample Results

- 4.5.5.7 All parameters tested for equipment blank samples were detected below the laboratory detection limits except (Equipment Blank – 2) collected at site B2 with copper at concentration of 0.003 mg/L.
- 4.5.5.8 All parameters tested for trip blank samples were detected below the laboratory detection limits.
- 4.5.5.9 For field blank sample, all parameters tested were detected below the laboratory detection limits except copper was detected at concentration in a range from 0.002mg/L to 0.009mg/L from the field blank samples (Field Blank – 1, 2, 3, 4, 5 and 7) collected at site B2 while 0.003mg/L from the field blank sample (Field Blank) collected at site G.
- 4.5.5.10 The laboratory results showed that detectable heavy metal (copper) was found in the field and/or equipment blanks. The potential source of contamination in the blanks could be due to (1) sampling or laboratory testing equipments not being decontaminated completely; (2) cross-contamination from the ambient conditions during sampling and laboratory testing; and (3) contaminated from the blank container itself. As reported by the site supervision personnel and the laboratory, all procedures were implemented in accordance to the requirement set in the revised CAP during sampling on site and analysis in the laboratory. Though, there is possible cross-contamination which would cause higher reported values than actual,

given that the chemical-of-concerns do not exceed the RBRGs criteria for remediation, the results would not influence the outcome of this assessment.

#### Laboratory Internal QA/QC Sample Results

4.5.5.11 The laboratory QA/QC sample results included surrogate recoveries, matrix spike sample, laboratory duplicate samples and method blanks and met their respective requirements.

#### Data usability

4.5.5.12 Based on the review of QA/QC sample results, all laboratory results for the soil and groundwater samples are considered useable.

### **4.6 Discussions on Laboratory Analytical Results**

#### 4.6.1 NAPL

4.6.1.1 In accordance with Step 5 under Section 4.4 above, field observations were based on determining the potential occurrence of NAPL. Among the soil samples and groundwater samples collected, only groundwater samples collected from B-13, B-15, B-18 and F-07 exceeding the relevant solubility limit.

4.6.1.2 In considering that there is no LNAPL was detected among all temporary groundwater monitoring wells in sites B2, F & G as presented in Section 3.6.3 above and the field observations that none of the following field conditions were observed/encountered during sample collection, NAPL is not likely to be present.

- Stained, unnaturally colored, or wet soil above the water table;
- Petroleum or solvent odours in soil or groundwater samples;
- Presence of oil sheen on groundwater samples or bailer or oil residual on soil samples or split spoon sampler or U100 sampler; and
- Observable petroleum layers or droplets in the groundwater samples.

#### 4.6.2 Soil Contamination

4.6.2.1 Among the one hundred and forty-eight (148) and twenty-five (25) soil samples collected from boreholes at sites B2 and F & G, respectively, the analytical results indicate that the concentrations of Chemicals of Concern at all soil samples comply with the relevant RBRGs (industrial) and soil saturation limits. Therefore, cleanup for soil at sites B2, F and G is considered not required.

#### 4.6.3 Groundwater Contamination

4.6.3.1 No detected concentrations of Chemicals of Concern in groundwater samples exceeding the RBRGs were identified. However, for the groundwater sample collected at B-13, B-15, B-18 and F-07, the concentration of Petroleum Carbon Ranges of C17-C35 is potentially above the relevant solubility limit. The relevant

NAPL discussion has been presented in Section 4.6.1 above. It is believed that the presence of NAPL is unlikely and groundwater remediation is considered not necessary.

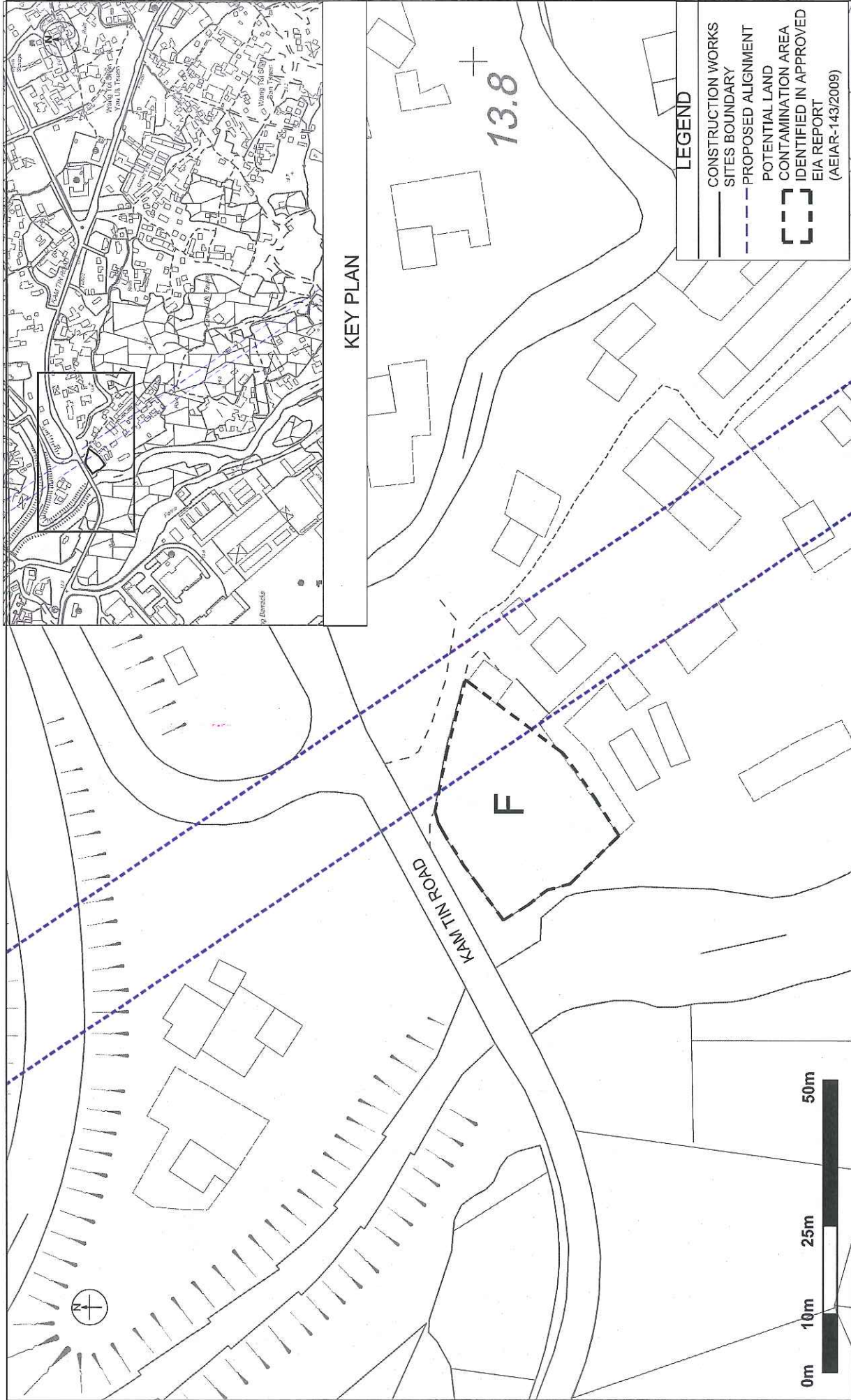


## 5.0 CONCLUSIONS

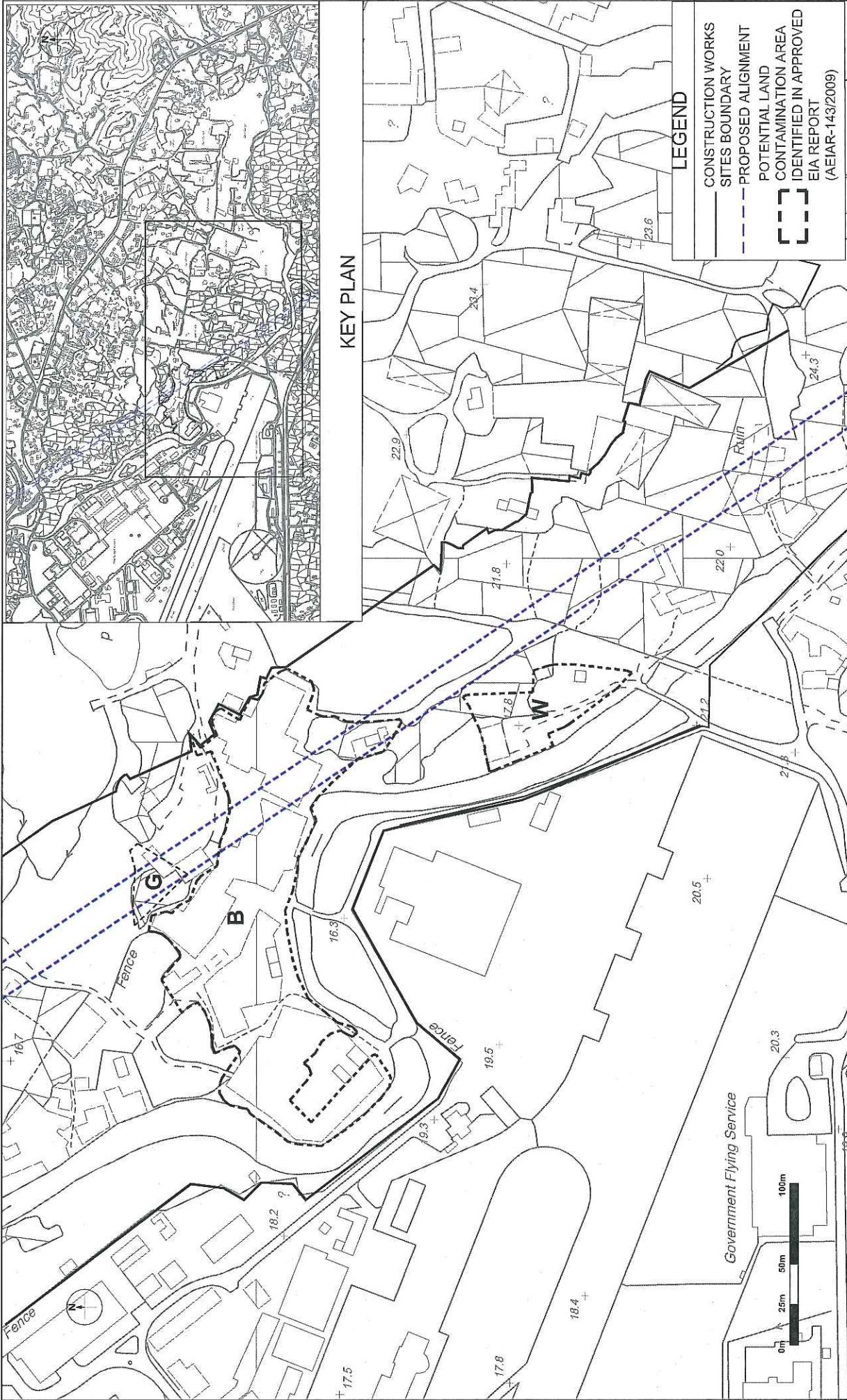
- 5.1.1 Stage II site investigation fieldwork and subsequent laboratory analyses for land contamination study at sites F & G within the SSS Works Area was conducted from 12 to 21 February 2011 while that for land contamination study at site B2 within the SSS Works Area was conducted from 11 March to 1 April 2011 according to the corresponding approved revised CAP.
- 5.1.2 The site investigation works were undertaken by Teemway Engineering Limited with site supervision by land contamination specialist of ENVIRON. Borehole drilling was used for soil sampling and all health and safety precautions as mentioned in the approved revised CAP were properly implemented.
- 5.1.3 At sites F & G, there were a total of five (5) boreholes drilled and soil and groundwater samples were taken for laboratory analysis to determine the degree and extent of soil contamination as per the corresponding approved revised CAP. Soil and groundwater samples were taken at pre-determined depths at these sampling locations.
- 5.1.4 At site B2, there were a total of thirty (30) boreholes drilled and soil and groundwater samples were taken for laboratory analysis to determine the degree and extent of soil contamination as per the corresponding revised CAP. Soil and groundwater samples were taken at pre-determined depths as much as possible at these sampling locations.
- 5.1.5 Laboratory analytical results for the Stage II SI works have shown that no detected concentrations of Chemicals of Concern in soil and groundwater samples exceeded the RBRGs (industrial) criteria. No soil and groundwater remediation is considered necessary.
- 5.1.6 For sites F and G, analytical results of the sampling points within the same site carried out in Stage I SI works are extracted from the approved CAR-RAP in the approved EIA report and presented in **Table 11** and **Table 12**. After reviewing on the analysis results from Stage I and II SI works, no detected concentrations of Chemicals of Concern in soil and groundwater samples exceeded the RBRGs (industrial) criteria. Therefore, no soil and groundwater remediation is considered necessary.

## Figures





<b>Figure: 1</b>	<b>ENVIRON</b>
	Drawn by: RC
<b>Title:</b> Potential Land Contamination Areas under Contract 823B (Sheet 1 of 3)	Checked by: ZC
<b>Project:</b> Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Site B, F, G, U, V and W)	Rev.: 1.0
	Date: May 2011



<b>ENVIRON</b>	
Drawn by:	RC
Checked by:	ZC
Rev.:	1.0
Date:	May 2011

**Title:** Potential Land Contamination Areas under Contract 823B (Sheet 2 of 3)

**Project:** Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Site B, F, G, U, V and W)

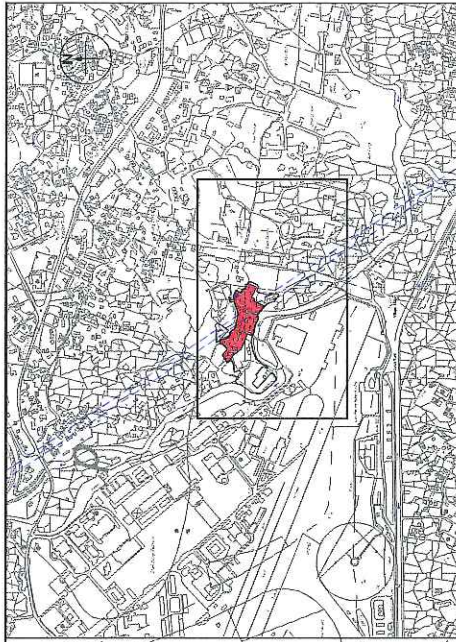


**Figure: 3**

**Title:** Potential Land Contamination Areas under Contract 823B (Sheet 3 of 3)

**Project:** Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Site B, F, G, U, V and W)

<b>ENVIRON</b>	
Drawn by:	RC
Checked by:	ZC
Rev.:	1.0
Date:	May 2011

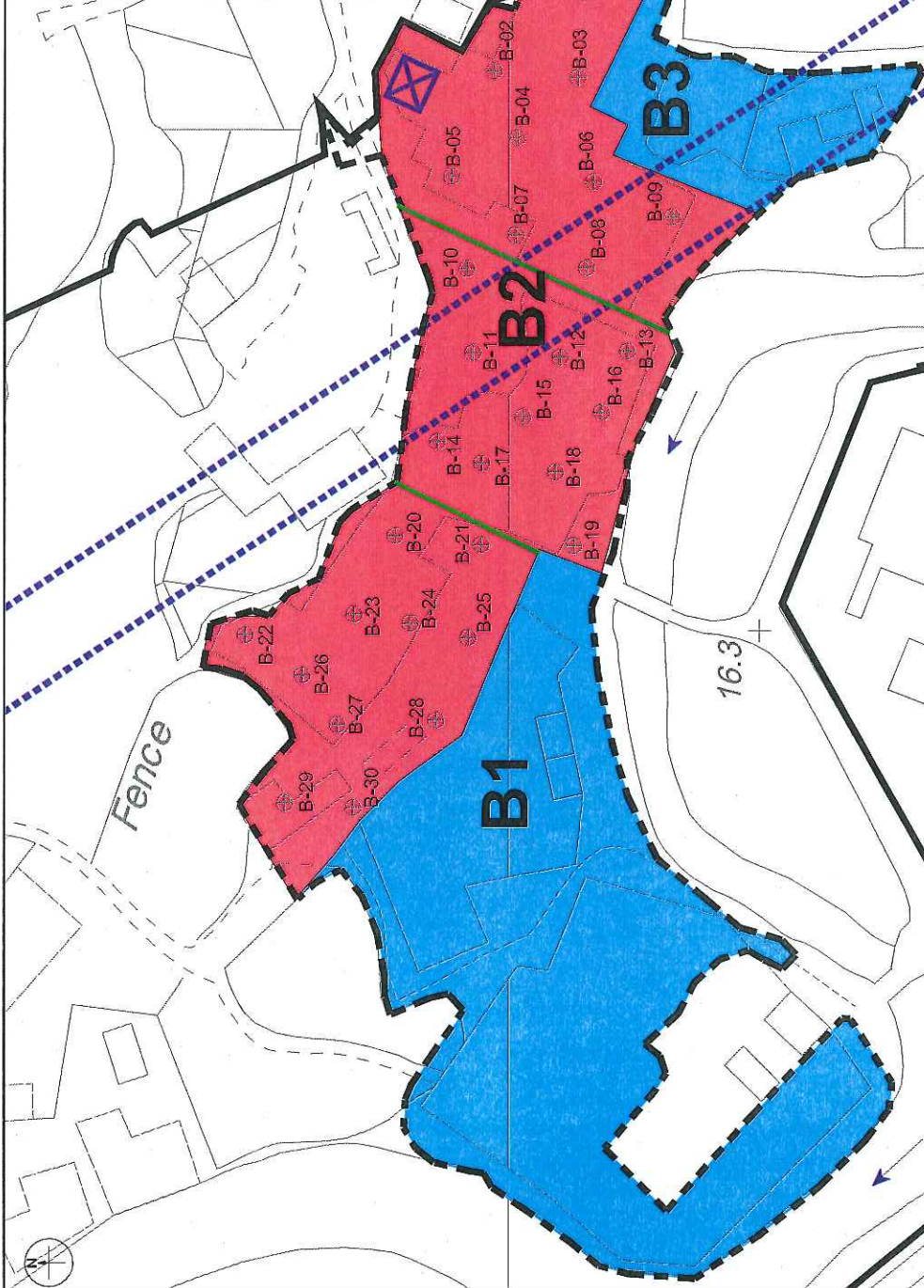


**KEY PLAN**

Borehole ID	Coordinates		Borehole ID	Coordinates	
	Easting	Northing		Easting	Northing
B-01	827265	832983	B-16	827174	832980
B-02	827248	833003	B-17	827163	833006
B-03	827246	832985	B-18	827161	832990
B-04	827233	832998	B-19	827145	832986
B-05	827225	833012	B-20	827147	833024
B-06	827224	832981	B-21	827145	833006
B-07	827212	832998	B-22	827125	833057
B-08	827205	832983	B-23	827130	833033
B-09	827216	832964	B-24	827128	833021
B-10	827205	833009	B-25	827125	833009
B-11	827187	833008	B-26	827116	833045
B-12	827186	832989	B-27	827106	833037
B-13	827187	832974	B-28	827107	833016
B-14	827167	833015	B-29	827089	833049
B-15	827173	832997	B-30	827088	833034

**LEGEND**

- BOUNDARY OF USAGE
- CONSTRUCTION WORKS
- SITES BOUNDARY
- POTENTIAL ALIGNMENT
- POTENTIAL LAND CONTAMINATION AREA IDENTIFIED IN THIS SUPPLEMENTARY STAGE
- NO POTENTIAL CONTAMINATIVE LAND USES IDENTIFIED IN THIS SUPPLEMENTARY STAGE
- AS-BUILT SUPPLEMENTARY DATA IN THIS SUPPLEMENTARY STAGE
- EXISTING SITE OFFICE



LOCATION	SITE ID	STAGE OF SI	SAMPLING LOCATION*	PARAMETERS TESTED	POST RESTORATION LAND USE	COMPLIANCE TO INDUSTRIAL RBRG LEVELS
SSS (Site B)	B1 & B3	NIL	NIL	NIL	SHEK KONG STABLING SIDINGS	ALL SAMPLE RESULTS COMPLIED
	B2	Supplementary SI completed in this Stage	[B-01 to B-30] Scarp Yard/ Work Shop	METALS**, PETROLEUM HYDROCARBONS, VOCs, SVPCs, PCB, CYANIDE		

NOTE:  
 THE LAYOUT ARE NOT TO SCALE  
 \* SAMPLING LOCATIONS ARE LISTED BY A DIFFERENT NOMENCLATURE SYSTEM DURING SI. NAMING IN BRACKET INDICATES NOMENCLATURE SYSTEM IN THE Revised CAP  
 \*\* METALS INCLUDE Cd, CrIII, CrVI, Cu, Hg, Ni, Pb, Zn

**Figure: 4**

**Title:** As-Built Land Contamination Sampling Locations (Sheet 1 of 3)

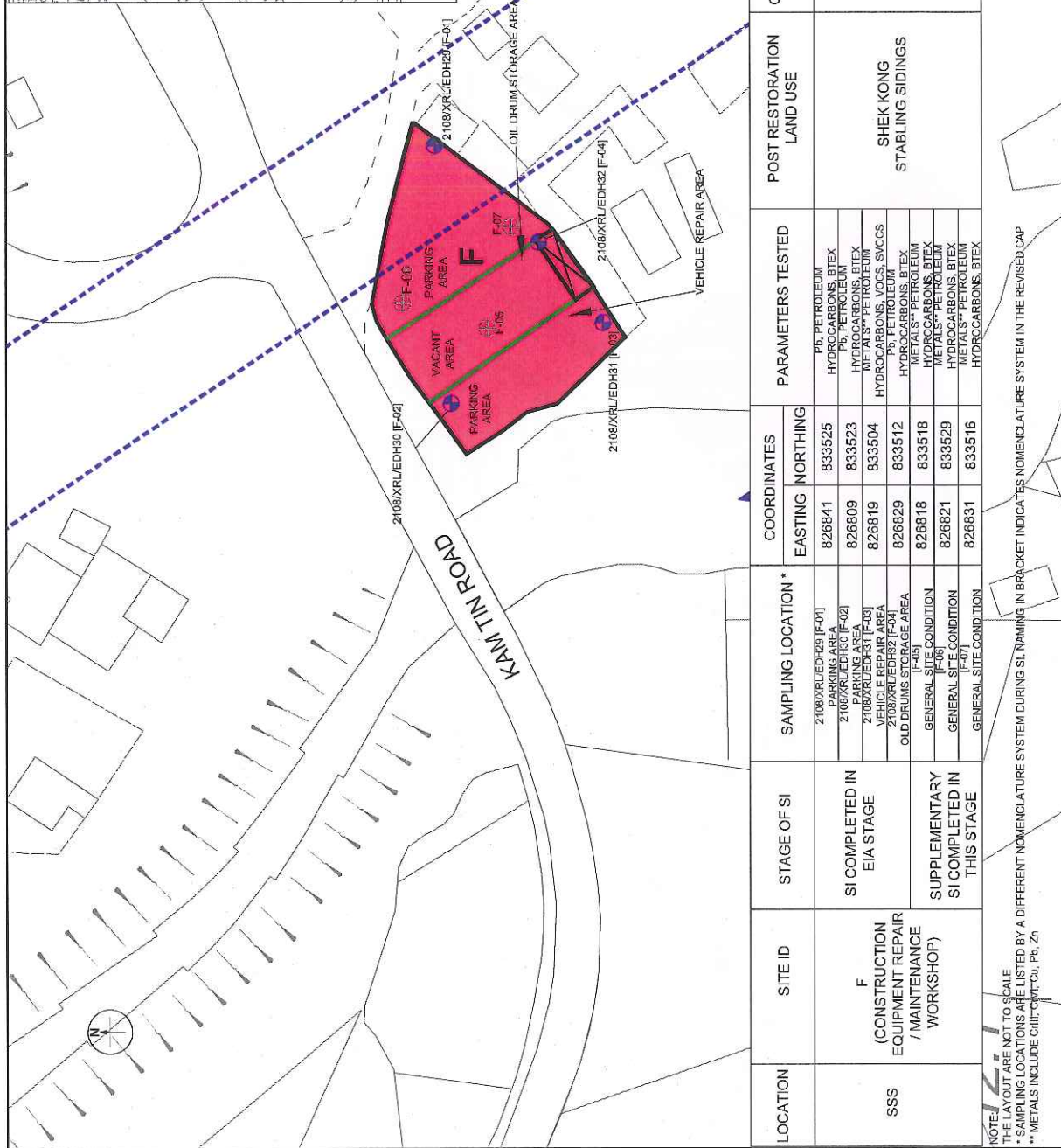
**Project:** Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Site B, F, G, U, V and W)

**ENVIRON**

Drawn by: RC  
 Checked by: ZC  
 Rev.: 1.0  
 Date: May 2011



KEY PLAN



**LEGEND**

- CONSTRUCTION WORKS
- SITES BOUNDARY
- BOUNDARY OF USAGE
- POTENTIAL CONTAMINATED SITE IDENTIFIED IN APPROVED EIA REPORT (AEIAR-43/2009)
- POTENTIAL CONTAMINATED SITE IDENTIFIED IN APPROVED EIA REPORT (AEIAR-43/2009)
- SITE OFFICE
- AS-BUILT SAMPLING LOCATION COMPLETED IN EIA STAGE
- AS-BUILT SAMPLING LOCATION COMPLETED IN THIS SUPPLEMENTARY SI STAGE

LOCATION	SITE ID	STAGE OF SI	SAMPLING LOCATION *	COORDINATES EASTING NORTHING	PARAMETERS TESTED	POST RESTORATION LAND USE	COMPLIANCE TO INDUSTRIAL RBRG LEVELS
SSS	F (CONSTRUCTION EQUIPMENT REPAIR / MAINTENANCE WORKSHOP)	SI COMPLETED IN EIA STAGE	2108/XRL/EDH29 (F-01)	826841 833525	Pb, PETROLEUM HYDROCARBONS, BTEX	SHEK KONG STABLING SIDINGS	ALL SAMPLE RESULTS COMPLIED
			2108/XRL/EDH30 (F-02)	826809 833523	Pb, PETROLEUM HYDROCARBONS, BTEX		
			2108/XRL/EDH31 (F-03)	826819 833504	HYDROCARBONS, VOCs, SVOCs		
		SUPPLEMENTARY SI COMPLETED IN THIS STAGE	2108/XRL/EDH32 (F-04)	826829 833512	Pb, PETROLEUM HYDROCARBONS, BTEX		
			2108/XRL/EDH33 (F-05)	826818 833518	METAL SP, PETROLEUM HYDROCARBONS, BTEX		
			2108/XRL/EDH34 (F-06)	826821 833529	METALS, PETROLEUM HYDROCARBONS, BTEX		
			2108/XRL/EDH35 (F-07)	826831 833516	Pb, PETROLEUM HYDROCARBONS, BTEX		

NOTE: F-01 TO F-07 ARE NOT TO SCALE  
 \* SAMPLING LOCATIONS ARE LISTED BY A DIFFERENT NOMENCLATURE SYSTEM DURING SI, NAMING IN BRACKET INDICATES NOMENCLATURE SYSTEM IN THE REVISED CAP  
 \*\* METALS INCLUDE Cd, Cr, Cu, Ni, Pb, Zn

**Figure: 5**

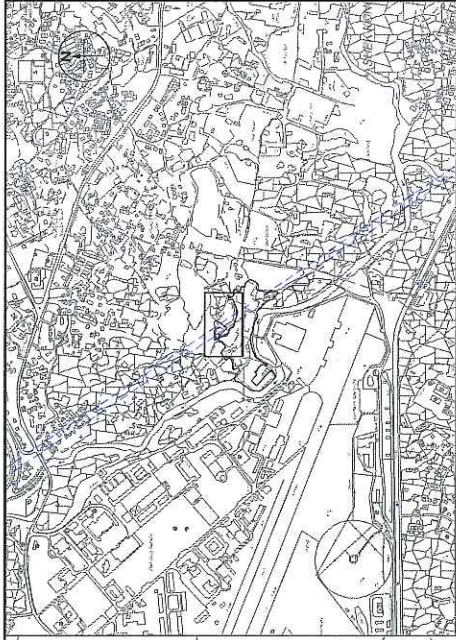
**Title:** As-Built Land Contamination Sampling Locations (Sheet 2 of 3)

**Project:** Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Site B, F, G, U, V and W)

**ENVIRON**

Drawn by: RC  
 Checked by: ZC  
 Rev.: 1.0  
 Date: May 2011





**KEY PLAN**

**LEGEND**

	CONSTRUCTION WORKS
	SITES BOUNDARY
	BOUNDARY OF USAGE
	PROPOSED ALIGNMENT
	POTENTIAL CONTAMINATED SITE IDENTIFIED IN APPROVED EIA REPORT (AEIAR-14/3/2009)
	SITE OFFICE
	AS-BUILT SAMPLING LOCATION COMPLETED IN EIA STAGE
	AS-BUILT SAMPLING LOCATION COMPLETED IN THIS SUPPLEMENTARY SI STAGE



LOCATION	SITE ID	STAGE OF SI	SAMPLING LOCATION*	COORDINATES		PARAMETERS TESTED	POST RESTORATION LAND USE	COMPLIANCE TO INDUSTRIAL RBRG LEVELS
				EASTING	NORTHING			
SSS  G (SCRAP YARD)		SI COMPLETED IN EIA STAGE	2108XRLEDH36[G-01]	827158	833052	METALS** PETROLEUM HYDROCARBONS, VOCs, SVOCs, PCB, CYANIDE	SHEK KONG STABLING SIDINGS	ALL SAMPLE RESULTS COMPLIED
			2108XRLEDH33[G-02]	827153	833069			
			2108XRLEDH35[G-03]	827135	833065			
			2108XRLEDH34[G-04]	827128	833074			
			2108XRLEDH38[G-05]	827166	833073			
			2108XRLEDH38[G-06]	827146	833057			

NOTE:  
 THE LAYOUT ARE NOT TO SCALE  
 \* SAMPLING LOCATIONS ARE LISTED BY A DIFFERENT NOMENCLATURE SYSTEM DURING SI. NAMING IN BRACKET INDICATES NOMENCLATURE SYSTEM IN THE REVISED CAP  
 \*\* METALS INCLUDE Cd, Cr, Cu, Pb, Ni, Zn

**Figure: 6**

**Title:** As-Built Land Contamination Sampling Locations (Sheet 3 of 3)

**Project:** Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III  
 ( Site B, F, G, U, V and W)

**ENVIRON**

Drawn by:	RC
Checked by:	ZC
Rev.:	1.0
Date:	May 2011

**Appendix A**  
**Letter from MTRCL**

Environmental Protection Department  
28<sup>th</sup> Floor, Southern Centre  
130 Hennessy Road  
Wan Chai, Hong Kong

Our ref: C806-COR-HSD-ENV-020880

11 April 2011

Attn: Mr C C Chiu

By Fax and Hand

Dear Mr Chiu,

Dear Mr Chiu,

**Hong Kong Section of Guangzhou-Shenzhen Hong Kong Express Rail Link (XRL)  
Environmental Permit (No.EP-349/2009/B)  
Revised Contamination Assessment Plan for Shek Kong Stabling Sidings (SSS)**

Further to our meeting on 6 April 2011, we would like to advise you on the current demarcation of works areas within the Shek Kong Stabling Sidings.

Please be advised that construction works within the SSS works area are to be undertaken by two contracts, namely Contract 823A and Contract 823B. Due to the contractual arrangement, land resumption progress and the latest construction programme, the SSS works area is sub-divided into 3 works areas. The demarcations of the works areas are as follows (please also refer to attached drawing):

Works Area for 823A

Works Area I (Orange)

Works Area II (Blue)

Works Area for 823B

Works Area III (Yellow)

Please be advised that Stage 2 of the land contamination assessment on the hotspots within works areas I, II, and III is being carried. The relevant land contamination submissions (i.e. revised CAP, supplementary CAR/RAP) for the respective works areas would be submitted separately for EPD's individual endorsement.

In addition, please be advised that as the findings of Stage 1 of the land contamination assessment presented in the approved CAP/CAR/RAP have been already presented in the approved EIA report. The proposed remediation works will be carried out in accordance with the approved RAP and EIA Report.

I would be grateful if you would take into consideration of above proposal in the process of vetting the revised CAP and subsequent supplementary CAR and RAP.



For any queries regarding the above, please feel free to contact our Natalie Ip (Tel: 2688 1260) or Michelle Chau (Tel:2688 1954).

Yours sincerely,

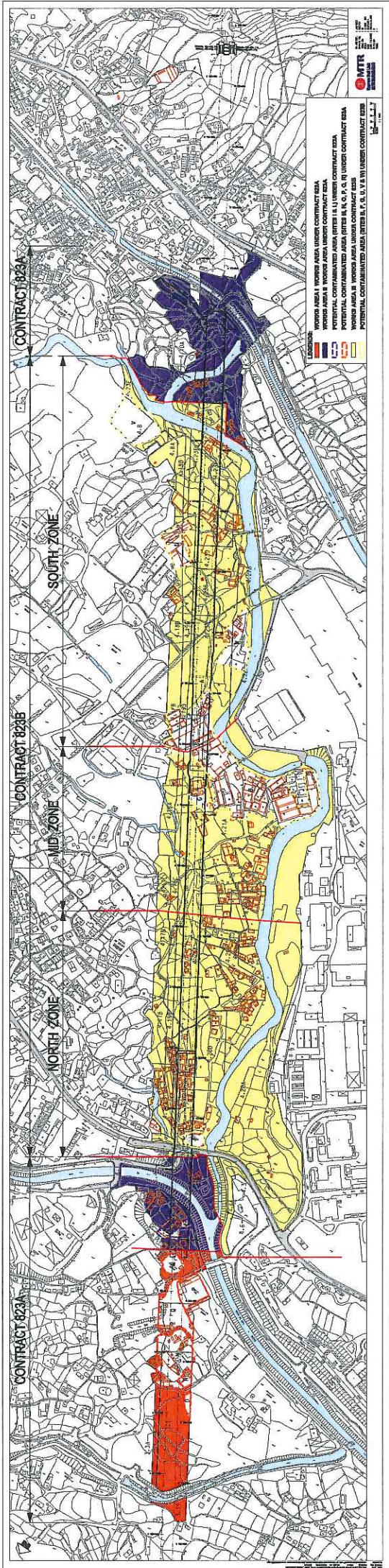
A handwritten signature in blue ink, appearing to read 'Richard Kwan', with a long horizontal flourish extending to the right.

Richard Kwan  
Manager - Environmental

Encl.

c.c. Mott MacDonald (Attn: Dr Anne Kerr)  
THB – Fletch Chan (Fax: 2136-8016)  
RDO – Patrick Lai (Fax: 2761-1508)  
MTR, Construction Manager – Andy Fok  
MTR, Senior Construction Engineer – Thomas Li  
MTR, Senior Construction Engineer – Edmond So  
MTR, Senior Construction Engineer – Dennis Tsu

RK/HL/NI/MC/wc



**Appendix B**  
**Drilllog Records**

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-01  
 SHEET : 1 OF 1  
 DATE : 25/3/11 TO 26/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827265

HOLE DIA. : PX/HX

N: 832983

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +21.28 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
25/3/11	Px											0.00				Greyish brown, mottled with black, silty fine to coarse SAND. (FILL)
									1	■						
									2	●	0.50	0.50				Greyish brown, mottled with black, fine to coarse GRAVEL sized rock fragments. (FILL)
	1.50 Px								3	■						
	Hx								4	●	1.50	1.50				Reddish and yellowish brown, slightly clayey sandy SILT. (ALLUVIUM)
									5	■						
26/3/11									6	●	3.00					
									7	■						
									8	●	4.50					
	6.00 Hx	1.50m							9	■						
									10	●	6.00	6.00				End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ▨ Mazier sample
- ⊕ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-02  
 SHEET : 1 OF 1  
 DATE : 25/3/11 TO 28/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY	CO-ORDINATES	ROCK COREBIT :
MACHINE & NO. : XY-2B	E: 827248 N: 833003	HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +20.88 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
25/3/11	Px											0.00					Greyish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
26/3/11	1.50 Px Hx								1	■	0.50	0.50					Yellowish brown, slightly clayey silty fine SAND. (ALLUVIUM)
									2	●	0.50						
									3	■	1.50						
									4	●	1.50						
28/3/11									5	■	3.00	3.00					Light greyish and reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)
									6	●	3.00						
									7	■	4.50						
									8	●	4.50						
	6.00 Hx	1.50m							9	■	6.00	6.00					
									10	●	6.00						End of hole at 6.00m.

- |                           |                             |
|---------------------------|-----------------------------|
| ● Small disturbed sample  | ▲ Water sample              |
| ◆ Large disturbed sample  | ▼ Water table               |
| □ SPT liner sample        | ↓ Standard penetration test |
| ■ U76 undisturbed sample  | ⊙ Permeability test         |
| ■ U100 undisturbed sample | ▲ Piezometer tip            |
| ⊗ Mazier sample           | ⊕ Standpipe                 |
| P/S Piston sample         |                             |

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.



# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-03  
 SHEET : 1 OF 1  
 DATE : 25/3/11 TO 28/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827246

HOLE DIA. : PX/HX

N: 832985

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.96 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
25/3/11	Px											0.00					Greyish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
28/3/11									1	■	0.50		0.50				
									2	●	0.50						Yellowish brown, slightly clayey silty fine SAND. (ALLUVIUM)
	1.50 Px								3	■	1.50						
	Hx								4	●	1.50						
									5	■	3.00		3.00				Light greyish and reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)
									6	●	3.00						
	6.30 Hx	1.55m							7	■	6.30		6.30				
									8	●	6.30						End of hole at 6.30m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U78 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ▨ Mazier sample
- ▲ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-04  
 SHEET : 1 OF 1  
 DATE : 21/3/11 TO 25/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827233

HOLE DIA. : PX/HX

N: 832998

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.86 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type Depth							
21/3/11	Px								1	■	0.50	0.00	[Cross-hatch pattern]			Yellowish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)	
25/3/11									2	●	0.50						
	1.50 Px								3	■	1.50	1.50	[Vertical line pattern]			Yellowish and reddish brown, slightly clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)	
	Hx								4	●	1.50						
									5	■	3.00						
									6	●	3.00						
									7	■	4.50						
									8	●	4.50						
	6.00 Hx	2.77m							9	■	6.00	6.00					
									10	●	6.00	6.00					
																End of hole at 6.00m.	

- Small disturbed sample
- ▲ Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- ▨ Mazier sample
- P/S Piston sample
- ▲ Water sample
- ▼ Water table
- ↓ Standard penetration test
- ⊗ Permeability test
- ▲ Piezometer tip
- △ Standpipe

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-05  
 SHEET : 1 OF 1  
 DATE : 29/3/11 TO 29/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827225

HOLE DIA. : PX/HX

N: 833012

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.84 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
29/3/11	Px											0.00				Greyish brown, silty fine to coarse SAND with fine to coarse gravel sized rock fragments. (FILL)
	1.50 Px Hx								1 ■ 1.50 2 ● 1.50							Reddish and yellowish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)
									3 ■ 3.00 4 ● 3.00							
									5 ■ 4.50 6 ● 4.50							
	6.00 Hx	1.52m							7 ■ 6.00 8 ● 6.00			6.00				End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ⬇ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊙ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- △ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-06  
 SHEET : 1 OF 1  
 DATE : 24/3/11 TO 24/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY	CO-ORDINATES	ROCK COREBIT :
MACHINE & NO. : XY-2B	E: 827224 N: 832981	HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +20.92 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
24/3/11	Px																Greyish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
	1.50 Px Hx								1 ■ 0.50 2 ● 0.50		0.50						Yellowish brown, slightly clayey silty fine SAND. (ALLUVIUM)
									3 ■ 1.50 4 ● 1.50								
									5 ■ 3.00 6 ● 3.00		3.00						Light greyish and reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)
									7 ■ 4.50 8 ● 4.50								
	6.00 Hx	2.74m							9 ■ 6.00 10 ● 6.00		6.00						End of hole at 6.00m.

<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>▲ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>■ U76 undisturbed sample</li> <li>■ U100 undisturbed sample</li> <li>☒ Mazier sample</li> <li>P/S Piston sample</li> <li>▲ Water sample</li> <li>▼ Water table</li> <li>↓ Standard penetration test</li> <li>● Permeability test</li> <li>▲ Piezometer tip</li> <li>△ Standpipe</li> </ul>	LOGGED <u>C.B. LEE</u> DATE <u>6/4/11</u> CHECKED <u>W.C. MA</u> DATE <u>8/4/11</u>	REMARKS 1. Inspection pit was excavated to 1.50m.
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# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-07  
 SHEET : 1 OF 1  
 DATE : 24/3/11 TO 25/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827212

HOLE DIA. : PX/HX

N: 832998

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.73 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
24/3/11	Px											0.00				Greyish brown, silty fine to coarse SAND. (FILL)	
									1	■	0.50	0.50				Reddish brown and pink, clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)	
									2	●							
	1.50 Px								3	■	1.50						
25/3/11	Hx								4	●							
									5	■	3.00						
									6	●							
									7	■	4.50						
									8	●							
	6.00 Hx	1.38m							9	■	6.00	6.00					
									10	●							End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ▨ Mazier sample
- ⌒ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS  
 1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-08  
 SHEET : 1 OF 1  
 DATE : 22/3/11 TO 23/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY	CO-ORDINATES	ROCK COREBIT :
MACHINE & NO. : XY-2B	E: 827205 N: 832983	HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +20.86 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
22/3/11	Px																Greyish brown, silty fine to coarse SAND with fine to coarse gravel sized rock fragments. (FILL)
23/3/11	1.50 Px Hx								1 ■ 0.50 2 ● 0.50 3 ■ 1.50 4 ● 1.50 5 ■ 3.00 6 ● 3.00 7 ■ 4.50 8 ● 4.50 9 ■ 6.00 10 ● 6.00		0.00 0.50 1.50 3.00 4.50 6.00					Reddish and yellowish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)	
	6.00 Hx	1.78m															End of hole at 6.00m.

- Small disturbed sample
- ▲ Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- ☒ Mazier sample
- P/S Piston sample
- ▲ Water sample
- ▼ Water table
- ↓ Standard penetration test
- ⊗ Permeability test
- ▲ Piezometer tip
- Standpipe

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-09  
 SHEET : 1 OF 1  
 DATE : 23/3/11 TO 23/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827216

HOLE DIA. : PX/HX

N: 832964

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +21.01 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
23/3/11	Px											0.00					Brownish grey, mottled with black, silty fine to coarse SAND with fine to coarse gravel sized rock fragments. (FILL)
	1.50 Px											0.70					Reddish brown and pink, slightly clayey sandy SILT. (ALLUVIUM)
	Hx																
	6.00 Hx	4.30m															
																	End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ⬇ Large disturbed sample
- ⚡ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊙ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-10  
 SHEET : 1 OF 1  
 DATE : 24/3/11 TO 25/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY	CO-ORDINATES E: 827205 N: 833009	ROCK COREBIT :
MACHINE & NO. : XY-2B		HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +20.47 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
24/3/11	Px								1 ■ 0.50		0.00	[Cross-hatched pattern]			Yellowish brown, slightly clayey silty fine to medium SAND. (FILL)	
25/3/11									2 ● 0.50							
	1.50 Px								3 ■ 1.50		1.50	[Vertical line pattern]			Reddish brown and pink, slightly clayey sandy SILT. (ALLUVIUM)	
	Hx								4 ● 1.50							
									5 ■ 3.00							
									6 ● 3.00							
									7 ■ 4.50							
									8 ● 4.50							
	6.00 Hx	1.23m							9 ■ 6.00		6.00				End of hole at 6.00m.	
									10 ● 6.00							

<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>▲ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>■ U76 undisturbed sample</li> <li>■ U100 undisturbed sample</li> <li>▨ Mazier sample</li> <li>P/S Piston sample</li> </ul>	<ul style="list-style-type: none"> <li>▲ Water sample</li> <li>▼ Water table</li> <li>↓ Standard penetration test</li> <li>● Permeability test</li> <li>▲ Piezometer tip</li> <li>△ Standpipe</li> </ul>	LOGGED <u>C.B. LEE</u> DATE <u>6/4/11</u> CHECKED <u>W.C. MA</u> DATE <u>8/4/11</u>	REMARKS 1. Inspection pit was excavated to 1.50m.
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TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-12  
 SHEET : 1 OF 1  
 DATE : 14/3/11 TO 18/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827186

HOLE DIA. : PX/HX

N: 832989

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.30 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type Depth							
14/3/11	Px								1	■	0.50	0.00	[Cross-hatched pattern]			Brownish grey and grey, mottled with black, slightly clayey silty fine to medium SAND with fine gravel sized rock fragments. (FILL)	
15/3/11									2	●	0.50	0.50					
18/3/11	1.50 Px								3	■	1.40	1.50					Reddish brown, clayey sandy SILT. (ALLUVIUM)
	Hx								4	●	1.40						
									5	■	3.00						
									6	●	3.00						
									7	■	4.50						
									8	●	4.50						
	6.00 Hx	4.00m							9	■	6.00	6.00					
									10	●	6.00						
End of hole at 6.00m.																	

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊗ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊗ Mozier sample
- ▲ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS  
 1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-13  
 SHEET : 1 OF 1  
 DATE : 22/3/11 TO 23/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827187

HOLE DIA. : PX/HX

N: 832974

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.43 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type	Depth							
22/3/11	Px											0.00					Brown, slightly silty fine to medium SAND. (FILL)	
23/3/11									1	■	0.50	0.50					Reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)	
									2	●								
	1.50 Px								3	■	1.50							
	Hx								4	●								
									5	■	3.00							
									6	●								
									7	■	4.50							
									8	●								
									9	■	6.00							
22/3	6.00 Hx	5.50m							10	●	6.00	6.00						End of hole at 6.00m.

- Small disturbed sample
- ◆ Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- ▨ Mazier sample
- P/S Piston sample
- ▲ Water sample
- ▼ Water table
- ↓ Standard penetration test
- Permeability test
- ▲ Piezometer tip
- △ Standpipe

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-14  
 SHEET : 1 OF 1  
 DATE : 14/3/11 TO 17/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827167

HOLE DIA. : PX/HX

N: 833015

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.82 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
14/3/11	Px								1	■	0.50	0.00				Greyish brown, silty fine to coarse SAND. (FILL)
15/3/11									2	●	0.50	0.50				Reddish brown and pink, clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)
17/3/11	1.50 Px Hx								3	■	1.20					
									4	●						
									5	■	3.00					
								6	●							
									7	■	4.50					
								8	●							
									9	■	6.00					
								10	●							
	6.00 Hx	0.40m										6.00				

- Small disturbed sample
- ▲ Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- ☒ Mazier sample
- P/S Piston sample
- ▲ Water sample
- ▼ Water table
- ↓ Standard penetration test
- ⊗ Permeability test
- ▲ Piezometer tip
- △ Standpipe

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-15  
 SHEET : 1 OF 1  
 DATE : 11/3/11 TO 17/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827173  
 N: 832997

HOLE DIA. : PX/HX

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +20.08 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type Depth							
11/3/11	Px											0.00				Brownish grey, sandy GRAVEL sized fragments. (FILL)	
14/3/11									1	■	0.50	0.50					
									2	●							Brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
	1.50 Px								3	■	1.50						
17/3/11	Hx								4	●							
									5	■	3.00	3.00					
									6	●							Reddish brown, slightly clayey silty fine SAND. (ALLUVIUM)
									7	■	4.50						
									8	●							
	6.00 Hx	0.98m							9	■							
									10	●	6.00	6.00					End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-16  
 SHEET : 1 OF 1  
 DATE : 11/3/11 TO 22/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827174

HOLE DIA. : PX/HX

N: 832980

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.77 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
11/3/11	Px								1	■	0.50	0.00				Greyish brown, slightly silty fine to medium SAND. (FILL)
14/3/11									2	●	0.50	0.50				Reddish brown, slightly clayey silty fine to medium SAND. (ALLUVIUM)
	1.50 Px								3	■	1.50					
22/3/11	Hx								4	●	1.50					
									5	■	3.00	3.00				Greyish and yellowish brown, slightly clayey sandy SILT. (ALLUVIUM)
									6	●	3.00					
									7	■	4.50					
									8	●	4.50					
	6.00 Hx	NIL							9	■	6.00	6.00				End of hole at 6.00m.
									10	●	6.00					

- Small disturbed sample
- ▲ Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- ⊠ Mazier sample
- P/S Piston sample
- ▲ Water sample
- ▼ Water table
- ↓ Standard penetration test
- ⊙ Permeability test
- ▲ Piezometer tip
- △ Standpipe

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-17  
 SHEET : 1 OF 1  
 DATE : 11/3/11 TO 17/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827163

HOLE DIA. : PX/HX

N: 833006

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.80 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
11/3/11	Px											0.00					Greyish brown, mottled with black, slightly clayey silty fine SAND with fine gravel sized rock fragments. (FILL)
14/3/11									1	■	0.50	0.50					
15/3/11	1.50 Px Hx								3	■	1.50	1.50					Reddish brown, clayey sandy SILT. (ALLUVIUM)
17/3/11									5	■	3.00						
									7	■	4.50						
24/3	6.00 Hx	1.90m							9	■	6.00	6.00					
									10	●	6.00						End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ⬆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-18  
 SHEET : 1 OF 1  
 DATE : 14/3/11 TO 18/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827161  
 N: 832990

HOLE DIA. : PX/HX

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.66 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
14/3/11	Px								1	■	0.50	0.00				Greyish brown, silty fine to coarse SAND. (FILL)
18/3/11	1.50 Px Hx								2	●	0.50	0.50				Reddish brown and pink, clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)
									3	■	1.50					
									4	●	1.50					
									5	■	3.00					
									6	●	3.00					
									7	■	4.50					
									8	●	4.50					
									9	■	6.00					
									10	●	6.00	6.00				
	6.00 Hx	3.92m														

- Small disturbed sample
- ▲ Water sample
- ⬆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊗ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.



TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-19  
 SHEET : 1 OF 1  
 DATE : 19/3/11 TO 21/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827145  
 N: 832986

HOLE DIA. : PX/HX

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.51 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
19/3/11	Px											0.00				Greyish brown, silty fine to coarse SAND. (FILL)
21/3/11									1	■		0.50				Reddish brown and pink, clayey sandy SILT. (ALLUVIUM)
									2	●	0.50					
	1.50 Px								3	■	1.50					
	Hx								4	●	1.50					
									5	■	3.00					
									6	●	3.00					
									7	■	4.50					
									8	●	4.50					
									9	■	6.00					
	6.00 Hx	4.07m							10	●	6.00	6.00				

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ▨ Mazier sample
- △ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS  
 1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-20  
 SHEET : 1 OF 1  
 DATE : 30/3/11 TO 30/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827147

HOLE DIA. : PX/HX

N: 833024

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.52 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
30/3/11	Px											0.00				Greyish brown, silty fine to coarse SAND. (FILL)
									1	■		0.50				
									2	●		0.50				
	1.50 Px								3	■		1.50				
	Hx								4	●		1.50				Reddish brown and pink, clayey sandy SILT. (ALLUVIUM)
									5	■		3.00				
									6	●		3.00				
									7	■		4.50				
									8	●		4.50				
	6.00 Hx	1.22m							9	■		6.00				
									10	●		6.00				End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ⬆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊙ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-21  
 SHEET : 1 OF 1  
 DATE : 14/3/11 TO 19/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827145  
 N: 833006

HOLE DIA. : PX/HX

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.43 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
14/3/11	Px								1	■	0.50		0.00	[Cross-hatched]		Greyish brown, silty fine to coarse SAND. (FILL)	
19/3/11									2	●	0.50		0.50				Reddish brown and pink, clayey sandy SILT. (ALLUVIUM)
	1.50 Px								3	■	1.50						
	Hx								4	●	1.50						
									5	■	3.00						
									6	●	3.00						
									7	■	4.50						
									8	●	4.50						
									9	■	6.00						
	6.00 Hx	1.10m							10	●	6.00						
																End of hole at 6.00m.	

- Small disturbed sample
- ▲ Water sample
- ⬇ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ☒ Mazier sample
- △ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-22  
 SHEET : 1 OF 1  
 DATE : 30/3/11 TO 1/4/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827125

HOLE DIA. : PX/HX

N: 833057

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.18 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
30/3/11	Px																Greyish brown, mottled with black, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
1/4/11	1.50 Px Hx								1	■	0.50		0.00				Greyish and reddish brown, clayey SILT. (ALLUVIUM)
									2	●	0.50		0.50				
									3	■	1.50						
									4	●	1.50						
									5	■	3.00						
									6	●	3.00		3.00				Light greyish and yellowish brown, slightly clayey sandy SILT. (ALLUVIUM)
									7	■	4.50						
									8	●	4.50						
	6.00 Hx	2.72m							9	■	6.00						
									10	●	6.00		6.00				
																	End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ▲ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊙ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-23  
 SHEET : 1 OF 1  
 DATE : 30/3/11 TO 31/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827130

HOLE DIA. : PX/HX

N: 833033

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.42 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
30/3/11	Px											0.00					Greyish brown, silty fine to coarse SAND with fine to coarse gravel sized rock fragments. (FILL)
31/3/11									1	■	0.50						
	1.50 Px								2	●							Reddish brown and pink, clayey sandy SILT. (ALLUVIUM)
	Hx								3	■	1.50	1.50					
									4	●							
									5	■	3.00						
									6	●							
									7	■	4.50						
									8	●							
									9	■	6.00	6.00					
	6.00 Hx	2.70m							10	●							End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ☒ Mazier sample
- ▲ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-24  
 SHEET : 1 OF 1  
 DATE : 30/3/11 TO 30/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827128

HOLE DIA. : PX/HX

N: 833021

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.43 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description		
									No.	Type Depth								
30/3/11	Px											0.00				Brownish grey and grey, mottled with black, slightly clayey silty fine to medium SAND with fine gravel sized rock fragments. (FILL)		
	1.50 Px										0.50			Yellowish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)				
	Hx										1.50			Reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)				
	6.00 Hx	1.46m										6.00						End of hole at 6.00m.

- Small disturbed sample
- ▲ Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- ▨ Mazier sample
- P/S Piston sample
- ▲ Water sample
- ▲ Water table
- ↓ Standard penetration test
- ⊗ Permeability test
- ▲ Piezometer tip
- ▲ Standpipe

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS  
 1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-25  
 SHEET : 1 OF 1  
 DATE : 21/3/11 TO 21/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827125  
 N: 833009

HOLE DIA. : PX/HX

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.58 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. O. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
21/3/11	Px																Greyish brown, mottled with black, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
	1.50 Px Hx								1 ■ 0.50 2 ● 0.50		0.50						Greyish and reddish brown, clayey SILT. (ALLUVIUM)
									3 ■ 1.50 4 ● 1.50		1.50						
									5 ■ 3.00 6 ● 3.00		3.00						Light greyish and yellowish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)
									7 ■ 4.50 8 ● 4.50		4.50						
	6.00 Hx	3.50m							9 ■ 6.00 10 ● 6.00		6.00						End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ▼ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ☒ Mazier sample
- ▲ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.  
**DRILLHOLE RECORD**

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-26  
 SHEET : 1 OF 1  
 DATE : 30/3/11 TO 31/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY	CO-ORDINATES	ROCK COREBIT :
MACHINE & NO. : XY-2B	E: 827116 N: 833045	HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +19.35 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
30/3/11	Px								1	■	0.50		0.00	[Cross-hatch pattern]		Greyish brown, silty fine to coarse SAND with fine to coarse gravel sized rock fragments. (FILL)	
31/3/11									2	●							
	1.50 Px								3	■	1.50		1.50	[Vertical line pattern]		Reddish brown and pink, clayey sandy SILT. (ALLUVIUM)	
	Hx								4	●							
									5	■	3.00						
									6	●							
									7	■	4.50						
									8	●							
	6.00 Hx	2.78m							9	■	6.00		6.00				
									10	●							
																End of hole at 6.00m.	

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊙ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊗ Mazier sample
- △ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.



# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. :       B-27        
 SHEET :       1       OF       1        
 DATE :   30/3/11   TO   30/3/11  

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827106

HOLE DIA. : PX/HX

N: 833037

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.21 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
30/3/11	Px											0.00				Greyish brown, mottled with black, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
	1.50 Px								1	■		0.50				Greyish and reddish brown, clayey SILT. (ALLUVIUM)
	Hx								2	●						
									3	■		1.50				
									4	●						
									5	■		3.00				Light greyish and yellowish brown, slightly clayey sandy SILT with occasional fine gravel sized rock framents. (ALLUVIUM)
									6	●						
									7	■		4.50				
									8	●						
	6.00 Hx	3.10m							9	■		6.00				End of hole at 6.00m.
									10	●						

- Small disturbed sample
- ▲ Water sample
- ⬆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED       C.B. LEE        
 DATE       6/4/11        
 CHECKED       W.C. MA        
 DATE       8/4/11      

REMARKS

1. Inspection pit was excavated to 1.50m.

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-28  
 SHEET : 1 OF 1  
 DATE : 26/3/11 TO 29/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827107

HOLE DIA. : PX/HX

N: 833016

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +19.19 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type Depth							
26/3/11	Px								1	■	0.50	0.00	[Cross-hatched pattern]			Brownish grey and grey, mottled with black, slightly clayey silty fine to medium SAND with fine gravel sized rock fragments. (FILL)	
28/3/11									2	●	0.50	0.50					Yellowish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
	1.50 Px								3	■	1.50	1.50	[Vertical line pattern]			Reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)	
29/3/11	Hx								4	●	1.50						
									5	■	3.00						
									6	●	3.00						
									7	■	4.50						
									8	●	4.50						
	6.00 Hx	2.90m							9	■	6.00	6.00					
									10	●	6.00	6.00					
End of hole at 6.00m.																	

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊗ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊗ Mazier sample
- △ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-29  
 SHEET : 1 OF 1  
 DATE : 29/3/11 TO 29/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827089

HOLE DIA. : PX/HX

N: 833049

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +18.75 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
29/3/11	Px											0.00					Greyish brown, silty fine to coarse SAND with fine to coarse gravel sized rock fragments. (FILL)
	1.50 Px											1.50					Reddish brown and pink, clayey sandy SILT. (ALLUVIUM)
	Hx																
	6.00 Hx	3.04m										6.00					End of hole at 6.00m.

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 6/4/11  
 CHECKED W.C. MA  
 DATE 8/4/11

REMARKS

1. Inspection pit was excavated to 1.50m.

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : B-30  
 SHEET : 1 OF 1  
 DATE : 28/3/11 TO 28/3/11

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY	CO-ORDINATES	ROCK COREBIT :
MACHINE & NO. : XY-2B	E: 827088 N: 833034	HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +18.82 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type	Depth						
26/3/11	Px								1 ■ 0.50		0.00					Brownish grey and grey, mottled with black, slightly clayey silty fine to medium SAND. (FILL)	
									2 ● 0.50		0.50						Yellowish brown, silty fine to coarse SAND with fine gravel sized rock fragments. (FILL)
	1.50 Px								3 ■ 1.50		1.50					Reddish brown, slightly clayey sandy SILT with occasional fine gravel sized rock fragments. (ALLUVIUM)	
	Hx								4 ● 1.50								
28/3/11									5 ■ 3.00								
									6 ● 3.00								
									7 ■ 4.50								
									8 ● 4.50								
	6.00 Hx	3.10m							9 ■ 6.00								
									10 ● 6.00		6.00						End of hole at 6.00m.

<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>▲ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>■ U76 undisturbed sample</li> <li>■ U100 undisturbed sample</li> <li>⊠ Mazier sample</li> <li>P/S Piston sample</li> <li>▲ Water sample</li> <li>▼ Water table</li> <li>↓ Standard penetration test</li> <li>⊗ Permeability test</li> <li>▲ Piezometer tip</li> <li>⊠ Standpipe</li> </ul>	LOGGED <u>C.B. LEE</u> DATE <u>6/4/11</u> CHECKED <u>W.C. MA</u> DATE <u>8/4/11</u>	REMARKS 1. Inspection pit was excavated to 1.50m.
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# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : F-05  
 SHEET : 1 OF 1  
 DATE : 12/2/2011 TO 15/2/2011

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 826818

HOLE DIA. : PX/HX

N: 833518

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +13.12 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type	Depth							
12/2/11	Px											0.00					Brownish grey, mottled with black, gravelly fine to coarse SAND with sized rock fragments. (FILL)	
15/2/11	1.50 Px Hx								1	■	0.50							
									2	●								
									3	■	1.50		1.50					Yellowish brown and pink, slightly sandy clayey SILT with occasional coarse gravel sized rock fragments. (ALLUVIUM)
									4	●								
									5	■	3.00		3.00					Greyish brown, clayey sandy SILT. (ALLUVIUM)
									6	●								
									7	■	4.50		4.50					Greyish brown, slightly clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)
									8	●								
	6.50 Hx	2.70m							9	■								
									10	●	6.50		6.50					End of hole at 6.50m.

- Small disturbed sample
- ▲ Water sample
- ⬇ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 23/2/11  
 CHECKED W.C. MA  
 DATE 26/2/2011

REMARKS

# TEEMWAY ENGINEERING LTD.

## DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : F-06  
 SHEET : 1 OF 1  
 DATE : 12/2/2011 TO 16/2/2011

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey		
METHOD : ROTARY	CO-ORDINATES	ROCK COREBIT :
MACHINE & NO. : XY-2B	E: 826821 N: 833529	HOLE DIA. : PX/HX
FLUSHING MEDIUM : NIL	ORIENTATION : VERTICAL	GROUND LEVEL : +13.10 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
12/2/11	Px								1 ■ 0.50		0.00	[Cross-hatched pattern]			Grey, mottled with black, sandy GRAVEL sized rock fragments. (FILL)	
14/2/11	1.50 Px								2 ● 0.50							
16/2/11	Hx								3 ■ 1.50		1.50	[Vertical line pattern]			Yellowish brown and pink, clayey sandy SILT with occasional coarse gravel sized rock fragments. (ALLUVIUM)	
									4 ● 1.50							
									5 ■ 3.00		3.00	[Vertical line pattern]			Yellowish brown, clayey SILT. (ALLUVIUM)	
									6 ● 3.00							
									7 ■ 4.50		4.50	[Vertical line pattern]			Greyish brown, slightly clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)	
									8 ● 4.50							
	6.40 Hx	1.60m							9 ■ 6.40		6.40	[Vertical line pattern]			End of hole at 6.40m.	
									10 ● 6.40							

<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>▲ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>■ U75 undisturbed sample</li> <li>■ U100 undisturbed sample</li> <li>▨ Mazier sample</li> <li>P/S Piston sample</li> </ul>	<ul style="list-style-type: none"> <li>▲ Water sample</li> <li>▼ Water table</li> <li>↓ Standard penetration test</li> <li>⊗ Permeability test</li> <li>▲ Piezometer tip</li> <li>△ Standpipe</li> </ul>	LOGGED <u>C.B. LEE</u> DATE <u>23/2/11</u> CHECKED <u>W.C. MA</u> DATE <u>26/2/11</u>
REMARKS		

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : F-07  
 SHEET : 1 OF 1  
 DATE : 12/2/2011 TO 14/2/2011

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 826831

HOLE DIA. : PX/HX

N: 833516

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +13.18 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. O. D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Zone	Description
									No.	Type Depth						
12/2/11	Px								1 ■ 0.50		0.00	[Cross-hatched pattern]			Grey, mottled with black, sandy GRAVEL sized rock fragments. (FILL)	
									2 ● 0.50							
14/2/11	1.50 Px								3 ■ 1.50		1.50	[Vertical line pattern]			Yellowish brown and pink, slightly sandy clayey SILT with occasional coarse gravel sized rock fragments. (ALLUVIUM)	
	Hx								4 ● 1.50							
									5 ■ 3.00		3.00	[Vertical line pattern]			Brown, clayey sandy SILT. (ALLUVIUM)	
									6 ● 3.00							
									7 ■ 4.50		4.50	[Vertical line pattern]			Greyish brown, slightly clayey sandy SILT with fine gravel sized rock fragments. (ALLUVIUM)	
									8 ● 4.50							
	6.00 Hx	2.80m							9 ■ 6.00		6.00	[Vertical line pattern]			End of hole at 6.00m.	
									10 ● 6.00							

- Small disturbed sample
- ▲ Water sample
- ⬆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 23/2/11  
 CHECKED W.C. MA  
 DATE 26/2/11

REMARKS

TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : G-05  
 SHEET : 1 OF 1  
 DATE : 18/2/2011 TO 21/2/2011

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827166  
 N: 833073

HOLE DIA. : PX/HX

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +18.85 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type	Depth							
18/2/11	Px								1	■	0.50		0.00	[Cross-hatched pattern]		Brownish grey, mottled with black, slightly clayey sandy SILT. (FILL)		
									2	●								
21/2/11	1.50 Px								3	■	1.50		1.50	[Pattern with 'b' and 'd' markers]		Yellowish and reddish brown, silty CLAY with fine to coarse gravel sized rock fragments. (ALLUVIUM)		
	Hx								4	●								
									5	■	3.00							
									6	●								
									7	■	4.50		4.50	[Pattern with 'b' and 'd' markers]		Light greyish and yellowish brown, clayey sandy SILT with fine to coarse gravel sized rock fragments. (ALLUVIUM)		
									8	●								
	6.00 Hx	1.40m							9	■				[Pattern with 'b' and 'd' markers]		End of hole at 6.00m.		
									10	●	6.00		6.00					

- Small disturbed sample
- ▲ Water sample
- ◆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- ⊙ Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazer sample
- △ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 23/2/11  
 CHECKED W.C. MA  
 DATE 26/2/11

REMARKS



TEEMWAY ENGINEERING LTD.

DRILLHOLE RECORD

JOB NO. : \_\_\_\_\_  
 HOLE NO. : G-06  
 SHEET : 1 OF 1  
 DATE : 18/2/2011 TO 18/2/2011

PROJECT : Express Rail Link Contract 823B-Site Investigation for Land Contamination Survey

METHOD : ROTARY

CO-ORDINATES

ROCK COREBIT :

MACHINE & NO. : XY-2B

E: 827146

HOLE DIA. : PX/HX

N: 833057

FLUSHING MEDIUM : NIL

ORIENTATION : VERTICAL

GROUND LEVEL : +18.89 mPD.

Drilling Progress	Casing Depth/Size	Water Level/Time	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R. Q. D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
									No.	Type	Depth							
18/2/11	Px								1	■	0.50	0.00	[Cross-hatched]			Brownish grey, mottled with black, slightly clayey sandy SILT with occasional fine grave sized rock fragments. (FILL)		
									2	●								
	1.50 Px Hx								3	■	1.50	1.50	[Vertical lines]			Yellowish and reddish brown, clayey SILT with fine to coarse gravel sized rock fragments. (ALLUVIUM)		
									4	●								
									5	■	3.00							
									6	●								
									7	■	4.50	4.50	[Vertical lines]			Light greyish and yellowish brown, clayey sandy SILT with fine to coarse gravel sized rock fragments. (ALLUVIUM)		
									8	●								
	6.00 Hx	2.30m							9	■	6.00	6.00	[Vertical lines]			End of hole at 6.00m.		
									10	●								

- Small disturbed sample
- ▲ Water sample
- ⬆ Large disturbed sample
- ▼ Water table
- SPT liner sample
- ↓ Standard penetration test
- U76 undisturbed sample
- Permeability test
- U100 undisturbed sample
- ▲ Piezometer tip
- ⊠ Mazier sample
- ⊠ Standpipe
- P/S Piston sample

LOGGED C.B. LEE  
 DATE 23/2/11  
 CHECKED W.C. MA  
 DATE 26/2/11

REMARKS

**Appendix C**  
**Parameters of Laboratory Analysis for**  
**Soil and Groundwater Samples**

**Parameters, Detection Limits and Reference Methods of Laboratory Analysis for Soil and Groundwater Samples**

**A. Soil Samples**

Component		Parameter	Detection Limit (mg/kg)	RBRGs (Industrial) (mg/kg)	Soil Saturation Limit (mg/kg)	Reference Method
Heavy Metals		Cadmium	0.2	653	NA	USEPA 6020
		Copper	1.0	10,000	NA	
		Lead	1.0	2,290	NA	
		Mercury	1.0	38.4	NA	
		Nickel	1.0	10,000	NA	
		Zinc	1.0	10,000	NA	
		Chromium III	1.0	10,000	NA	
		Chromium VI	1.0	1,960	NA	
Hydrocarbons	Total Petroleum Hydrocarbon (TPH)	C6 - C8	5	10,000	1,000	USEPA 8015
		C9 - C16	200	10,000	3,000	
		C17 - C35	500	10,000	5,000	
	Volatile Organic Compounds (VOCs)	Acetone	50	10,000	NA	USEPA 8260
		Bromodichloromethane	0.5	2.85	1,030	
		2-Butanone	5.0	10,000	NA	
		Chloroform	0.5	1.54	1,100	
		Methyl tert-Butyl Ether	0.5	70.1	2,380	
		Methylene Chloride	2.5	13.9	921	
		Styrene	0.5	10,000	497	
		Tetrachloroethene	0.5	0.777	97.1	
		Trichloroethene	0.5	5.68	488	
		Benzene	0.5	9.21	336	
		Toluene	0.5	10,000	235	
	Ethylbenzene	0.5	8,240	138		
	Xylenes (Total)	1.5	1,230	150		
	Semi-Volatile Organic Compounds (SVOCs)	Acenaphthene	0.5	10,000	60.2	USEPA 8270
		Acenaphthylene	0.5	10,000	19.8	
		Anthracene	0.5	10,000	2.56	
		Benzo(a)anthracene	0.5	91.8	NA	
		Benzo(a)pyrene	0.5	9.18	NA	
		Benzo(b)fluoranthene	0.5	17.8	NA	
		Benzo(g,h,i)perylene	0.5	10,000	NA	
		Benzo(k)fluoranthene	0.5	918	NA	
		bis-(2-Ethylhexyl)phthalate	5.0	91.8	NA	
		Chrysene	0.5	1,140	NA	
		Dibenzo(a,h)anthracene	0.5	9.18	NA	
		Fluoranthene	0.5	10,000	NA	
Fluorene		0.5	10,000	54.7		
Hexachlorobenzene		0.2	0.582	NA		
Indeno(1,2,3-cd)pyrene		0.5	91.8	NA		
Naphthalene		0.5	453	125		
Phenanthrene	0.5	10,000	28			
Phenol	0.5	10,000	7,260			
Pyrene	0.5	10,000	NA			
Polychlorinated Biphenyl (PCBs)	PCBs	0.1	0.748	NA	USEPA 8270	
Other Inorganic Compounds	Cyanide, free	1.0	10,000	NA	APHA 4500CN: C&E	
Moisture Content	-	0.1%	NA	NA	-	

Remarks:

NA= Not Applicable

B. Groundwater Samples

Component		Parameter	Detection Limit (mg/l)	RBRGs (Industrial) (mg/l)	Solubility Limit (mg/l)	Reference Method
Heavy Metals		Mercury	0.0005	6.79	NA	APHA 3112
Hydrocarbons	Total Petroleum Hydrocarbon (TPH)	C6 - C8	0.02	1,150	5.23	USEPA 8015
		C9 - C16	0.5	9,980	2.8	
		C17 - C35	0.5	178	2.8	
	Volatile Organic Compounds (VOCs)	Acetone	0.05	10,000	NA	USEPA 8260
		Bromodichloromethane	0.005	26.2	6,740	
		2-Butanone	0.05	10,000	NA	
		Chloroform	0.005	11.3	7,920	
		Methyl tert-Butyl Ether	0.005	1,810	NA	
		Methylene Chloride	0.025	224	NA	
		Styrene	0.005	10,000	310	
		Tetrachloroethene	0.005	2.95	200	
		Trichloroethene	0.005	14.2	1,100	
		Benzene	0.005	54	1,750	
	Toluene	0.005	10,000	526	USEPA 8270	
	Ethylbenzene	0.005	10,000	169		
	Xylenes (Total)	0.015	1,570	175		
	Acenaphthene	0.002	10,000	4.24		
	Semi-Volatile Organic Compounds (SVOCs)	Acenaphthylene	0.002	10,000	3.93	USEPA 8270
		Anthracene	0.002	10,000	0.0434	
		Benzo(a)anthracene	NA	NA	NA	
Benzo(a)pyrene		NA	NA	NA		
Benzo(b)fluoranthene		0.004*	7.53	0.0015		
Benzo(g,h,i)perylene		NA	NA	NA		
Benzo(k)fluoranthene		0.004*	NA	NA		
bis-(2-Ethylhexyl)phthalate		NA	NA	NA		
Chrysene		0.002	812	0.0016		
Dibenzo(a,h)anthracene		NA	NA	NA		
Fluoranthene		0.002	10,000	0.206		
Fluorene		0.002	10,000	1.98		
Hexachlorobenzene		0.004	0.695	6.2		
Indeno(1,2,3-cd)pyrene		NA	NA	NA		
Naphthalene		0.002	862	31		
Phenanthrene		0.002	10,000	1		
Phenol	NA	NA	NA			
Pyrene	0.002	10,000	0.135			
Polychlorinated Biphenyl (PCBs)		PCBs	1.0	5.11	0.031	USEPA 8270

Remarks:

NA= Not Applicable

\*As advised by ALS, detection limits of benzo (b) & benzo (k) fluoranthene for groundwater testing are treated as a combined testing parameter.

**Appendix D**  
**Sampling Schedule of Approved Revised CAP**

**Appendix D - Schedule of Sampling Proposed in the Approved Revised CAP**

Site ID	Hotspots identified/ Borehole ID	Sampling Method	Sample Matrix	Parameters to be Tested				Rationale of Sampling and Testing Parameters				
				Metals <sup>2</sup>	Petroleum Carbon Ranges (TPH)	VOCs BTEX <sup>3</sup> only	SVOCs <sup>4</sup> Full List only	PAHs Full List	PCB	Cyanide		
B (Area B2)	Scrap yards and workshops	Borehole to 6m BBC	Soil	0.5m, 1.5m, 3.0m, 4.5m, 6.0m BBC	Cd, CrIII, CrVI, Cu, Hg, Ni, Pb, Zn	X	-	X	-	X	-	30 boreholes based on a regular grid pattern across Area B2 of Site B are proposed to assess the potential land contamination impacts aroused from scrap yards, workshops and the general ground condition of the site.
			GW	If present	Hg only	-	X	-	X	-	-	
F	Supplementary SI	Borehole to 6m BBC	Soil	0.5m, 1.5m, 3.0m, 4.5m, 6.0m BBC	Pb, CrIII, CrVI, Cu, Zn	X	-	-	-	-	-	Supplementary SI locations required in the approved EIA report.
			GW	If present	-	X	-	-	-	-	-	
G	Supplementary SI	Borehole to 6m BBC	Soil	0.5m, 1.5m, 3.0m, 4.5m, 6.0m BBC	Cd, CrIII, CrVI, Cu, Hg, Ni, Pb, Zn	-	X	-	X	-	X	Supplementary SI locations required in the approved EIA report.
			GW	If present	Hg only	-	X	-	X	-	X	

Notes:

1. "BBC" denotes Below Base of Existing Concrete Pavement; "GW" denotes groundwater; "X" denotes testing proposed.
2. Metals – Cadmium (Cd), Chromium III (CrIII), Chromium VI (CrVI), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni) and Zinc (Zn), all inclusive as listed in **Appendix C**.
3. BTEX = Benzene, Toluene, Ethylbenzene and Xylene.
4. Since the RBRG value of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Bis-(2-Ethylhexyl)phthalate, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene and Phenol were not available for groundwater, the captioned chemicals parameters would not be tested in the groundwater sample.

**Appendix E**  
**Laboratory Analytical Results for Soil and**  
**Groundwater Samples**



**Appendix E-1**  
**Laboratory Analytical Results for Soil and**  
**Groundwater Samples**  
**(Site B2)**

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 10
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106006
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 11-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 25-MAR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 4
Order number	: ----			No. of samples analysed	: 4
C-O-C number	: H013614				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics

**ALS Laboratory Group**  
**ALS Technichem (HK) Pty Ltd**

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A Campbell Brothers Limited Company



Page Number : 2 of 10  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106006

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 25-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1106006**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	B-11-0.5M 11-MAR-2011 15:00 HK1106006-001	B-17-0.5M 11-MAR-2011 15:15 HK1106006-002	B-15-0.5M 11-MAR-2011 15:30 HK1106006-003	B-16-0.5M 11-MAR-2011 15:45 HK1106006-004
<b>EA/ED: Physical and Aggregate Properties</b>							
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	16.4	14.7	13.5	13.5
<b>ED/IEK: Inorganic Nonmetallic Parameters</b>							
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1
<b>EG: Metals and Major Cations</b>							
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	14	17	6	7
EG020: Lead	7439-92-1	1	mg/kg	38	42	38	15
EG020: Nickel	7440-02-0	1	mg/kg	6	4	3	7
EG020: Zinc	7440-86-6	1	mg/kg	199	205	66	39
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	18	11	6	9
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>							
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	685	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	1640	<500	<500	<500
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>							
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0
	106-42-3	3					
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
<b>EP-074B: Oxygenated Compounds</b>							
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5
<b>EP-074E: Halogenated Aliphatics</b>							
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
<b>EP-074G: Trihalomethanes (THM)</b>							
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
<b>EP-074L: Methyl-tert-butyl Ether</b>							



Compound	Client sample ID				Unit	Surrogate control limits listed at end of this report.
	CAS Number	LOR	Client sampling date / time	Client sampling date / time		
Sub-Matrix: SOIL						
EP-074L: Methyl-tert-butyl Ether - Continued						
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	11-MAR-2011 15:00	11-MAR-2011 15:15	mg/kg	B-16-0.5M 11-MAR-2011 15:45 HK1106006-004
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	0.1			mg/kg	<0.50
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500			mg/kg	<0.1
Acenaphthylene	208-96-8	0.500	1.68		mg/kg	<0.500
Acenaphthene	83-32-9	0.500	0.686		mg/kg	<0.500
Fluorene	86-73-7	0.500	1.74		mg/kg	<0.500
Phenanthrene	85-01-8	0.500	1.93		mg/kg	<0.500
Anthracene	120-12-7	0.500	7.95		mg/kg	<0.500
Fluoranthene	206-44-0	0.500	1.81		mg/kg	<0.500
Pyrene	129-00-0	0.500	2.17		mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	3.72		mg/kg	<0.500
Chrysene	218-01-9	0.500	0.981		mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	1.11		mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	0.627		mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500		mg/kg	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	0.556		mg/kg	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500		mg/kg	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500		mg/kg	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	<0.50		mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200		mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00		mg/kg	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	97.1		%	96.8
Toluene-D8	2037-26-5	0.1	97.7		%	97.4
4-Bromofluorobenzene	460-00-4	0.1	102		%	100
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	97.1		%	96.8
Toluene-D8	2037-26-5	0.1	97.7		%	97.4
4-Bromofluorobenzene	460-00-4	0.1	102		%	100
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	93.8		%	77.6
4-Terphenyl-d14	1718-51-0	0.1	96.9		%	80.2
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	71.1		%	85.9
Dibutylchlorodate	1770-80-5	0.1	65.8		%	62.0



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>Matrix: SOIL</b>									
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1707159)</b>									
HK1105992-003	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	50.6	50.4	0.4
HK1106006-004	B-16-0.5M		EA055: Moisture Content (dried @ 103°C)		0.1	%	13.5	12.4	8.7
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 17193346)</b>									
HK1106006-002	B-17-0.5M		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710981)</b>									
HK1105924-001	Anonymous		EG036: Mercury	7439-97-6	0.2	mg/kg	<0.2	<0.2	0.0
HK1106006-002	B-17-0.5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710984)</b>									
HK1105924-001	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106006-002	B-17-0.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710987)</b>									
HK1105924-001	Anonymous		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	8	10	16.2
			EG020: Lead	7439-92-1	1	mg/kg	32	33	0.0
			EG020: Nickel	7440-02-0	1	mg/kg	<1	1	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	21	24	16.5
HK1106006-002	B-17-0.5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	17	19	9.7
			EG020: Lead	7439-92-1	1	mg/kg	42	42	0.0
			EG020: Nickel	7440-02-0	1	mg/kg	4	5	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	205	233	12.8
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1705730)</b>									
HK1105923-001	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1705732)</b>									
HK1105923-001	Anonymous		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)</b>									
HK1106006-001	B-11-0.5M		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>									
HK1106006-001	B-11-0.5M		2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
			2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>									



Matrix: SOIL

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067) - Continued</b>									
HK1106006-001		B-11-0.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
			Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
			Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>									
HK1106006-001		B-11-0.5M	Chloroform	67-86-3	0.5	mg/kg	<0.5	<0.5	0.0
			Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1706067)</b>									
HK1106006-001		B-11-0.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>									
HK1106012-022		Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1704066)</b>									
HK1105832-001		Anonymous	Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0
			Pyrene	129-00-0	150	µg/kg	<150	<150	0.0
			Benz(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0
			Chrysene	218-01-9	150	µg/kg	<150	<150	0.0
			Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0
			Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0
			Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0
			Indeno(1,2,3-cd)pyrene	199-39-5	150	µg/kg	<150	<150	0.0
			Dibenz(a,h)anthracene	53-70-3	150	µg/kg	<150	<150	0.0
			Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0
			Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0
			Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0
			Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0
			Fluorene	86-73-7	50	µg/kg	<50	<50	0.0
			Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0
			Anthracene	120-12-7	50	µg/kg	<50	<50	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1706069)</b>									
HK1106006-004		B-16-0.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
			Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
			Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
			Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
			Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
			Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
			Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
			Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
			Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
			Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
			Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
			Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0



Matrix: SOIL		Method: Compound		Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1706069) - Continued</b>							
HK1106006-004	B-16-0.5M	50-32-8	500	µg/kg	<500	<500	0.0
		193-39-5	500	µg/kg	<500	<500	0.0
		53-70-3	500	µg/kg	<500	<500	0.0
		191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1704066)</b>							
HK1105832-001	Anonymous	117-81-7	1000	µg/kg	<1000	<1000	0.0
		118-74-1	50	µg/kg	<50	<50	0.0
		108-95-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1706069)</b>							
HK1106006-004	B-16-0.5M	118-74-1	200	µg/kg	<200	<200	0.0
		108-95-2	500	µg/kg	<500	<500	0.0
		117-81-7	5000	µg/kg	<5000	<5000	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)	
								Low	High	
								Value	Control Limit	
<b>Method Blank (MB) Report</b>										
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)										
EK025MD: Free Cyanide		1	mg/kg	<1	1.9 mg/kg	110		85	115	
EG: Metals and Major Cations (QC Lot: 1710981)										
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.0		85	115	
EG: Metals and Major Cations (QC Lot: 1710984)										
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	108		85	115	
EG: Metals and Major Cations (QC Lot: 1710987)										
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	90.3		85	115	
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	90.4		85	115	
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	95.2		85	115	
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	94.0		85	115	
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	96.9		85	115	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1705730)										
C6 - C8 Fraction		5	mg/kg	<5	3 mg/kg	97.4		74	138	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1705732)										
C9 - C16 Fraction		200	mg/kg	<200	31 mg/kg	99.9		56	116	
C17 - C35 Fraction		500	mg/kg	<500	75 mg/kg	87.5		56	116	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	101		69	141	
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7		68	149	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.1		77	137	





Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
Matrix: SOIL											
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067) - Continued</b>											
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	92.3	---	62	160	---	---
	106-42-3										
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	---	71	149	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	88.5	---	26	177	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.6	---	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.3	---	28	138	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1704066)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	76.9	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	68.5	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	76.4	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	76.4	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	77.0	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	77.5	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	81.1	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	79.6	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	75.0	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	85.8	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	78.9	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	82.7	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	65.3	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	76.8	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	85.2	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	88.5	---	59	125	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1706069)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	93.4	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	78.6	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	91.5	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	93.6	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	94.0	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	92.2	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	102	---	58	120	---	---



Matrix: SOIL

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)	
						Low	High	Value	Control Limit	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1706069) - Continued</b>										
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	99.7	---	57	118	---
Benzo(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	79.5	---	59	116	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	115	---	60	127	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	77.8	---	63	120	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	112	---	56	126	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	73.2	---	53	101	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	105	---	64	130	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	86.3	---	57	125	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	88.3	---	59	125	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1704066)</b>										
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	61.8	---	29	129	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	74.5	---	54	120	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	92.5	---	87	123	---
<b>EP-076C: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1706069)</b>										
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	100	---	29	129	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	90.9	---	54	120	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	114	---	87	123	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)		
				MS	MSD	Low	High	Value	Control Limit	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>										
HK1106502-001	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	95.0	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710981)</b>										
HK1105923-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	75.0	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710984)</b>										
HK1105923-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	81.3	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710987)</b>										
HK1105923-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	91.9	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	84.1	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---



Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				RPD (%)	
					MS	MSD	Recovery Limits (%)	Value		Control Limit
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1705730)										
HK1105924-001	Anonymous	C6 - C8 Fraction		3 mg/kg	58.8		50	130		
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1705732)										
HK1105924-001	Anonymous	C9 - C16 Fraction		31 mg/kg	90.2		50	130		
		C17 - C35 Fraction		75 mg/kg	103		50	130		

**Surrogate Control Limits**

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 12
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106073
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 14-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 28-MAR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 8
Order number	: ----			No. of samples analysed	: 8
C-O-C number	: H013616				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics

**ALS Laboratory Group**  
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A Campbell Brothers Limited Company



Page Number : 2 of 12  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106073

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 25-MAR-2011

Key: LOR = Limit of reporting, CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1106073

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Compound	CAS Number	LOR	Unit	Client sample ID				
				Client sampling date / time	B-11-1.5M	B-12-0.5M	B-14-0.5M	B-15-1.5M
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	19.8	16.7	14.2	18.4	13.0
ED/IEK: Inorganic Nonmetallic Parameters								
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1
EG: Metals and Major Cations								
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	10	9	9	7	20
EG020: Lead	7439-92-1	1	mg/kg	38	38	38	28	136
EG020: Nickel	7440-02-0	1	mg/kg	6	4	3	4	7
EG020: Zinc	7440-66-6	1	mg/kg	69	200	113	73	127
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	17	8	7	11	10
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3							
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether								



Compound	CAS Number	LOR	Client sample ID		B-11-1.5M	B-12-0.5M	B-14-0.5M	B-15-1.5M	B-16-1.5M
			Client sampling date / time	Unit					
Sub-Matrix: SOIL									
EP-074L: Methyl-tert-butyl Ether - Continued									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls									
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate									
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%	98.2	99.2	102	100	105	105
Toluene-D8	2037-26-5	0.1	%	97.7	98.0	98.0	97.6	97.0	97.0
4-Bromofluorobenzene	460-00-4	0.1	%	101	101	101	99.5	100	100
EP-074S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%	98.2	99.2	102	100	105	105
Toluene-D8	2037-26-5	0.1	%	97.7	98.0	98.0	97.6	97.0	97.0
4-Bromofluorobenzene	460-00-4	0.1	%	101	101	101	99.5	100	100
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%	75.1	70.6	68.4	75.0	63.2	63.2
4-Terphenyl-d14	1718-51-0	0.1	%	74.9	72.7	67.9	78.4	62.5	62.5
EP-066S: PCB Surrogate									
Tetrachlorometaxylene	877-09-8	0.1	%	82.5	79.3	72.7	78.7	73.2	73.2
Dibutylchlorodate	1770-80-5	0.1	%	114	115	101	104	95.9	95.9



Compound	CAS Number	LOR	Client sample ID		Unit	Value	Date / Time	Sample ID	Date / Time	
			Client sampling date / time	Client sampling date / time						
Sub-Matrix: SOIL										
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	24.4	15.6	14.3	14-MAR-2011 15:00	B-17-1.5M HK1106073-006	B-18-0.5M 14-MAR-2011 15:07 HK1106073-007	B-21-0.5M 14-MAR-2011 15:15 HK1106073-008
ED/EK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1				
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2				
EG020: Copper	7440-50-8	1	mg/kg	9	12	10				
EG020: Lead	7439-92-1	1	mg/kg	36	55	36				
EG020: Nickel	7440-02-0	1	mg/kg	6	6	4				
EG020: Zinc	7440-66-6	1	mg/kg	73	117	168				
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1				
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	13	25	9				
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1				
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5				
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200				
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500				
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5				
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5				
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0				
	106-42-3	3	mg/kg	<1.0	<1.0	<1.0				
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5				
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50				
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5				
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5				
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5				
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5				
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5				
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5				
EP-074L: Methyl-tert-butyl Ether (MTBE)										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50				





Compound	CAS Number	LOR	Client sample ID			
			Client sampling date / time	Unit	Surrogate control limits listed at end of this report.	Surrogate control limits listed at end of this report.
Sub-Matrix: SOIL						
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1		<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500	mg/kg	<0.500		<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500		<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500		<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500		<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500		<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500		<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500		<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500		<0.500
Benzo(a)anthracene	56-55-3	0.500	mg/kg	<0.500		<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500		<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500		<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500		<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500		<0.500
Indeno(1,2,3-cd)pyrene	193-39-6	0.500	mg/kg	<0.500		<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500		<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500		<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	mg/kg	<0.50		<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200		<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00		<5.00
EP-080S: TPH(Volatile)/BTX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	%	103		107
Toluene-D8	2037-26-5	0.1	%	96.9		98.4
4-Bromofluorobenzene	460-00-4	0.1	%	99.6		97.9
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	%	103		107
Toluene-D8	2037-26-5	0.1	%	96.9		98.4
4-Bromofluorobenzene	460-00-4	0.1	%	99.6		97.9
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	%	73.5		80.5
4-Terphenyl-d14	1718-51-0	0.1	%	75.4		82.6
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	%	78.1		89.2
Dibutylchlorendate	1770-80-5	0.1	%	90.3		114



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report		RPD (%)
							Original Result	Duplicate Result	
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1709006)</b>									
HK1106073-001		B-11-1.5M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	19.8	21.4	7.6
HK1106131-001		Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	47.6	49.8	4.4
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>									
HK1106006-002		Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710981)</b>									
HK1105924-001		Anonymous	EG036: Mercury	7439-97-6	0.2	mg/kg	<0.2	<0.2	0.0
HK1106006-002		Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710982)</b>									
HK1106222-001		Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710984)</b>									
HK1105924-001		Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106006-002		Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710985)</b>									
HK1106222-001		Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710987)</b>									
HK1105924-001		Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	8	10	16.2
			EG020: Lead	7439-92-1	1	mg/kg	32	33	0.0
			EG020: Nickel	7440-02-0	1	mg/kg	<1	1	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	21	24	16.5
HK1106006-002		Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	17	19	9.7
			EG020: Lead	7439-92-1	1	mg/kg	42	42	0.0
			EG020: Nickel	7440-02-0	1	mg/kg	4	5	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	205	233	12.8
<b>EG: Metals and Major Cations (QC Lot: 1710988)</b>									
HK1106222-001		Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	12	13	12.7
			EG020: Lead	7439-92-1	1	mg/kg	55	56	1.8
			EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	114	100	13.8
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>									
HK1106041-008		Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>									
HK1106041-008		Anonymous	C9 - C16 Fraction	---	200	mg/kg	915	1160	24.0
			C17 - C35 Fraction	---	500	mg/kg	1010	1250	21.4
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)</b>									
HK1106006-001		Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067) - Continued</b>								
HK1106006-001	Anonymous	Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
		106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>								
HK1106012-022	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1706080)</b>								
HK1105989-001	Anonymous	Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0
		Pyrene	129-00-0	150	µg/kg	<150	<150	0.0
		Benzo(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0
		Chrysene	218-01-9	150	µg/kg	<150	<150	0.0
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0
		Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	<150	<150	0.0
		Dibenz(a,h)anthracene	53-70-3	150	µg/kg	<150	<150	0.0
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0
		Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.0
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1706080)</b>								
HK1105989-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	<1000	0.0
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	<50	0.0



Matrix: SOIL		Method: Compound		Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1706080) - Continued							
HK1105989-001	Anonymous	108-95-2	500	µg/kg	<500	<500	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL										
Method Blank (MB) Report					Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	RPD (%)
							Low	High	Value	Control Limit
<b>Method: Compound</b>										
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)										
EK025MD: Free Cyanide		1	mg/kg	<1	1.9 mg/kg	110	85	115		
EG: Metals and Major Cations (QC Lot: 1710981)	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.0	85	115		
EG036: Mercury										
EG: Metals and Major Cations (QC Lot: 1710982)	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	95.0	85	115		
EG036: Mercury										
EG: Metals and Major Cations (QC Lot: 1710984)	18540-29-9	0.5	mg/kg	<1	40 mg/kg	108	85	115		
EG3060: Hexavalent Chromium										
EG: Metals and Major Cations (QC Lot: 1710985)	18540-29-9	0.5	mg/kg	<1	40 mg/kg	86.9	85	115		
EG3060: Hexavalent Chromium										
EG: Metals and Major Cations (QC Lot: 1710987)	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	90.3	85	115		
EG020: Cadmium										
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	90.4	85	115		
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	95.2	85	115		
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	94.0	85	115		
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	96.9	85	115		
EG: Metals and Major Cations (QC Lot: 1710988)	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	87.9	85	115		
EG020: Cadmium										
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	98.0	85	115		
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	100	85	115		
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	93.3	85	115		
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	107	85	115		
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)		5	mg/kg	<5	3 mg/kg	103	74	138		
C6 - C8 Fraction										
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)		200	mg/kg	<200	31 mg/kg	77.1	56	116		
C9 - C16 Fraction										
C17 - C35 Fraction		500	mg/kg	<500	75 mg/kg	110	56	116		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	101	69	141		
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	68	149		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.1	77	137		
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	92.3	62	160		
	106-42-3									



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067) - Continued</b>									
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	79	136	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	71	149	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>									
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	88.5	26	177	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>									
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	100	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.6	69	151	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>									
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	71	137	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>									
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.3	28	138	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1706080)</b>									
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	71.1	41	120	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	60.4	42	98	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	68.2	46	117	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	70.8	50	119	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	75.1	49	118	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	72.5	49	107	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	74.7	58	120	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	73.4	57	118	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	68.3	59	116	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	73.9	60	127	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	75.7	63	120	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	71.2	56	126	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	63.6	53	101	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	92.4	64	130	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	78.6	57	125	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	82.4	59	125	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1706080)</b>									
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	77.1	29	129	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	68.0	54	120	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	98.9	87	123	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				
					MS	MSD	Recovery Limits (%)	RPD (%)	Control Limit
					MS	MSD	Low	High	Value



Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High		Value
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>										
HK1106502-001	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	95.0	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710981)</b>										
HK1105923-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	75.0	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710982)</b>										
HK1106073-008	B-21-0.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	85.0	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710984)</b>										
HK1105923-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	81.3	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710985)</b>										
HK1106073-008	B-21-0.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	84.9	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710987)</b>										
HK1105923-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	91.9	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	84.1	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1710988)</b>										
HK1106073-008	B-21-0.5M	EG020: Cadmium	7440-43-9	5 mg/kg	98.2	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	82.4	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	89.5	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>										
HK1106041-009	Anonymous	C6 - C8 Fraction	---	3 mg/kg	63.7	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>										
HK1106041-009	Anonymous	C9 - C16 Fraction	---	31 mg/kg	76.5	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	92.2	---	50	130	---	---

**Surrogate Control Limits**

Sub-Matrix: SOIL		
Compound	CAS Number	Recovery Limits (%)
EP-080S: TPH(Volatile)/BTEX Surrogate		Low High
Dibromofluoromethane	1868-53-7	80 120



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106073

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTX Surrogate - Continued			
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 9
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106222
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 15-MAR-2011
Order number	: ----			Issue Date	: 29-MAR-2011
C-C-C number	: H013617			No. of samples received	: 3
Site	: XRL823B-SITE B			No. of samples analysed	: 3

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

**ALS Laboratory Group**  
**ALS Technichem (HK) Pty Ltd**

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A Campbell Brothers Limited Company





Page Number : 2 of 9  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106222

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 25-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: **HK1106222**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID	
			Client sampling date / time	Unit
EA/JED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	20.4
ED/JEK: Inorganic Nonmetallic Parameters				
EK025MD: Free Cyanide	---	1	mg/kg	<1
EG: Metals and Major Cations				
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2
EG020: Copper	7440-50-8	1	mg/kg	10
EG020: Lead	7439-92-1	1	mg/kg	39
EG020: Nickel	7440-02-0	1	mg/kg	6
EG020: Zinc	7440-86-6	1	mg/kg	89
EG036: Mercury	7439-97-6	1	mg/kg	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	16
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)				
C6 - C8 Fraction	---	5	mg/kg	<5
C9 - C16 Fraction	---	200	mg/kg	<200
C17 - C35 Fraction	---	500	mg/kg	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)				
Benzene	71-43-2	0.5	mg/kg	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0
	106-42-3			
Styrene	100-42-5	0.5	mg/kg	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5
EP-074B: Oxygenated Compounds				
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5
EP-074E: Halogenated Aliphatics				
Methylene chloride	75-09-2	2.5	mg/kg	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5
EP-074G: Trihalomethanes (THM)				
Chloroform	67-66-3	0.5	mg/kg	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5
EP-074L: Methyl-tert-butyl Ether				



Compound	CAS Number	Client sample ID		Unit	Client sampling date / time	B-17-3.0M 15-MAR-2011 14:00 HK1106222-001	B-14-1.2M 15-MAR-2011 14:45 HK1106222-002	B-12-1.4M 15-MAR-2011 15:00 HK1106222-003
		LOR	Unit					
Sub-Matrix: SOIL								
EP-074L: Methyl-tert-butyl Ether - Continued								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg			<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	--	0.1	mg/kg			<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg			<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg			<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg			<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg			<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg			<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg			<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg			<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg			<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg			<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg			<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg			<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg			<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg			<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg			<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg			<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg			<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg			<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg			<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg			<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%			97.6	98.7	97.9
Toluene-D8	2037-26-5	0.1	%			97.6	98.6	97.0
4-Bromofluorobenzene	460-00-4	0.1	%			101	100	99.8
EP-074S: VOC Surrogates								
Surrogate control limits listed at end of this report.								
Dibromofluoromethane	1868-53-7	0.1	%			97.6	98.7	97.9
Toluene-D8	2037-26-5	0.1	%			97.6	98.6	97.0
4-Bromofluorobenzene	460-00-4	0.1	%			101	100	99.8
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
Surrogate control limits listed at end of this report.								
2-Fluorobiphenyl	321-60-8	0.1	%			73.5	74.9	64.5
4-Terphenyl-d14	1718-51-0	0.1	%			87.2	79.8	65.6
EP-066S: PCB Surrogate								
Surrogate control limits listed at end of this report.								
Tetrachlorometaxylene	877-09-8	0.1	%			80.8	92.7	88.1
Dibutylchlorodate	1770-80-5	0.1	%			120	117	112



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1710971)</b>								
HK1106156-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	6.9	7.1	2.4
HK1106232-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	50.6	50.0	1.1
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>								
HK1106006-002	Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710982)</b>								
HK1106222-001	B-17-3.0M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710985)</b>								
HK1106222-001	B-17-3.0M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1710988)</b>								
HK1106222-001	B-17-3.0M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	12	13	12.7
		EG020: Lead	7439-92-1	1	mg/kg	55	56	1.8
		EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	114	100	13.8
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>								
HK1106041-008	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>								
HK1106041-008	Anonymous	C9 - C16 Fraction	---	200	mg/kg	915	1160	24.0
		C17 - C35 Fraction	---	500	mg/kg	1010	1250	21.4
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	106-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1706067)</b>								



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1706067) - Continued</b>								
HK1106006-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>								
HK1106012-022	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1708044)</b>								
Anonymous								
		Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0
		Pyrene	129-00-0	150	µg/kg	<150	<150	0.0
		Benz(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0
		Chrysene	218-01-9	150	µg/kg	<150	<150	0.0
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0
		Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	<150	<150	0.0
		Dibenz(a,h)anthracene	53-70-3	150	µg/kg	<150	<150	0.0
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0
		Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.0
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate. (QC Lot: 1708044)</b>								
Anonymous								
		Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	<1000	0.0
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	<50	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	RPD (%)
						Low	High		Low	High	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>											
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	85	115	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1710982)</b>											
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	85	115	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1710985)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	85	115	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1710988)</b>											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	85	115	---	85	115	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	85	115	---	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	85	115	---	85	115	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	85	115	---	85	115	---



Method/Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>EG: Metals and Major Cations (QC Lot: 1710988) - Continued</b>												
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	107	---	---	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>												
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	103	---	---	74	138	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>												
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	77.1	---	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	110	---	---	56	116	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)</b>												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	---	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.1	---	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	92.3	---	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	---	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	---	---	71	149	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	88.5	---	---	26	177	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>												
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.6	---	---	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	---	69	139	---	---
Bromochloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	---	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.3	---	---	28	138	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1708044)</b>												
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	101	---	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	89.8	---	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	104	---	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	106	---	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	108	---	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	106	---	---	48	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	115	---	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	112	---	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	101	---	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	119	---	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	97.6	---	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	103	---	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	84.3	---	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	83.7	---	---	64	130	---	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1708044) - Continued</b>									
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	103	125	57	125
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	105	125	59	125
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1708044)</b>									
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	121	129	29	129
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	104	120	54	120
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	101	123	87	123

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	Control Limit
					Low	High	Value		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>									
HK1106502-001	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	95.0	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1710982)</b>									
HK1106073-008	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	85.0	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1710985)</b>									
HK1106073-008	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	84.9	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1710988)</b>									
HK1106073-008	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	98.2	---	75	125	---
		EG020: Copper	7440-50-8	5 mg/kg	82.4	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	89.5	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>									
HK1106041-009	Anonymous	C6 - C8 Fraction	---	3 mg/kg	63.7	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>									
HK1106041-009	Anonymous	C9 - C16 Fraction	---	31 mg/kg	76.5	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	92.2	---	50	130	---

**Surrogate Control Limits**

Sub-Matrix: SOIL			Recovery Limits (%)	
Compound	CAS Number	Low	High	
EP-080S: TPH(Volatile)/BTEX Surrogate				
Dibromofluoromethane	1868-53-7	80	120	
Toluene-D8	2037-26-5	81	117	



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106222

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate - Continued			
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130



# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEAMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 9
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106334
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teamway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 16-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 01-APR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 3
Order number	: ----			No. of samples analysed	: 3
C-O-C number	: H013618				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

#### ALS Laboratory Group

Trading Name: ALS Technichem (HK) Pty Ltd

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A Campbell Brothers Limited Company



Page Number : 2 of 9  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106334

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1106334**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Compound	CAS Number	Client sample ID		Unit
		Client sampling date / time	Client sampling date / time	
Sub-Matrix: SOIL				
EA/ED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	—	0.1	11.3	21.1
ED/EK: Inorganic Nonmetallic Parameters				
EK025MD: Free Cyanide	—	1	<1	<1
EG: Metals and Major Cations				
EG020: Cadmium	7440-43-9	0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	59	17
EG020: Lead	7439-92-1	1	118	125
EG020: Nickel	7440-02-0	1	5	1
EG020: Zinc	7440-66-6	1	175	25
EG036: Mercury	7439-97-6	1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	15	1
EG3060: Hexavalent Chromium	18540-29-9	1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)				
C6 - C8 Fraction	—	5	<5	<5
C9 - C16 Fraction	—	200	<200	<200
C17 - C38 Fraction	—	500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)				
Benzene	71-43-2	0.5	<0.5	<0.5
Toluene	108-88-3	0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	<1.0	<1.0
	106-42-3			
Styrene	100-42-5	0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds				
2-Propanone (Acetone)	67-64-1	50	<50	<50
2-Butanone (MEK)	78-93-3	5	<5	<5
EP-074E: Halogenated Aliphatics				
Methylene chloride	75-09-2	2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)				
Chloroform	67-66-3	0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether				



Compound	CAS Number	LOR	Client sample ID		Unit	Surrogate control limits listed at end of this report.
			Client sampling date / time	Client sampling date / time		
Sub-Matrix: SOIL						
EP-074L: Methyl-tert-butyl Ether - Continued			B-11-3.0M	B-11-4.5M	B-11-6.0M	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	16-MAR-2011 11:50 HK1106334-001	16-MAR-2011 15:50 HK1106334-002	16-MAR-2011 17:15 HK1106334-003	<0.50
EP-066: Polychlorinated Biphenyls		0.1	<0.1	<0.1	<0.1	<0.1
Total Polychlorinated biphenyls	---					
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)anthracene	56-55-3	0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	99.0	98.0	98.9	98.9
Toluene-D8	2037-26-5	0.1	98.4	97.9	97.1	97.1
4-Bromofluorobenzene	460-00-4	0.1	102	102	102	102
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	99.0	98.0	98.9	98.9
Toluene-D8	2037-26-5	0.1	98.4	97.9	97.1	97.1
4-Bromofluorobenzene	460-00-4	0.1	102	102	102	102
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	73.6	74.7	74.0	74.0
4-Terphenyl-d14	1718-51-0	0.1	73.9	74.9	76.1	76.1
EP-066S: PCB Surrogate						
Tetrachlorometylene	877-09-8	0.1	79.9	85.8	81.5	81.5
Dibutylchlorodene	1770-80-5	0.1	102	101	99.6	99.6



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1712845)</b>									
HK1106264-021	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	11.8	10.2	14.8
HK1106264-031	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	10.8	10.2	6.2
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>									
HK1106006-002	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714857)</b>									
HK1106334-002	B-11-4-5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	17	19	12.5
			EG020: Lead	7439-92-1	1	mg/kg	125	127	1.9
			EG020: Nickel	7440-02-0	1	mg/kg	1	1	0.0
			EG020: Zinc	7440-56-6	1	mg/kg	25	24	0.0
HK1106502-008	Anonymous		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	10	12	10.7
			EG020: Lead	7439-92-1	1	mg/kg	33	29	12.2
			EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
			EG020: Zinc	7440-56-6	1	mg/kg	42	41	2.4
<b>EG: Metals and Major Cations (QC Lot: 1714860)</b>									
HK1106334-002	B-11-4-5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1106502-008	Anonymous		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714865)</b>									
HK1106334-002	B-11-4-5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106502-008	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>									
HK1106041-008	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>									
HK1106041-008	Anonymous		C9 - C16 Fraction		200	mg/kg	915	1160	24.0
			C17 - C35 Fraction		500	mg/kg	1010	1250	21.4
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)</b>									
HK1106006-001	Anonymous		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>									
HK1106006-001	Anonymous		2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
			2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>									



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067) - Continued</b>								
HK1106006-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>								
HK1106012-022	Anonymous	Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1709961)</b>								
HK1106228-001	Anonymous	Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0
		Pyrene	129-00-0	150	µg/kg	<150	<150	0.0
		Benz(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0
		Chrysene	218-01-9	150	µg/kg	<150	<150	0.0
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0
		Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	<150	<150	0.0
		Dibenz(a,h)anthracene	59-70-3	150	µg/kg	<150	<150	0.0
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0
		Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.0
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1709961)</b>								
HK1106228-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	<1000	0.0
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	<50	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	DCS	Recovery Limits (%)	RPD (%)
					LCS	Low	High	Value	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>									
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1714857)</b>									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	94.6	85	115	---	---



Matrix: SOIL

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method Blank (MB) Report

Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)			Recovery Limits (%)			RPD (%)
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 1714857) - Continued												
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	97.7	---	85	115	---	---	
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	93.8	---	85	115	---	---	
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	99.7	---	85	115	---	---	
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	98.1	---	85	115	---	---	
EG: Metals and Major Cations (QC Lot: 1714860)												
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	95.0	---	85	115	---	---	
EG: Metals and Major Cations (QC Lot: 1714865)												
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	101	---	85	115	---	---	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)												
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	103	---	74	138	---	---	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)												
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	77.1	---	56	116	---	---	
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	110	---	56	116	---	---	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	69	141	---	---	
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	---	68	149	---	---	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.1	---	77	137	---	---	
meta- & para-Xylene	106-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	92.3	---	62	160	---	---	
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	---	79	136	---	---	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	---	71	149	---	---	
EP-074B: Oxygenated Compounds (QC Lot: 1706067)												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	88.5	---	26	177	---	---	
EP-074E: Halogenated Aliphatics (QC Lot: 1706067)												
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	74	136	---	---	
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.6	---	69	151	---	---	
EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	69	139	---	---	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	71	137	---	---	
EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.3	---	28	138	---	---	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1709961)												
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	100	---	41	120	---	---	
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	88.7	---	42	98	---	---	
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	103	---	46	117	---	---	
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	103	---	50	119	---	---	
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	106	---	49	118	---	---	
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	103	---	49	107	---	---	



Matrix: SOIL

Method: Compound	CAS Number	LOR	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
			Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1709961) - Continued												
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	112	---	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	109	---	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	98.3	---	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	117	---	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	94.8	---	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	102	---	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	82.8	---	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	76.0	---	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	102	---	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	103	---	---	59	125	---	---
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1709961)												
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	119	---	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	101	---	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	102	---	---	87	123	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	MS	MSD	Recovery Limits (%)	Low	High	Value
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)										
HK1106502-001	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	95.0	---	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1714857)										
HK1106334-001	B-11-3.0M	EG020: Cadmium	7440-43-9	5 mg/kg	94.3	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	85.7	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1714860)										
HK1106334-001	B-11-3.0M	EG036: Mercury	7439-97-6	0.1 mg/kg	85.0	---	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1714865)										
HK1106334-001	B-11-3.0M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	102	---	75	125	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)										
HK1106041-009	Anonymous	C6 - C8 Fraction	---	3 mg/kg	63.7	---	50	130	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)										





Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration		Spike Recovery (%)		Recovery Limits (%)		RPD (%)	Control Limit
				MS	MSD	Low	High	Value			
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186) - Continued											
HK1106041-009	Anonymous	C9 - C16 Fraction	---	31 mg/kg	76.5	---	50	130	---	---	---
		C17 - C35 Fraction	---	75 mg/kg	92.2	---	50	130	---	---	---

**Surrogate Control Limits**

Sub-Matrix: SOIL

Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorodiate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 13
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106502
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 17-MAR-2011
Order number	: ----			Issue Date	: 01-APR-2011
C-O-C number	: H013619			No. of samples received	: 8
Site	: XRL823B-SITE B			No. of samples analysed	: 8

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics

**ALS Laboratory Group**  
**ALS Technichem (HK) Pty Ltd**

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A Campbell Brothers Limited Company



Page Number : 2 of 13  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106502

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1106502**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Compound	CAS Number	LOR	Client sample ID		Unit	B-17-4.5M 17-MAR-2011 11:30 HK1106502-001	B-17-6.0M 17-MAR-2011 12:00 HK1106502-002	B-14-3.0M 17-MAR-2011 15:30 HK1106502-003	B-15-3.0M 17-MAR-2011 15:45 HK1106502-004	B-14-4.5M 17-MAR-2011 16:35 HK1106502-005
			Client sampling date / time	Client sampling date / time						
Sub-Matrix: SOIL										
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%		21.5	26.8	16.5	24.3		26.3
ED/IEK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg		<1	<1	<1	<1		<1
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2		<0.2
EG020: Copper	7440-50-8	1	mg/kg		14	15	22	21		18
EG020: Lead	7439-92-1	1	mg/kg		101	213	76	103		76
EG020: Nickel	7440-02-0	1	mg/kg		4	4	5	6		5
EG020: Zinc	7440-66-6	1	mg/kg		59	64	85	106		86
EG036: Mercury	7439-97-6	1	mg/kg		<1	<1	<1	<1		<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg		9	3	13	12		2
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg		<1	<1	<1	<1		<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg		<5	<5	<5	<5		<5
C9 - C16 Fraction	---	200	mg/kg		<200	<200	<200	<200		<200
C17 - C35 Fraction	---	500	mg/kg		<500	<500	<500	<500		<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0		<1.0
	106-42-3									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg		<50	<50	<50	<50		<50
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5		<5
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg		<2.5	<2.5	<2.5	<2.5		<2.5
Trichloroethene	78-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
EP-074L: Methyl-tert-butyl Ether										



Compound	CAS Number	LOR	Client sample ID				Unit	Surrogate control limits listed at end of this report.
			Client sampling date / time	B-17-4.5M	B-17-6.0M	B-14-3.0M		
Sub-Matrix: SOIL								
EP-074L: Methyl-tert-butyl Ether - Continued								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-6	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	104	82.5	102	104	105
Toluene-D8	2037-26-5	0.1	%	96.9	94.2	96.3	98.2	97.6
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	89.6	99.0	98.3	97.3
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	104	82.5	102	104	105
Toluene-D8	2037-26-5	0.1	%	96.9	94.2	96.3	98.2	97.6
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	89.6	99.0	98.3	97.3
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	82.5	76.1	85.8	73.4	63.3
4-Terphenyl-d14	1718-51-0	0.1	%	86.8	82.1	79.6	79.3	74.6
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1	%	90.3	92.5	86.6	101	85.1
Dibutylchlorendate	1770-80-5	0.1	%	107	115	118	116	122



Compound	CAS Number	LOR	Client sample ID		Unit
			Client sampling date / time	Client sampling date / time	
Sub-Matrix: SOIL					
EA/ED: Physical and Aggregate Properties					
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	23.4	29.4
ED/EK: Inorganic Nonmetallic Parameters					
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1
EG: Metals and Major Cations					
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	39	33
EG020: Lead	7439-92-1	1	mg/kg	94	38
EG020: Nickel	7440-02-0	1	mg/kg	4	3
EG020: Zinc	7440-66-6	1	mg/kg	82	42
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1
EG049: Trivalent Chromium	18065-83-1	1	mg/kg	6	2
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)					
C6 - C8 Fraction	---	5	mg/kg	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)					
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0
	106-42-3				
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5
EP-074B: Oxygenated Compounds					
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5
EP-074E: Halogenated Aliphatics					
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5
Tetrachloroethane	127-18-4	0.5	mg/kg	<0.5	<0.5
EP-074G: Trihalomethanes (THM)					
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether (MTBE)					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50



Compound	CAS Number	LOR	Client sample ID		
			Client sampling date / time	B-15-4.5M	B-14-6.0M
Unit	Unit	Unit	17-MAR-2011 16:50	17-MAR-2011 17:15	17-MAR-2011 17:30
			HK1106502-006	HK1106502-007	HK1106502-008
Sub-Matrix: SOIL					
EP-066: Polychlorinated Biphenyls					
Total Polychlorinated biphenyls					
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)					
Naphthalene	91-20-3	0.500	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate					
Phenol	108-95-2	0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate					
Dibromofluoromethane	1868-53-7	0.1	103	104	81.6
Toluene-D8	2037-26-5	0.1	97.3	97.0	94.6
4-Bromofluorobenzene	460-00-4	0.1	97.3	96.4	88.1
EP-074S: VOC Surrogates					
Dibromofluoromethane	1868-53-7	0.1	103	104	81.6
Toluene-D8	2037-26-5	0.1	97.3	97.0	94.6
4-Bromofluorobenzene	460-00-4	0.1	97.3	96.4	88.1
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates					
2-Fluorobiphenyl	321-60-8	0.1	74.6	75.7	75.1
4-Terphenyl-d14	1718-51-0	0.1	69.5	80.4	75.4
EP-066S: PCB Surrogate					
Tetrachlorometylene	877-09-8	0.1	99.0	102	86.7
Dibutylchlorodane	1770-80-5	0.1	120	121	106



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method/Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report		RPD (%)
							Original Result	Duplicate Result	
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1714861)</b>									
HK1106502-001	B-17-4.5M		EA055: Moisture Content (dried @ 103°C)		0.1	%	21.5	22.3	3.6
HK1106518-003	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	47.4	45.3	4.5
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)</b>									
HK1106006-002	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)</b>									
HK1106741-002	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714857)</b>									
Anonymous									
HK1106334-002			EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	17	19	12.5
			EG020: Lead	7439-92-1	1	mg/kg	125	127	1.9
			EG020: Nickel	7440-02-0	1	mg/kg	1	1	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	25	24	0.0
HK1106502-008	B-15-6.0M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	10	12	10.7
			EG020: Lead	7439-92-1	1	mg/kg	33	29	12.2
			EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	42	41	2.4
<b>EG: Metals and Major Cations (QC Lot: 1714860)</b>									
HK1106334-002	Anonymous		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1106502-008	B-15-6.0M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714865)</b>									
HK1106334-002	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106502-008	B-15-6.0M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>									
HK1106041-008	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>									
HK1106041-008	Anonymous		C9 - C16 Fraction		200	mg/kg	915	1160	24.0
			C17 - C35 Fraction		500	mg/kg	1010	1250	21.4
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>									
HK1106502-003	B-14-3.0M		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>									
HK1106502-003	B-14-3.0M		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)</b>									
HK1106006-001	Anonymous		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0





Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067) - Continued</b>								
HK1106006-001	Anonymous	ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 108-42-3	1.0	mg/kg	<1.0	<1.0	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)</b>								
HK1106502-003	B-14-3.0M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 108-42-3	1.0	mg/kg	<1.0	<1.0	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1713500)</b>								
HK1106502-003	B-14-3.0M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1713500)</b>								
HK1106502-003	B-14-3.0M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)</b>								
HK1106502-003	B-14-3.0M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1706067)</b>								
HK1106006-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1713500)</b>								
HK1106502-003	B-14-3.0M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)</b>								
HK1106012-022	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1713490)</b>								
HK1106502-003	B-14-3.0M	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1713489)</b>								
HK1106518-001	Anonymous	Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0
		Pyrene	129-00-0	150	µg/kg	<150	<150	0.0
		Benz(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0
		Chrysene	218-01-9	150	µg/kg	<150	<150	0.0
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0
		Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	<150	<150	0.0
		Dibenz(a,h)anthracene	53-70-3	150	µg/kg	<150	<150	0.0
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0
		Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.0
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.0
<b>EP-076B: Pheno, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1713489)</b>								
HK1106518-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	<1000	0.0
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	<50	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL									
Method Blank (MB) Report					Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
<b>Method Blank (MB) Report</b>									
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 17193346)									
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	85	115	---	---
<b>Method Blank (MB) Report</b>									
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 17193347)									
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1714857)</b>									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1714860)</b>									
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1714865)</b>									
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>									



Matrix: SOIL

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)
								Low	High	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185) - Continued										
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	103	---	74	138	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)										
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	77.1	---	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	110	---	56	116	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)										
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	83.3	---	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	104	---	56	116	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)										
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	90.4	---	74	138	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1706067)										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	---	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.1	---	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	92.3	---	62	160	---
	106-42-3									
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	---	79	136	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	---	71	149	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.8	---	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	95.2	---	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	94.6	---	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	96.7	---	62	160	---
	106-42-3									
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	---	79	136	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	94.8	---	71	149	---
EP-074B: Oxygenated Compounds (QC Lot: 1706067)										
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	88.5	---	26	177	---
EP-074B: Oxygenated Compounds (QC Lot: 1713500)										
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	85.7	---	26	177	---
EP-074E: Halogenated Aliphatics (QC Lot: 1706067)										
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.6	---	69	151	---
EP-074E: Halogenated Aliphatics (QC Lot: 1713500)										
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	95.9	---	69	151	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1706067)										
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	71	137	---



Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)													
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	69	139	---	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	71	137	---	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1705720)													
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.3	---	28	138	---	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1713490)													
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	118	---	28	138	---	---	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1713489)													
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	72.6	---	41	120	---	---	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	61.1	---	42	98	---	---	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	70.2	---	46	117	---	---	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	71.3	---	50	119	---	---	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	75.4	---	49	118	---	---	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	80.2	---	49	107	---	---	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	85.2	---	58	120	---	---	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	83.4	---	57	118	---	---	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	65.9	---	59	116	---	---	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	96.4	---	60	127	---	---	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	67.5	---	63	120	---	---	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	96.3	---	56	126	---	---	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	62.7	---	53	101	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.0	---	64	130	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	78.5	---	57	125	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	84.4	---	59	125	---	---	---	---
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1713489)													
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	83.9	---	29	129	---	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	71.3	---	54	120	---	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	119	---	87	123	---	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL		Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report										
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719346)												
HK1106502-001	B-17-4.5M	EK025MD: Free Cyanide	---	20 mg/kg	95.0	---	75	125	---	---	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)												
HK1106741-001	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	95.5	---	75	125	---	---	---	---
EG: Metals and Major Cations (QC Lot: 1714857)												



Page Number : 12 of 13  
 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106502

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)
					MS	MSD	Low	High	
<b>EG: Metals and Major Cations (QC Lot: 1714857) - Continued</b>									
HK1106334-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	94.3	---	75	125	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	85.7	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1714860)</b>									
HK1106334-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	85.0	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1714865)</b>									
HK1106334-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	102	---	75	125	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706185)</b>									
HK1106041-009	Anonymous	C6 - C8 Fraction	---	3 mg/kg	63.7	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1706186)</b>									
HK1106041-009	Anonymous	C9 - C16 Fraction	---	31 mg/kg	76.5	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	92.2	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>									
HK1106502-006	B-15-4.5M	C9 - C16 Fraction	---	31 mg/kg	79.0	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	83.0	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>									
HK1106502-006	B-15-4.5M	C6 - C8 Fraction	---	3 mg/kg	92.1	---	50	130	---

**Surrogate Control Limits**

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130

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Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106502



Sub-Matrix: SOIL Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 12
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106581
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 18-MAR-2011
Order number	: ----			Issue Date	: 01-APR-2011
C-O-C number	: H013620			No. of samples received	: 7
Site	: XRL823B-SITE B			No. of samples analysed	: 7

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

ALS Laboratory Group  
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A Campbell Brothers Limited Company



Page Number : 2 of 12  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106581

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: HK1106581

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.





**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID				
				B-18-1.5M 18-MAR-2011 14:00 HK1106581-001	B-12-3.0M 18-MAR-2011 14:45 HK1106581-002	B-18-3.0M 18-MAR-2011 15:00 HK1106581-003	B-18-4.5M 18-MAR-2011 15:30 HK1106581-004	B-18-6.0M 18-MAR-2011 16:00 HK1106581-005
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	14.3	16.3	20.5	22.1	25.7
ED/IEK: Inorganic Nonmetallic Parameters								
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1
EG: Metals and Major Cations								
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	20	17	16	32	18
EG020: Lead	7439-92-1	1	mg/kg	86	65	76	168	95
EG020: Nickel	7440-02-0	1	mg/kg	7	4	4	6	4
EG020: Zinc	7440-66-6	1	mg/kg	101	74	55	91	76
EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	14	8	5	12	4
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3							
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50
2-Butanone (MIEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether								



Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID		Client sampling date / time		Client sampling date / time		Client sampling date / time	
				CAS Number	LOR	Unit	B-18-1.5M	B-12-3.0M	B-18-3.0M	B-18-4.5M	B-18-6.0M
EP-074L: Methyl-tert-butyl Ether - Continued											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg				<0.50				<0.50
EP-066: Polychlorinated Biphenyls											
Total Polychlorinated biphenyls	---	0.1	mg/kg				<0.1				<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)											
Naphthalene	91-20-3	0.500	mg/kg				<0.500				<0.500
Acenaphthylene	208-96-8	0.500	mg/kg				<0.500				<0.500
Acenaphthene	83-32-9	0.500	mg/kg				<0.500				<0.500
Fluorene	86-73-7	0.500	mg/kg				<0.500				<0.500
Phenanthrene	85-01-8	0.500	mg/kg				<0.500				<0.500
Anthracene	120-12-7	0.500	mg/kg				<0.500				<0.500
Fluoranthene	206-44-0	0.500	mg/kg				<0.500				<0.500
Pyrene	129-00-0	0.500	mg/kg				<0.500				<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg				<0.500				<0.500
Chrysene	218-01-9	0.500	mg/kg				<0.500				<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg				<0.500				<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg				<0.500				<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg				<0.500				<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg				<0.500				<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg				<0.500				<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg				<0.500				<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate											
Phenol	108-95-2	0.50	mg/kg				<0.50				<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg				<0.200				<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg				<5.00				<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate											
Dibromofluoromethane	1868-53-7	0.1	%				102	106	103	106	109
Toluene-D8	2037-26-5	0.1	%				97.0	96.3	96.0	96.8	96.6
4-Bromofluorobenzene	460-00-4	0.1	%				97.4	97.6	97.0	98.6	99.2
EP-074S: VOC Surrogates											
Dibromofluoromethane	1868-53-7	0.1	%				102	106	103	106	109
Toluene-D8	2037-26-5	0.1	%				97.0	96.3	96.0	96.8	96.6
4-Bromofluorobenzene	460-00-4	0.1	%				97.4	97.6	97.0	98.6	99.2
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates											
2-Fluorobiphenyl	321-60-8	0.1	%				72.7	78.6	68.7	74.9	70.7
4-Terphenyl-d14	1718-51-0	0.1	%				74.2	87.0	74.2	81.0	75.5
EP-066S: PCB Surrogate											
Tetrachlorometaxylene	877-09-8	0.1	%				99.2	107	94.6	108	98.9
Dibutylchloroendate	1770-80-5	0.1	%				118	75.4	72.1	102	94.1



Compound	CAS Number	Client sample ID		Unit	%	20.6	20.6	B-12-4.5M 18-MAR-2011 16:30 HK1106581-006	B-12-6.0M 18-MAR-2011 17:00 HK1106581-007
		Sub-Matrix: SOIL	Client sampling date / time						
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	----	0.1		%		20.6			
ED/IEK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1		mg/kg		<1			<1
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2		mg/kg		<0.2			<0.2
EG020: Copper	7440-50-8	1		mg/kg		16			16
EG020: Lead	7439-92-1	1		mg/kg		123			123
EG020: Nickel	7440-02-0	1		mg/kg		3			3
EG020: Zinc	7440-66-6	1		mg/kg		74			69
EG036: Mercury	7439-97-6	1		mg/kg		<1			<1
EG049: Trivalent Chromium	16065-83-1	1		mg/kg		4			6
EG3060: Hexavalent Chromium	18540-29-9	1		mg/kg		<1			<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5		mg/kg		<5			<5
C9 - C16 Fraction	---	200		mg/kg		<200			<200
C17 - C35 Fraction	---	500		mg/kg		<500			<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5		mg/kg		<0.5			<0.5
Toluene	108-88-3	0.5		mg/kg		<0.5			<0.5
Ethylbenzene	100-41-4	0.5		mg/kg		<0.5			<0.5
meta- & para-Xylene	108-38-3 106-42-3	1.0		mg/kg		<1.0			<1.0
Styrene	100-42-5	0.5		mg/kg		<0.5			<0.5
ortho-Xylene	95-47-6	0.5		mg/kg		<0.5			<0.5
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50		mg/kg		<50			<50
2-Butanone (MEK)	78-93-3	5		mg/kg		<5			<5
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5		mg/kg		<2.5			<2.5
Trichloroethene	79-01-8	0.5		mg/kg		<0.5			<0.5
Tetrachloroethene	127-18-4	0.5		mg/kg		<0.5			<0.5
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5		mg/kg		<0.5			<0.5
Bromodichloromethane	75-27-4	0.5		mg/kg		<0.5			<0.5
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50		mg/kg		<0.50			<0.50



Compound	CAS Number	LOR	Client sample ID		Unit	Result
			Client sampling date / time	Client sampling date / time		
Sub-Matrix: SOIL						
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	0.1			mg/kg	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500			mg/kg	<0.500
Acenaphthylene	208-96-8	0.500			mg/kg	<0.500
Acenaphthene	83-32-9	0.500			mg/kg	<0.500
Fluorene	86-73-7	0.500			mg/kg	<0.500
Phenanthrene	85-01-8	0.500			mg/kg	<0.500
Anthracene	120-12-7	0.500			mg/kg	<0.500
Fluoranthene	206-44-0	0.500			mg/kg	<0.500
Pyrene	129-00-0	0.500			mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500			mg/kg	<0.500
Chrysene	218-01-9	0.500			mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500			mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500			mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500			mg/kg	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500			mg/kg	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500			mg/kg	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500			mg/kg	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50			mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200			mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00			mg/kg	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate						
Dibromofluoromethane	1868-53-7	0.1			%	106
Toluene-D8	2037-26-5	0.1			%	96.7
4-Bromofluorobenzene	460-00-4	0.1			%	97.6
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1			%	106
Toluene-D8	2037-26-5	0.1			%	96.7
4-Bromofluorobenzene	460-00-4	0.1			%	97.6
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1			%	67.5
4-Terphenyl-d14	1718-51-0	0.1			%	79.0
EP-066S: PCB Surrogate						
Tetrachlorotaxylene	877-09-8	0.1			%	80.8
Dibutylchlorendate	1770-80-5	0.1			%	84.7



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1714862)</b>								
HK1106537-002	Anonymous	EA058: Moisture Content (dried @ 103°C)	---	0.1	%	54.7	54.2	1.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)</b>								
HK1106741-002	Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714858)</b>								
HK1106526-001	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	28	30	6.2
		EG020: Lead	7439-92-1	1	mg/kg	33	34	4.6
		EG020: Nickel	7440-02-0	1	mg/kg	23	22	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	92	91	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714860)</b>								
HK1106334-002	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1106502-008	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1714865)</b>								
HK1106334-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106502-008	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>								
HK1106502-003	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>								
HK1106502-003	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
		106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL							Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)		
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1713500)</b>										
HK1106502-003	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0		
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1713490)</b>										
HK1106502-003	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0		
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1713489)</b>										
HK1106518-001	Anonymous	Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0		
		Pyrene	129-00-0	150	µg/kg	<150	<150	0.0		
		Benz(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0		
		Chrysene	218-01-9	150	µg/kg	<150	<150	0.0		
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0		
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0		
		Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0		
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	<150	<150	0.0		
		Dibenz(a,h)anthracene	53-70-3	150	µg/kg	<150	<150	0.0		
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0		
		Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0		
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0		
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0		
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.0		
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0		
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.0		
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1714161)</b>										
HK1106581-002	B-12-3.0M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0		
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0		
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0		
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0		
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0		
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0		
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0		
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0		
		Benzo(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0		
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0		
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0		
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0		
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0		
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0		
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0		
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0		
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1713489)</b>										
HK1106518-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	<1000	0.0		
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	<50	0.0		



Matrix: SOIL		Method: Compound		Laboratory Duplicate (DUP) Report	
Laboratory sample ID	Client sample ID	CAS Number	LOR	Unit	RPD (%)
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1713489) - Continued					
HK1106518-001	Anonymous	108-95-2	500	µg/kg	0.0
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1714161)					
HK1106581-002	B-12-3.0M	118-74-1	200	µg/kg	0.0
		108-95-2	500	µg/kg	0.0
		117-81-7	5000	µg/kg	0.0

**Method Blank (MB), Laboratory Control Spike Duplicate (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL						Method Blank (MB) Report						Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	LCS	DCS	Recovery Limits (%)	Value	RPD (%)						
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)																	
EK025MD: Free Cyanide		1	mg/kg	<1	1.9 mg/kg	---	112	---	85	115	---						
EG: Metals and Major Cations (QC Lot: 1714858)																	
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	---	90.6	---	85	115	---						
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	---	100	---	85	115	---						
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	---	96.4	---	85	115	---						
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	---	97.0	---	85	115	---						
EG020: Zinc	7440-68-6	1	mg/kg	<1	5 mg/kg	---	98.0	---	85	115	---						
EG: Metals and Major Cations (QC Lot: 1714860)																	
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	---	95.0	---	85	115	---						
EG: Metals and Major Cations (QC Lot: 1714865)																	
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	---	101	---	85	115	---						
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)																	
C9 - C16 Fraction		200	mg/kg	<200	31 mg/kg	---	83.3	---	56	116	---						
C17 - C35 Fraction		500	mg/kg	<500	75 mg/kg	---	104	---	56	116	---						
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)																	
C6 - C8 Fraction		5	mg/kg	<5	3 mg/kg	---	90.4	---	74	138	---						
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)																	
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	---	97.8	---	69	141	---						
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	---	95.2	---	68	149	---						
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	---	94.6	---	77	137	---						
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	---	96.7	---	62	160	---						
	106-42-3																
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	---	92.3	---	79	136	---						
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	---	94.8	---	71	149	---						
EP-074B: Oxygenated Compounds (QC Lot: 1713500)																	
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	---	85.7	---	26	177	---						
EP-074E: Halogenated Aliphatics (QC Lot: 1713500)																	
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	---	105	---	74	136	---						



Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
EP-074E: Halogenated Aliphatics (QC Lot: 1713500) - Continued											
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	95.9	---	69	151	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	71	137	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1713490)											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	118	---	28	138	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1713489)											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	72.6	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	61.1	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	70.2	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	71.3	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	75.4	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	80.2	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	85.2	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	83.4	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	65.9	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	96.4	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	67.5	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	96.3	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	62.7	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.0	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	78.5	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	84.4	---	59	125	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1714161)											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	84.9	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	72.6	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	85.4	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	85.5	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	84.5	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	89.9	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	93.6	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	92.1	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	72.7	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	106	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	72.9	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	113	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	71.6	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.7	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	94.6	---	57	125	---	---





Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	RPD (%)
					LCS	Low	High
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1714161) - Continued							
Benzol(g,h,i)perylene	191-24-2	50	µg/kg	<50	101	59	125
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1713489)							
Phenol	108-95-2	500	µg/kg	<500	83.9	29	129
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	71.3	54	120
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	119	87	123
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1714161)							
Phenol	108-95-2	500	µg/kg	<500	81.3	29	129
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	84.4	54	120
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	112	87	123

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
Matrix: SOIL									
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)									
HK1106741-001	Anonymous	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1714858)									
HK1106524-001	Anonymous	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	75	125	---	---
			EG020: Copper	7440-50-8	5 mg/kg	75	125	---	---
			EG020: Lead	7439-92-1	5 mg/kg	75	125	---	---
			EG020: Nickel	7440-02-0	5 mg/kg	75	125	---	---
			EG020: Zinc	7440-66-6	5 mg/kg	75	125	---	---
					# Not Determined				
EG: Metals and Major Cations (QC Lot: 1714860)									
HK1106334-001	Anonymous	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1714865)									
HK1106334-001	Anonymous	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	75	125	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)									
HK1106502-006	Anonymous	Anonymous	C9 - C16 Fraction	---	31 mg/kg	50	130	---	---
			C17 - C35 Fraction	---	75 mg/kg	50	130	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)									
HK1106502-006	Anonymous	Anonymous	C6 - C8 Fraction	---	3 mg/kg	50	130	---	---

### Surrogate Control Limits

Compound	CAS Number	Low	High
Sub-Matrix: SOIL			



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106581

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>Sub-Matrix: SOIL</b>			
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorodate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 12
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106670
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 19-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 01-APR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 6
Order number	: ----			No. of samples analysed	: 6
C-O-C number	: 117297				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

#### ALS Laboratory Group ALS Technichem (HK) Pty Ltd

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A Campbell Brothers Limited Company



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Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106670

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 28-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1106670

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	Client sampling date / time		Client sample ID				
		LOR	Unit	B-19 0.5M 19-MAR-2011 10:45 HK1106670-001	B-21 1.5M 19-MAR-2011 11:15 HK1106670-002	B-21 3.0M 19-MAR-2011 11:50 HK1106670-003	B-21 4.5M 19-MAR-2011 12:20 HK1106670-004	B-40 4.5M 19-MAR-2011 12:30 HK1106670-005
<b>EAI/ED: Physical and Aggregate Properties</b>								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	15.5	16.4	17.4	16.0	16.5
<b>ED/IEK: Inorganic Nonmetallic Parameters</b>								
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1
<b>EG: Metals and Major Cations</b>								
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	34	23	18	23	26
EG020: Lead	7439-92-1	1	mg/kg	73	61	102	223	250
EG020: Nickel	7440-02-0	1	mg/kg	6	6	5	5	5
EG020: Zinc	7440-66-6	1	mg/kg	134	103	71	147	153
EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	11	45	22	34	28
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>								
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>								
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP-074B: Oxygenated Compounds</b>								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
<b>EP-074E: Halogenated Aliphatics</b>								
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP-074G: Trihalomethanes (THM)</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5



Sub-Matrix: SOIL

Compound	CAS Number	Client sample ID				Unit	Surrogate control limits listed at end of this report.
		B-19 0.5M 19-MAR-2011 10:45 HK1106670-001	B-21 1.5M 19-MAR-2011 11:15 HK1106670-002	B-21 3.0M 19-MAR-2011 11:50 HK1106670-003	B-21 4.5M 19-MAR-2011 12:20 HK1106670-004		
EP-074L: Methyl-tert-butyl Ether	1634-04-4	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)							
EP-066: Polychlorinated Biphenyls	---	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Polychlorinated biphenyls							
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene	91-20-3	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate							
Phenol	108-95-2	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatiles)/BTEX Surrogate							Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	91.2	91.7	92.7	84.1	96.2
Toluene-D8	2037-26-5	0.1	99.2	98.6	98.4	98.1	98.6
4-Bromofluorobenzene	460-00-4	0.1	94.7	95.4	95.5	90.5	94.7
EP-074S: VOC Surrogates							Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	91.2	91.7	92.7	84.1	96.2
Toluene-D8	2037-26-5	0.1	99.2	98.6	98.4	98.1	98.6
4-Bromofluorobenzene	460-00-4	0.1	94.7	95.4	95.5	90.5	94.7
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates							Surrogate control limits listed at end of this report.
2-Fluorobiphenyl	321-60-8	0.1	87.3	69.1	74.4	75.0	84.1
4-Terphenyl-d14	1718-51-0	0.1	84.5	77.6	81.3	78.2	89.7
EP-066S: PCB Surrogate							Surrogate control limits listed at end of this report.
Tetrachlorometa-xylene	877-09-8	0.1	87.6	115	114	124	124



Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID				
				Client sampling date / time	Client sample ID	Client sample ID	Client sample ID	
EP-066S: PCB Surrogate - Continued Dibutylchloroendate	1770-80-5	0.1	%	B-19 0.5M 19-MAR-2011 10:45 HK1106670-001	B-21 1.5M 19-MAR-2011 11:15 HK1106670-002	B-21 3.0M 19-MAR-2011 11:50 HK1106670-003	B-21 4.5M 19-MAR-2011 12:20 HK1106670-004	B-40 4.5M 19-MAR-2011 12:30 HK1106670-005
				112	113	113	127	120
				Surrogate control limits listed at end of this report.				



Sub-Matrix: SOIL		Client sample ID	
Compound	CAS Number	LOR	Unit
EA/ED: Physical and Aggregate Properties		Client sampling date / time	
EA055: Moisture Content (dried @ 103°C)	---	0.1	%
ED/EK: Inorganic Nonmetallic Parameters	---	1	mg/kg
EK025MD: Free Cyanide	---	1	mg/kg
EG: Metals and Major Cations	---	1	mg/kg
EG020: Cadmium	7440-43-9	0.2	mg/kg
EG020: Copper	7440-50-8	1	mg/kg
EG020: Lead	7439-92-1	1	mg/kg
EG020: Nickel	7440-02-0	1	mg/kg
EG020: Zinc	7440-66-6	1	mg/kg
EG036: Mercury	7439-97-6	1	mg/kg
EG049: Trivalent Chromium	16065-83-1	1	mg/kg
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg
EP-071HK: Total Petroleum Hydrocarbons (TPH)	---	5	mg/kg
C6 - C8 Fraction	---	200	mg/kg
C9 - C16 Fraction	---	500	mg/kg
C17 - C35 Fraction	---	500	mg/kg
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)	---	0.5	mg/kg
Benzene	71-43-2	0.5	mg/kg
Toluene	108-88-3	0.5	mg/kg
Ethylbenzene	100-41-4	0.5	mg/kg
meta- & para-Xylene	108-38-3	1.0	mg/kg
	106-42-3		
Styrene	100-42-5	0.5	mg/kg
ortho-Xylene	95-47-6	0.5	mg/kg
EP-074B: Oxygenated Compounds	---	50	mg/kg
2-Propanone (Acetone)	67-64-1	5	mg/kg
2-Butanone (MEK)	78-93-3	5	mg/kg
EP-074E: Halogenated Aliphatics	---	2.5	mg/kg
Methylene chloride	75-09-2	0.5	mg/kg
Trichloroethene	79-01-6	0.5	mg/kg
Tetrachloroethene	127-18-4	0.5	mg/kg
EP-074G: Trihalomethanes (THM)	---	0.5	mg/kg
Chloroform	67-66-3	0.5	mg/kg
Bromodichloromethane	75-27-4	0.5	mg/kg
EP-074L: Methyl-tert-butyl Ether	---	0.50	mg/kg
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg





Compound	CAS Number	Client sample ID		B-21 6.0M
		LOR	Unit	
Sub-Matrix: SOIL				
EP-074L: Methyl-tert-butyl Ether - Continued				
EP-066: Polychlorinated Biphenyls				
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.500	mg/kg	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate				
Phenol	108-95-2	0.50	mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00
EP-080S: TPH(Volatiles)/BTX Surrogate				
Dibromofluoromethane	1868-53-7	0.1	%	94.1
Toluene-D8	2037-26-5	0.1	%	99.5
4-Bromofluorobenzene	460-00-4	0.1	%	95.0
EP-074S: VOC Surrogates				
Dibromofluoromethane	1868-53-7	0.1	%	94.1
Toluene-D8	2037-26-5	0.1	%	99.5
4-Bromofluorobenzene	460-00-4	0.1	%	95.0
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates				
2-Fluorobiphenyl	321-60-8	0.1	%	79.6
4-Terphenyl-d14	1718-51-0	0.1	%	85.6
EP-066S: PCB Surrogate				
Tetrachlorometaxylene	877-09-8	0.1	%	122
Dibutylchlorodate	1770-80-5	0.1	%	114



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1716818)</b>								
HK1106670-001	B-19 0.5M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	15.5	16.9	8.5
HK1106678-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	51.6	52.0	0.9
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)</b>								
HK1106741-002	Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1718453)</b>								
HK1106670-002	B-21 1.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	23	21	10.3
		EG020: Lead	7439-92-1	1	mg/kg	61	63	3.7
		EG020: Nickel	7440-02-0	1	mg/kg	6	6	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	103	109	5.6
HK1106741-004	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	59	64	9.2
		EG020: Lead	7439-92-1	1	mg/kg	47	53	12.4
		EG020: Nickel	7440-02-0	1	mg/kg	19	22	12.9
		EG020: Zinc	7440-66-6	1	mg/kg	253	271	6.7
<b>EG: Metals and Major Cations (QC Lot: 1718455)</b>								
HK1106670-002	B-21 1.5M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1106741-004	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1718456)</b>								
HK1106670-002	B-21 1.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106741-005	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>								
HK1106502-003	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>								
HK1106502-003	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	106-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
		106-42-3	106-42-3					
<b>EP-074B: Oxygenated Compounds (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1713500)</b>								



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1713500) - Continued</b>								
HK1106502-003	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1713490)</b>								
HK1106502-003	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1714161)</b>								
HK1106581-002	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benzo(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1714161)</b>								
HK1106581-002	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL				Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)	---	1	mg/kg	<1	1.9 mg/kg	112	---	---	85	115	---	---	---
EK025MD: Free Cyanide	---	0.2	mg/kg	<0.2	5 mg/kg	93.1	---	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1718453)	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	93.1	---	---	85	115	---	---	---
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	93.1	---	---	85	115	---	---	---



Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)
						Low	High			
<b>EG: Metals and Major Cations (QC Lot: 1718453) - Continued</b>										
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	96.4	115	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.5	115	85	115	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	99.9	115	85	115	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	106	115	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1718455)</b>										
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	100	115	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1718456)</b>										
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	85.2	115	85	115	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>										
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	83.3	116	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	104	116	56	116	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>										
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	90.4	138	74	138	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)</b>										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.8	141	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	95.2	149	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	94.6	137	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	96.7	160	62	160	---
	106-42-3									
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	136	79	136	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	94.8	149	71	149	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1713500)</b>										
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	85.7	177	26	177	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1713500)</b>										
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	105	136	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	95.9	151	69	151	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)</b>										
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	107	139	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	137	71	137	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1713490)</b>										
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	118	138	28	138	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1714161)</b>										
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	84.9	120	41	120	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	72.6	98	42	98	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	85.4	117	46	117	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	85.5	119	50	119	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	84.5	118	49	118	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	89.9	107	49	107	---



Matrix: SOIL

Method: Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1714161) - Continued									
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	93.6	---	58 120	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	92.1	---	57 118	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	72.7	---	59 116	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	106	---	60 127	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	72.9	---	63 120	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	113	---	56 126	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	71.6	---	53 101	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.7	---	64 130	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	94.6	---	57 125	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	101	---	59 125	---
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1714161)									
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	91.3	---	29 129	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	84.4	---	54 120	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	112	---	87 123	---

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)
					MS	MSD	Recovery Limits (%)	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)								
HK1106741-001	Anonymous	EK025MD: Free Cyanide	---	20 mg/kg	95.5	---	75 125	---
EG: Metals and Major Cations (QC Lot: 1718453)								
HK1106316-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	# Not Determined	---	75 125	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75 125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75 125	---
		EG020: Nickel	7440-02-0	5 mg/kg	# Not Determined	---	75 125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75 125	---
EG: Metals and Major Cations (QC Lot: 1718455)								
HK1106670-001	B-19 0.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	100	---	75 125	---
EG: Metals and Major Cations (QC Lot: 1718456)								
HK1106670-001	B-19 0.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	85.1	---	75 125	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)								
HK1106502-006	Anonymous	C9 - C16 Fraction	---	31 mg/kg	79.0	---	50 130	---



Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491) - Continued									
HK1106502-006	Anonymous	C17 - C35 Fraction		75 mg/kg	83.0	---	50	130	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)									
HK1106502-006	Anonymous	C6 - C8 Fraction		3 mg/kg	92.1	---	50	130	---

**Surrogate Control Limits**

Compound	CAS Number	Low	High
Sub-Matrix: SOIL			
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 14
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106741
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 -3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 21-MAR-2011
Order number	: ----			Issue Date	: 04-APR-2011
C-O-C number	: 117298			No. of samples received	: 10
Site	: XRL823B-SITE B			No. of samples analysed	: 10

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

#### ALS Laboratory Group

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A Campbell Brothers Limited Company



Page Number : 2 of 14  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106741

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 28-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1106741**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.





**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID		Unit	Client sampling date / time	B-19-1.5M 21-MAR-2011 10:15 HK1106741-001	B-19-3.0M 21-MAR-2011 10:50 HK1106741-002	B-19-4.5M 21-MAR-2011 11:15 HK1106741-003	B-19-6.0M 21-MAR-2011 11:45 HK1106741-004	B-25-0.5M 21-MAR-2011 11:50 HK1106741-005
			LOD	LOQ							
<b>EA/ED: Physical and Aggregate Properties</b>											
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	14.1		20.7	26.2	22.5		17.2	
<b>ED/IEK: Inorganic Nonmetallic Parameters</b>											
EK025MD: Free Cyanide	---	1	mg/kg	<1		<1	<1	<1		<1	
<b>EG: Metals and Major Cations</b>											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2		<0.2	<0.2	<0.2		<0.2	
EG020: Copper	7440-50-8	1	mg/kg	19		30	11	59		14	
EG020: Lead	7439-92-1	1	mg/kg	81		128	72	47		48	
EG020: Nickel	7440-02-0	1	mg/kg	5		5	3	19		7	
EG020: Zinc	7440-66-6	1	mg/kg	82		95	58	253		131	
EG036: Mercury	7439-97-6	1	mg/kg	<1		<1	<1	<1		<1	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	20		5	5	21		28	
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1		<1	<1	<1		<1	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5		<5	<5	<5		<5	
C9 - C16 Fraction	---	200	mg/kg	<200		<200	<200	<200		<200	
C17 - C35 Fraction	---	500	mg/kg	<500		<500	<500	<500		<500	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0		<1.0	<1.0	<1.0		<1.0	
	106-42-3	3									
Styrene	100-42-5	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
<b>EP-074B: Oxygenated Compounds</b>											
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50		<50	<50	<50		<50	
2-Butanone (MEK)	78-93-3	5	mg/kg	<5		<5	<5	<5		<5	
<b>EP-074E: Halogenated Aliphatics</b>											
Methylene chloride	75-09-2	2.5	mg/kg	<2.5		<2.5	<2.5	<2.5		<2.5	
Trichloroethene	79-01-6	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
<b>EP-074G: Trihalomethanes (THM)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5	
<b>EP-074L: Methyl-tert-butyl Ether</b>											



Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID		Client sampling date / time		Surrogate control limits listed at end of this report.	
				B-19-1.5M	B-19-3.0M	B-19-4.5M	B-19-6.0M	B-25-0.5M	
EP-074L: Methyl-tert-butyl Ether - Continued	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)				<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Polychlorinated biphenyls				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate									
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%	101	101	99.7	100	103	103
Toluene-D8	2037-26-5	0.1	%	98.2	98.8	98.3	98.2	98.5	98.5
4-Bromofluorobenzene	460-00-4	0.1	%	94.6	94.7	94.3	93.5	95.1	95.1
EP-074S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%	101	101	99.7	100	103	103
Toluene-D8	2037-26-5	0.1	%	98.2	98.8	98.3	98.2	98.5	98.5
4-Bromofluorobenzene	460-00-4	0.1	%	94.6	94.7	94.3	93.5	95.1	95.1
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%	85.1	66.7	85.9	81.5	84.2	84.2
4-Terphenyl-d14	1718-51-0	0.1	%	84.5	73.2	86.7	89.6	83.1	83.1
EP-066S: PCB Surrogate									
Tetrachlorometaxylene	877-09-8	0.1	%	95.0	118	125	110	111	111
Dibutylchlorodane	1770-80-5	0.1	%	118	118	122	84.6	103	103



Compound	Client sample ID		Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time	
	CAS Number	LOR	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Sub-Matrix: SOIL												
EA/ED: Physical and Aggregate Properties												
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	15.8	14.7	15.1	13.6	11.1				
ED/IEK: Inorganic Nonmetallic Parameters												
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1				
EG: Metals and Major Cations												
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2				
EG020: Copper	7440-50-8	1	mg/kg	21	26	14	15	12				
EG020: Lead	7439-92-1	1	mg/kg	57	71	73	116	37				
EG020: Nickel	7440-02-0	1	mg/kg	5	4	3	3	3				
EG020: Zinc	7440-66-6	1	mg/kg	88	109	69	83	82				
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1				
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	20	18	14	10	8				
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1				
EP-071HK: Total Petroleum Hydrocarbons (TPH)												
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5				
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200				
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500				
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)												
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
meta- & para-Xylene	106-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0				
	106-42-3	3	mg/kg									
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
EP-074B: Oxygenated Compounds												
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50				
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5				
EP-074E: Halogenated Aliphatics												
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5				
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
EP-074G: Trihalomethanes (THM)												
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5				
EP-074L: Methyl-tert-butyl Ether												
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50				





**Laboratory Duplicate (DUP) Report**

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1718419)</b>								
HK1106741-001	B-19-1.5M	EA055: Moisture Content (dried @ 103°C)		0.1	%	14.1	14.1	0.0
HK1106782-001	Anonymous	EA056: Moisture Content (dried @ 103°C)		0.1	%	46.0	46.4	1.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)</b>								
HK1106741-002	B-19-3.0M	EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719348)</b>								
HK1106741-010	B-04-0.5M	EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1718453)</b>								
Anonymous								
HK1106670-002		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	23	21	10.3
		EG020: Lead	7439-92-1	1	mg/kg	61	63	3.7
		EG020: Nickel	7440-02-0	1	mg/kg	6	6	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	103	109	5.6
HK1106741-004	B-19-6.0M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	59	64	9.2
		EG020: Lead	7439-92-1	1	mg/kg	47	53	12.4
		EG020: Nickel	7440-02-0	1	mg/kg	19	22	12.9
		EG020: Zinc	7440-66-6	1	mg/kg	253	271	6.7
<b>EG: Metals and Major Cations (QC Lot: 1718455)</b>								
HK1106670-002	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1106741-004	B-19-6.0M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1718456)</b>								
HK1106670-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106741-005	B-25-0.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>								
HK1106502-003	Anonymous	C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>								
HK1106502-003	Anonymous	C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)</b>								
HK1106741-001	B-19-1.5M	C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)</b>								
HK1106741-001	B-19-1.5M	C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)</b>								
HK1106502-003	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL							Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)		
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500) - Continued</b>										
HK1106502-003	Anonymous	ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0		
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0		
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373)</b>										
HK1106741-001	B-19-1.5M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0		
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0		
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0		
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0		
<b>EP-074B: Oxygenated Compounds (QC Lot: 1713500)</b>										
HK1106502-003	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0		
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0		
<b>EP-074B: Oxygenated Compounds (QC Lot: 1717373)</b>										
HK1106741-001	B-19-1.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0		
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0		
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1713500)</b>										
HK1106502-003	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0		
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0		
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1717373)</b>										
HK1106741-001	B-19-1.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0		
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0		
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)</b>										
HK1106502-003	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0		
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1717373)</b>										
HK1106741-001	B-19-1.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0		
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1713500)</b>										
HK1106502-003	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0		
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1717373)</b>										
HK1106741-001	B-19-1.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0		
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1717364)</b>										
HK1106741-001	B-19-1.5M	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0		
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1716828)</b>										
HK1106692-001	Anonymous	Fluoranthene	206-44-0	150	µg/kg	<150	<150	0.0		
		Pyrene	129-00-0	150	µg/kg	<150	<150	0.0		



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1716828) - Continued</b>								
HK1106692-001	Anonymous	Benz(a)anthracene	56-55-3	150	µg/kg	<150	<150	0.0
		Chrysene	218-01-9	150	µg/kg	<150	<150	0.0
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	<150	<150	0.0
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	<150	<150	0.0
		Benzo(a)pyrene	50-32-8	150	µg/kg	<150	<150	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	<150	<150	0.0
		Dibenz(a,h)anthracene	53-70-3	150	µg/kg	<150	<150	0.0
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	<150	<150	0.0
		Naphthalene	91-20-3	50	µg/kg	<50	<50	0.0
		Acenaphthylene	208-96-8	50	µg/kg	<50	<50	0.0
		Acenaphthene	83-32-9	50	µg/kg	<50	<50	0.0
		Fluorene	86-73-7	50	µg/kg	<50	<50	0.0
		Phenanthrene	85-01-8	50	µg/kg	<50	<50	0.0
		Anthracene	120-12-7	50	µg/kg	<50	<50	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366)</b>								
HK1106741-001	B-19-1.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1716828)</b>								
HK1106692-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	<1000	0.0
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	<50	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1717366)</b>								
HK1106741-001	B-19-1.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**



Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report									
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)</b>											
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	112	---	85	115	---	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719348)</b>											
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	110	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1718453)</b>											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	93.1	---	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	96.4	---	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.5	---	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	99.9	---	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	106	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1718455)</b>											
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	100	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1718456)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	85.2	---	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	83.3	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	104	---	56	116	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	90.4	---	74	138	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	105	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	103	---	56	116	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	97.1	---	74	138	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1713500)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.8	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	95.2	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	94.6	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	96.7	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	94.8	---	71	149	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	99.7	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	103	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	79	136	---	---





Method: Compound		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
		CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373) - Continued											
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	---	71	149	---
EP-074B: Oxygenated Compounds (QC Lot: 1713500)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	85.7	---	---	26	177	---
EP-074B: Oxygenated Compounds (QC Lot: 1717373)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	106	---	---	26	177	---
EP-074E: Halogenated Aliphatics (QC Lot: 1713500)											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	95.9	---	---	69	151	---
EP-074E: Halogenated Aliphatics (QC Lot: 1717373)											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	98.6	---	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	---	69	151	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1713500)											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	---	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	---	71	137	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1717373)											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	103	---	---	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	99.1	---	---	71	137	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1717364)											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	108	---	---	28	138	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1716828)											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	96.7	---	---	41	120	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	84.2	---	---	42	98	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	95.6	---	---	46	117	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	95.6	---	---	50	119	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	90.4	---	---	49	118	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	101	---	---	49	107	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	97.8	---	---	58	120	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	96.1	---	---	57	118	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	79.0	---	---	59	116	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	105	---	---	60	127	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	84.5	---	---	63	120	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	93.7	---	---	56	126	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	78.2	---	---	53	101	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	95.5	---	---	64	130	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	96.0	---	---	57	125	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	103	---	---	59	125	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366)											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	96.8	---	---	41	120	---



Matrix: SOIL

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366) - Continued											
Acenaphthylene	208-98-8	50	µg/kg	<50	250 µg/kg	82.7	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	96.5	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	96.3	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	88.8	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	98.4	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	100	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	97.8	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	75.4	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	105	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	75.3	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	86.6	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	78.0	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.4	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	99.0	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	104	---	59	125	---	---
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1716828)											
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	99.5	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	91.2	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	115	---	87	123	---	---
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1717366)											
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	106	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	91.3	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	117	---	87	123	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)		
					MS	MSD	Recovery Limits (%)	Value	Control Limit	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719347)										
HK1106741-001	B-19-1.5M	EK025MD: Free Cyanide	---	20 mg/kg	95.5	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1719348)										
HK1106741-009	B-25-6.0M	EK025MD: Free Cyanide	---	20 mg/kg	104	---	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1718453)										
HK1106316-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---	---



Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	
				Low	High	Value	Control Limit		
<b>EG: Metals and Major Cations (QC Lot: 1718453) - Continued</b>									
HK1106316-001	Anonymous	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1718455)</b>									
HK1106670-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	100	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1718456)</b>									
HK1106670-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	85.1	---	75	125	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713491)</b>									
HK1106502-006	Anonymous	C9 - C16 Fraction	---	31 mg/kg	79.0	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	83.0	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1713501)</b>									
HK1106502-006	Anonymous	C6 - C8 Fraction	---	3 mg/kg	92.1	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)</b>									
HK1106741-005	B-25-0.5M	C9 - C16 Fraction	---	31 mg/kg	95.1	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	107	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)</b>									
HK1106741-005	B-25-0.5M	C6 - C8 Fraction	---	3 mg/kg	98.7	---	50	130	---

**Surrogate Control Limits**

Compound	CAS Number	Recovery Limits (%)	
		Low	High
Sub-Matrix: SOIL			
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometylene	877-09-8	50	130



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Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106741

Sub-Matrix: SOIL Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-066S: PCB Surrogate - Continued Dibutylchlorododecane	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEAMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 9
Contact	: MR THOMAS YELUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106832
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teamway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 22-MAR-2011
Order number	: ----			Issue Date	: 06-APR-2011
C-O-C number	: 117300			No. of samples received	: 5
Site	: XRL823B-SITE B			No. of samples analysed	: 5

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

### ALS Laboratory Group ALS Technichem (HK) Pty Ltd

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A Campbell Brothers Limited Company



Page Number : 2 of 9  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106832

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 29-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1106832

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Compound	CAS Number	LOR	Client sample ID		Unit	B-08-0.5M	B-16-3.0M	B-16-4.5M	B-16-6.0M	B-13-0.5M
			Client sampling date / time	Client sampling date / time						
Sub-Matrix: SOIL										
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%			11.0	16.8	24.5	13.4	11.7
ED/IEK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg			<1	<1	<1	<1	<1
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg			0.3	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg			39	67	70	88	18
EG020: Lead	7439-92-1	1	mg/kg			58	193	99	177	83
EG020: Nickel	7440-02-0	1	mg/kg			6	7	4	7	6
EG020: Zinc	7440-66-6	1	mg/kg			220	207	117	206	91
EG036: Mercury	7439-97-6	1	mg/kg			<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg			16	8	2	8	19
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg			<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg			<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg			<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg			<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg			<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3									
Styrene	100-42-5	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg			<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg			<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg			<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether										



Compound	CAS Number	LOR	Client sample ID		Unit	B-08-0.5M 22-MAR-2011 09:15 HK1106832-001	B-16-3.0M 22-MAR-2011 09:30 HK1106832-002	B-16-4.5M 22-MAR-2011 10:10 HK1106832-003	B-16-6.0M 22-MAR-2011 11:30 HK1106832-004	B-13-0.5M 22-MAR-2011 15:30 HK1106832-005
			Client sampling date / time	Unit						
Sub-Matrix: SOIL										
EP-074L: Methyl-tert-butyl Ether - Continued										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50		mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls										
Total Polychlorinated biphenyls	---	0.1		mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500		mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate										
Phenol	108-95-2	0.50		mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200		mg/kg		<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00		mg/kg		<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate										
Dibromofluoromethane	1868-53-7	0.1		%		105	90.3	86.4	88.6	86.2
Toluene-D8	2037-26-5	0.1		%		98.9	97.6	97.6	97.6	98.3
4-Bromofluorobenzene	460-00-4	0.1		%		96.1	95.1	95.4	95.0	93.4
EP-074S: VOC Surrogates										
Dibromofluoromethane	1868-53-7	0.1		%		105	90.3	86.4	88.6	86.2
Toluene-D8	2037-26-5	0.1		%		98.9	97.6	97.6	97.6	98.3
4-Bromofluorobenzene	460-00-4	0.1		%		96.1	95.1	95.4	95.0	93.4
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates										
2-Fluorobiphenyl	321-60-8	0.1		%		101	76.5	78.9	76.6	90.1
4-Terphenyl-d14	1718-51-0	0.1		%		107	83.1	89.8	86.9	85.0
EP-066S: PCB Surrogate										
Tetrachlorometylene	877-09-8	0.1		%		97.4	116	121	122	118
Dibutylchlorodane	1770-80-5	0.1		%		102	103	100	115	122





### Laboratory Duplicate (DUP) Report

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1719780)</b>								
HK1106748-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	56.0	57.2	2.2
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>								
HK1106832-002	B-16-3.0M	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1720713)</b>								
HK1106832-002	B-16-3.0M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	67	61	9.4
		EG020: Lead	7439-92-1	1	mg/kg	193	193	0.0
		EG020: Nickel	7440-02-0	1	mg/kg	7	8	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	207	209	1.0
HK1106833-001	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	0.3	0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	12	13	0.0
		EG020: Lead	7439-92-1	1	mg/kg	68	66	3.6
		EG020: Nickel	7440-02-0	1	mg/kg	4	4	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	156	158	0.8
<b>EG: Metals and Major Cations (QC Lot: 1720715)</b>								
HK1106832-002	B-16-3.0M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1720717)</b>								
HK1106832-002	B-16-3.0M	EG3060: Hexavalent Chromium (QC Lot: 1717365)	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>								
HK1106741-001	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)</b>								
HK1106741-001	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
<b>EP-074B: Oxygenated Compounds (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1717364)</b>								
HK1106741-001	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366)</b>								
HK1106741-001	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Pheno, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1717366)</b>								
HK1106741-001	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)	
								Low	High	
								Value	Control Limit	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>										
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	94.7	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1720713)</b>										
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	90.5	---	85	115	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	93.8	---	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.9	---	85	115	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	96.7	---	85	115	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	100	---	85	115	---



Matrix: SOIL

Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration		Spike Recovery (%)		Recovery Limits (%)		Value	Control Limit	RPD (%)
					LCS	DCS	Low	High					
EG: Metals and Major Cations (QC Lot: 1720715)													
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	95.0	---	85	115	---	---	---	---
EG: Metals and Major Cations (QC Lot: 1720717)													
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	97.1	---	85	115	---	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717366)													
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	105	---	56	116	---	---	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	103	---	56	116	---	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)													
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	97.1	---	74	138	---	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373)													
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	69	141	---	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	99.7	---	68	149	---	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	77	137	---	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	103	---	62	160	---	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	79	136	---	---	---	---
ortho-Xylene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	71	149	---	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1717373)													
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	106	---	26	177	---	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1717373)													
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	98.6	---	74	136	---	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	69	151	---	---	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1717373)													
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	103	---	69	139	---	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	99.1	---	71	137	---	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1717364)													
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	108	---	28	138	---	---	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366)													
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	96.8	---	41	120	---	---	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	82.7	---	42	98	---	---	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	96.5	---	46	117	---	---	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	96.3	---	50	119	---	---	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	88.8	---	49	118	---	---	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	98.4	---	49	107	---	---	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	100	---	58	120	---	---	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	97.8	---	57	118	---	---	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	75.4	---	59	116	---	---	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	105	---	60	127	---	---	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	75.3	---	63	120	---	---	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	86.6	---	56	126	---	---	---	---



Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366) - Continued</b>													
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	78.0	---	---	53	101	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.4	---	---	64	130	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	99.0	---	---	57	125	---	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	104	---	---	59	125	---	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1717366)</b>													
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	106	---	---	29	129	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	91.3	---	---	54	120	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	117	---	---	87	123	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL		Method: Compound				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>EDIEK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>												
HK1106832-001	B-08-0.5M	EK025IMD: Free Cyanide	---	19 mg/kg	82.3	---	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1720713)</b>												
HK1106832-001	B-08-0.5M	EG020: Cadmium	7440-49-9	5 mg/kg	92.8	---	---	75	125	---	---	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	---	75	125	---	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	---	75	125	---	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	83.8	---	---	75	125	---	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1720715)</b>												
HK1106832-001	B-08-0.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	75.0	---	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1720717)</b>												
HK1106832-001	B-08-0.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	90.1	---	---	75	125	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)</b>												
HK1106741-005	Anonymous	C9 - C16 Fraction	---	31 mg/kg	95.1	---	---	50	130	---	---	---
		C17 - C35 Fraction	---	75 mg/kg	107	---	---	50	130	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)</b>												
HK1106741-005	Anonymous	C6 - C8 Fraction	---	3 mg/kg	98.7	---	---	50	130	---	---	---

**Surrogate Control Limits**

Sub-Matrix: SOIL	Recovery Limits (%)	
Compound	Low	High



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorodate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 22
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1106930
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 23-MAR-2011
Order number	: ----			Issue Date	: 08-APR-2011
C-O-C number	: H020208,117299			No. of samples received	: 16
Site	: XRL823B-SITE B			No. of samples analysed	: 16

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics

**ALS Laboratory Group**  
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A Campbell Brothers Limited Company



Page Number : 2 of 22  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1106930

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1106930**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID		Unit	%	14.3	15.4	17.5	16.9	18.2
			B-08-1.5M 23-MAR-2011 09:45 HK1106930-001	B-08-3.0M 23-MAR-2011 10:15 HK1106930-002							
<b>EA/ED: Physical and Aggregate Properties</b>											
EA055: Moisture Content (dried @ 103°C)	---	0.1									
<b>ED/EK: Inorganic Nonmetallic Parameters</b>											
EK025MD: Free Cyanide	---	1									
<b>EG: Metals and Major Cations</b>											
EG020: Cadmium	7440-43-9	0.2									
EG020: Copper	7440-50-8	1									
EG020: Lead	7439-92-1	1									
EG020: Nickel	7440-02-0	1									
EG020: Zinc	7440-66-6	1									
EG036: Mercury	7439-97-6	1									
EG049: Trivalent Chromium	16065-83-1	1									
EG3060: Hexavalent Chromium	18540-29-9	1									
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>											
C6 - C8 Fraction	---	5									
C9 - C16 Fraction	---	200									
C17 - C35 Fraction	---	500									
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>											
Benzene	71-43-2	0.5									
Toluene	108-88-3	0.5									
Ethylbenzene	100-41-4	0.5									
meta- & para-Xylene	108-38-3	1.0									
	106-42-3										
Styrene	100-42-5	0.5									
ortho-Xylene	95-47-6	0.5									
<b>EP-074B: Oxygenated Compounds</b>											
2-Propanone (Acetone)	67-64-1	50									
2-Butanone (MEK)	78-93-3	5									
<b>EP-074E: Halogenated Aliphatics</b>											
Methylene chloride	75-09-2	2.5									
Trichloroethene	79-01-6	0.5									
Tetrachloroethene	127-18-4	0.5									
<b>EP-074G: Trihalomethanes (THM)</b>											
Chloroform	67-66-3	0.5									
Bromodichloromethane	75-27-4	0.5									
<b>EP-074L: Methyl-tert-butyl Ether</b>											





Sub-Matrix: SOIL

Client sample ID

Compound	CAS Number	LOR	Unit	Client sampling date / time	B-08-1.5M 23-MAR-2011 09:45 HK1106930-001	B-08-3.0M 23-MAR-2011 10:15 HK1106930-002	B-08-4.5M 23-MAR-2011 11:15 HK1106930-003	B-41-4.5M 23-MAR-2011 11:20 HK1106930-004	B-08-6.0M 23-MAR-2011 12:00 HK1106930-005
EP-074L: Methyl-tert-butyl Ether - Continued									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls									
Total Polychlorinated biphenyls	---	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)anthracene	56-55-3	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg		<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate									
Phenol	108-95-2	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg		<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg		<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%		105	93.1	96.9	95.1	95.2
Toluene-D8	2037-26-5	0.1	%		101	99.1	98.7	97.9	99.2
4-Bromofluorobenzene	460-00-4	0.1	%		95.8	95.6	96.2	94.9	95.5
EP-074S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%		105	93.1	96.9	95.1	95.2
Toluene-D8	2037-26-5	0.1	%		101	99.1	98.7	97.9	99.2
4-Bromofluorobenzene	460-00-4	0.1	%		95.8	95.6	96.2	94.9	95.5
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		82.0	80.3	80.1	84.5	78.7
4-Terphenyl-d14	1718-51-0	0.1	%		78.9	79.2	76.7	78.8	74.6
EP-066S: PCB Surrogate									
Tetrachlorometaxylene	877-09-8	0.1	%		114	93.6	93.6	110	101
Dibutylchlorodate	1770-80-5	0.1	%		114	125	127	111	108



Compound	CAS Number	LOR	Unit	Client sample ID		Client sampling date / time		Client sampling date / time		Client sampling date / time	
				EG020	EG020	B-13-1.5M	B-09-0.7M	B-09-1.5M	B-13-3.0M	B-09-3.0M	
<b>EAJED: Physical and Aggregate Properties</b>											
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	15.8	9.3	15.0	15.8	14.6			
<b>EDIEK: Inorganic Nonmetallic Parameters</b>											
ERK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1			
<b>EG: Metals and Major Cations</b>											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2			
EG020: Copper	7440-50-8	1	mg/kg	14	8	11	61	12			
EG020: Lead	7439-92-1	1	mg/kg	45	23	38	115	52			
EG020: Nickel	7440-02-0	1	mg/kg	5	2	6	5	6			
EG020: Zinc	7440-66-6	1	mg/kg	92	56	86	108	87			
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1			
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	14	7	20	11	20			
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1			
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5			
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200			
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500			
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0			
	106-42-3										
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
<b>EP-074B: Oxygenated Compounds</b>											
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50			
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5			
<b>EP-074E: Halogenated Aliphatics</b>											
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5			
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
<b>EP-074G: Trihalomethanes (THM)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5			
<b>EP-074L: Methyl-tert-butyl Ether</b>											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50			



Compound	CAS Number	Client sampling date / time		Unit	Client sample ID					
		LOR	0.1		mg/kg	B-13-1.5M 23-MAR-2011 14:45 HK1106930-008	B-09-0.7M 23-MAR-2011 15:00 HK1106930-009	B-09-1.5M 23-MAR-2011 15:30 HK1106930-010	B-13-3.0M 23-MAR-2011 15:45 HK1106930-011	B-09-3.0M 23-MAR-2011 16:00 HK1106930-012
Sub-Matrix: SOIL										
EP-066: Polychlorinated Biphenyls										
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate										
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate										
Dibromofluoromethane	1868-53-7	0.1	%	95.8	94.1	105	95.0	95.0	97.6	97.6
Toluene-D8	2037-26-5	0.1	%	99.2	99.2	102	99.2	99.8	99.8	99.8
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	96.1	93.9	93.7	93.2	93.2	93.2
EP-074S: VOC Surrogates										
Dibromofluoromethane	1868-53-7	0.1	%	95.8	94.1	105	95.0	95.0	97.6	97.6
Toluene-D8	2037-26-5	0.1	%	99.2	99.2	102	99.2	99.8	99.8	99.8
4-Bromofluorobenzene	460-00-4	0.1	%	95.0	96.1	93.9	93.7	93.2	93.2	93.2
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates										
2-Fluorobiphenyl	321-60-8	0.1	%	91.7	80.8	81.6	76.6	76.6	76.0	76.0
4-Terphenyl-d14	1718-51-0	0.1	%	87.8	78.5	76.9	70.0	70.2	70.2	70.2
EP-066S: PCB Surrogate										
Tetrachlorometaxylene	877-09-8	0.1	%	116	122	120	90.6	106	106	106
Dibutylchlorodiate	1770-80-5	0.1	%	121	98.1	122	114	120	120	120



Compound	CAS Number	Client sample ID		Unit	LOR	Client sampling date / time			
		LO	HI			LO	HI	LO	HI
Sub-Matrix: SOIL									
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%			13.8	11.9	24.6	19.9
ED/EK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1	mg/kg			<1	<1	<1	<1
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	mg/kg			<0.2	<0.2	<0.2	0.5
EG020: Copper	7440-50-8	1	mg/kg			161	166	43	39
EG020: Lead	7439-92-1	1	mg/kg			177	186	169	270
EG020: Nickel	7440-02-0	1	mg/kg			9	3	5	4
EG020: Zinc	7440-66-6	1	mg/kg			177	177	96	138
EG036: Mercury	7439-97-6	1	mg/kg			<1	<1	<1	<1
EG049: Trivalent Chromium	16085-83-1	1	mg/kg			16	9	5	12
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg			<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5	mg/kg			<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg			<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg			<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg			<1.0	<1.0	<1.0	<1.0
	106-42-3	3							
Styrene	100-42-5	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg			<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg			<5	<5	<5	<5
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	mg/kg			<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg			<0.50	<0.50	<0.50	<0.50



Compound	CAS Number	LOR	Client sample ID			
			Client sampling date / time	Unit	B-13-4.5M	B-09-4.5M
Sub-Matrix: SOIL						
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00
EP-080S: TPH(Volatiles)/BTEX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	%	83.4	98.7	97.4
Toluene-D8	2037-26-5	0.1	%	97.9	99.3	98.8
4-Bromofluorobenzene	460-00-4	0.1	%	83.3	92.9	93.8
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	%	83.4	98.7	97.4
Toluene-D8	2037-26-5	0.1	%	97.9	99.3	98.8
4-Bromofluorobenzene	460-00-4	0.1	%	83.3	92.9	93.8
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	%	78.5	80.1	80.3
4-Terphenyl-d14	1718-51-0	0.1	%	80.7	77.5	73.2
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	%	115	94.8	86.8
Dibutylchlorendate	1770-80-5	0.1	%	126	91.0	93.2



Compound	CAS Number	Client sampling data / time		FIELD BLANK-1	TRIP BLANK-1
		LOR	Unit		
Sub-Matrix: WATER					
ED/EK: Inorganic Nonmetallic Parameters					
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	---
EG: Metals and Major Cations					
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L	<0.02	---
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	---
EG: Metals and Major Cations - Filtered					
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	---
EG020: Copper	7440-50-8	0.001	mg/L	0.006	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	---
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	---
EP-071HK: Total Petroleum Hydrocarbons (TPH)					
C6 - C8 Fraction	---	0.02	mg/L	<0.02	---
C9 - C16 Fraction	---	0.5	mg/L	<0.5	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)					
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010
	106-42-3				
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005
EP-074B: Oxygenated Compounds					
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05
EP-074E: Halogenated Aliphatics					
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005
EP-074G: Trihalomethanes (THM)					
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005
EP-075A: Phenols					
Phenol	108-95-2	0.002	mg/L	<0.002	---



Compound	Client sample ID			Unit	TRIP BLANK-1
	CAS Number	LOR	Client sampling date / time		
Sub-Matrix: WATER					
EP-075B: Polyaromatic Hydrocarbons (PAHs)					
Naphthalene	91-20-3	0.002		mg/L	---
Acenaphthylene	208-96-8	0.002		mg/L	---
Acenaphthene	83-32-9	0.002		mg/L	---
Fluorene	86-73-7	0.002		mg/L	---
Phenanthrene	85-01-8	0.002		mg/L	---
Anthracene	120-12-7	0.002		mg/L	---
Fluoranthene	206-44-0	0.002		mg/L	---
Pyrene	129-00-0	0.002		mg/L	---
Benz(a)anthracene	56-55-3	0.002		mg/L	---
Chrysene	218-01-9	0.002		mg/L	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004		mg/L	---
	207-08-9				
Benzo(a)pyrene	50-32-8	0.002		mg/L	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.002		mg/L	---
Dibenz(a,h)anthracene	53-70-3	0.002		mg/L	---
Benzo(g,h,i)perylene	191-24-2	0.002		mg/L	---
EP-075C: Phthalate Esters					
Bis(2-ethylhexyl)phthalate	117-81-7	0.020		mg/L	---
EP-075G: Chlorinated Hydrocarbons					
Hexachlorobenzene (HCB)	118-74-1	0.004		mg/L	---
EP-066: Polychlorinated Biphenyls					
Total Polychlorinated biphenyls	---	1.00		mg/L	---
EP-080S: TPH(Volatile)/BTEX Surrogate					
Dibromofluoromethane	1868-53-7	0.1		%	104
Toluene-D8	2037-26-5	0.1		%	99.0
4-Bromofluorobenzene	460-00-4	0.1		%	92.1
EP-074S: VOC Surrogates					
Dibromofluoromethane	1868-53-7	0.1		%	104
Toluene-D8	2037-26-5	0.1		%	99.0
4-Bromofluorobenzene	460-00-4	0.1		%	92.1
EP-075S: Acid Extractable Surrogates					
2-Fluorophenol	367-12-4	0.1		%	34.6
Phenol-d6	13127-88-3	0.1		%	24.1
2,4,6-Tribromophenol	118-79-6	0.1		%	67.0
EP-075T: Base/Neutral Extractable Surrogates					
Nitrobenzene -d5	4165-60-0	0.1		%	66.8
2-Fluorobiphenyl	321-60-8	0.1		%	66.1
4-Terphenyl-d14	1718-51-0	0.1		%	84.0

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.



Page Number : 11 of 22  
 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106930

Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sample ID		Surrogate control limits listed at end of this report.
			Client sampling date / time	Unit	
EP-066S: PCB Surrogate					
Tetrachlorometaxylene	877-09-8	0.1	FIELD BLANK-1 [23-MAR-2011]	TRIP BLANK-1 [23-MAR-2011]	
Dibutylchlorendate	1770-80-5	0.1	HK1106930-006	HK1106930-007	
			118	---	
			110	---	





**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/IED: Physical and Aggregate Properties (QC Lot: 1722788)</b>									
HK1106930-001	B-08-1.5M		EA056: Moisture Content (dried @ 103°C)		0.1	%	14.8	14.3	4.0
HK1106930-013	B-13-4.5M		EA056: Moisture Content (dried @ 103°C)		0.1	%	13.8	14.0	0.9
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>									
HK1106882-002	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1726263)</b>									
HK1106930-002	B-08-3.0M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1106930-013	B-13-4.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1726269)</b>									
HK1106930-002	B-08-3.0M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	12	12	0.0
			EG020: Lead	7439-92-1	1	mg/kg	42	40	3.4
			EG020: Nickel	7440-02-0	1	mg/kg	6	5	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	86	81	5.5
HK1106930-013	B-13-4.5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	78	74	4.3
			EG020: Lead	7439-92-1	1	mg/kg	177	213	18.5
			EG020: Nickel	7440-02-0	1	mg/kg	9	10	11.8
			EG020: Zinc	7440-66-6	1	mg/kg	177	148	17.6
<b>EG: Metals and Major Cations (QC Lot: 1726271)</b>									
HK1106930-002	B-08-3.0M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1106930-013	B-13-4.5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)</b>									
HK1106741-001	Anonymous		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)</b>									
HK1106741-001	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)</b>									
HK1106930-005	B-08-6.0M		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)</b>									
HK1106930-005	B-08-6.0M		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373)</b>									
HK1106741-001	Anonymous		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106930

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method, Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373) - Continued</b>								
HK1106741-001	Anonymous	meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1721332)</b>								
HK1106930-005	B-08-6.0M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1721332)</b>								
HK1106930-005	B-08-6.0M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1721332)</b>								
HK1106930-005	B-08-6.0M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1721332)</b>								
HK1106930-005	B-08-6.0M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1717373)</b>								
HK1106741-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1721332)</b>								
HK1106930-005	B-08-6.0M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1717364)</b>								
HK1106741-001	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1721327)</b>								
HK1106930-005	B-08-6.0M	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366)</b>								



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366) - Continued</b>								
HK1106741-001	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326)</b>								
HK1106930-005	B-08-6.0M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1717366)</b>								
HK1106741-001	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326)</b>								
HK1106930-005	B-08-6.0M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1106930

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326) - Continued								
HK1106930-005	B-08-6.0M	Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
Matrix: WATER								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1726339)								
HK1107020-010	Anonymous	EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	<0.01	0.0
EG: Metals and Major Cations (QC Lot: 1733696)								
HK1107020-010	Anonymous	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	<0.02	0.0
EG: Metals and Major Cations - Filtered (QC Lot: 1728470)								
HK1107020-010	Anonymous	EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	<0.0002	0.0
		EG020: Copper	7440-50-8	0.001	mg/L	0.009	0.008	0.0
		EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	<0.01	0.0
EG: Metals and Major Cations - Filtered (QC Lot: 1728471)								
HK1107020-010	Anonymous	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)								
HK1106930-006	FIELD BLANK-1	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)								
HK1106930-006	FIELD BLANK-1	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
		Benzene	106-42-3	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1723404)								
HK1106930-006	FIELD BLANK-1	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1723404)								
HK1106930-006	FIELD BLANK-1	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)								
HK1106930-006	FIELD BLANK-1	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723404)								
HK1106930-006	FIELD BLANK-1	Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report



Matrix: SOIL

Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)			Recovery Limits (%)			RPD (%)
						LCS	DCS	High	Low	High	Value	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)												
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	94.7	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1726263)												
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	101	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1726269)												
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	91.6	---	85	115	---	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	89.3	---	85	115	---	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.6	---	85	115	---	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	96.4	---	85	115	---	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	104	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1726271)												
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	---	85	115	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)												
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	105	---	56	116	---	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	103	---	56	116	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)												
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	97.1	---	74	138	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)												
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	91.2	---	56	116	---	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	93.9	---	56	116	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)												
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	96.6	---	74	138	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1717373)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	69	141	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	99.7	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	103	---	62	160	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	79	136	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	71	149	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1721332)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	92.8	---	69	141	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	89.2	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	87.9	---	62	160	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	85.2	---	79	136	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	---	71	149	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1717373)												



Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Recovery Low	Recovery High	Value	RPD (%)	Control Limit
EP-074B: Oxygenated Compounds (QC Lot: 1717373) - Continued													
2-Butanone (MEK)	78-99-3	5.0	mg/kg	<5	5.0 mg/kg	106	---	26	26	177	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1721332)													
2-Butanone (MEK)	78-99-3	5.0	mg/kg	<5	5.0 mg/kg	88.4	---	26	26	177	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1717373)													
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	98.6	---	74	74	136	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	69	69	151	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1721332)													
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.8	---	74	74	136	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	85.2	---	69	69	151	---	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1717373)													
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	103	---	69	69	139	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	99.1	---	71	71	137	---	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1721332)													
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	93.5	---	69	69	139	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	---	71	71	137	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1717364)													
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	108	---	28	28	138	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1721327)													
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.1	---	28	28	138	---	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1717366)													
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	96.8	---	41	41	120	---	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	82.7	---	42	42	98	---	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	96.5	---	46	46	117	---	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	96.3	---	50	50	119	---	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	88.8	---	49	49	118	---	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	98.4	---	49	49	107	---	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	100	---	58	58	120	---	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	97.8	---	57	57	118	---	---	---
Benzo(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	75.4	---	59	59	116	---	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	105	---	60	60	127	---	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	75.3	---	63	63	120	---	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	86.6	---	56	56	126	---	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	78.0	---	53	53	101	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.4	---	64	64	130	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	99.0	---	57	57	125	---	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	104	---	59	59	125	---	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326)													
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	95.3	---	41	41	120	---	---	---



Method: Compound		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326) - Continued</b>												
Acenaphthylene	208-96-8	50	<50	250 µg/kg	84.7	---	42	98	---	---	---	---
Acenaphthene	83-32-9	50	<50	250 µg/kg	97.5	---	46	117	---	---	---	---
Fluorene	86-73-7	50	<50	250 µg/kg	96.9	---	50	119	---	---	---	---
Phenanthrene	85-01-8	50	<50	250 µg/kg	97.8	---	49	118	---	---	---	---
Anthracene	120-12-7	50	<50	250 µg/kg	97.8	---	49	107	---	---	---	---
Fluoranthene	206-44-0	50	<50	250 µg/kg	103	---	58	120	---	---	---	---
Pyrene	129-00-0	50	<50	250 µg/kg	101	---	57	118	---	---	---	---
Benz(a)anthracene	56-55-3	50	<50	250 µg/kg	88.5	---	59	116	---	---	---	---
Chrysene	218-01-9	50	<50	250 µg/kg	113	---	60	127	---	---	---	---
Benz(b)fluoranthene	205-99-2	50	<50	250 µg/kg	97.2	---	63	120	---	---	---	---
Benz(k)fluoranthene	207-08-9	50	<50	250 µg/kg	94.6	---	56	126	---	---	---	---
Benz(a)pyrene	50-32-8	50	<50	250 µg/kg	80.3	---	53	101	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	<50	250 µg/kg	113	---	64	130	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	<50	250 µg/kg	93.0	---	57	125	---	---	---	---
Benz(g,h,i)perylene	191-24-2	50	<50	250 µg/kg	96.0	---	59	125	---	---	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1717366)</b>												
Phenol	108-95-2	500	<500	250 µg/kg	106	---	29	129	---	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	<50	250 µg/kg	91.3	---	54	120	---	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	<1000	250 µg/kg	117	---	87	123	---	---	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326)</b>												
Phenol	108-95-2	500	<500	250 µg/kg	106	---	29	129	---	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	<50	250 µg/kg	91.2	---	54	120	---	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	<1000	250 µg/kg	119	---	87	123	---	---	---	---
<b>Matrix: WATER</b>												
Method: Compound		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1726339)</b>												
EK025MD: Free Cyanide	---	0.01	<0.01	0.19 mg/L	84.7	---	85	115	---	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>												
<b>EG050: Hexavalent Chromium</b>												
EG050: Hexavalent Chromium	18540-29-9	0.02	<0.02	0.5 mg/L	99.6	---	85	115	---	---	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728470)</b>												
EG020: Cadmium	7440-43-9	0.0002	<0.0002	0.1 mg/L	92.4	---	85	115	---	---	---	---
EG020: Copper	7440-50-8	0.001	<0.001	0.1 mg/L	93.9	---	85	115	---	---	---	---
EG020: Lead	7439-92-1	0.001	<0.001	0.1 mg/L	103	---	85	115	---	---	---	---
EG020: Nickel	7440-02-0	0.001	<0.001	0.1 mg/L	93.0	---	85	115	---	---	---	---
EG020: Zinc	7440-66-6	0.01	<0.01	0.1 mg/L	91.1	---	85	115	---	---	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728471)</b>												
EG036: Mercury	7439-97-6	0.00005	<0.00005	0.0002 mg/L	85.0	---	85	115	---	---	---	---



Method: Compound	CAS Number	LOR	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
			Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)		RPD (%)	
									Low	High		Value
Matrix: WATER												
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721331)												
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	84.7	---	---	17	170	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	95.0	---	---	32	143	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)												
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	94.6	---	---	68	127	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)												
Benzene	71-43-2	5	µg/L	<5	10 µg/L	77.0	---	---	56	117	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	79.0	---	---	55	125	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	79.0	---	---	68	114	---	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	79.0	---	---	64	114	---	---
	106-42-3											
Styrene	100-42-5	5	µg/L	<5	10 µg/L	71.5	---	---	68	108	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	78.0	---	---	77	111	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1723404)												
2-Butanone (MIEK)	78-93-3	50	µg/L	<50	100 µg/L	69.8	---	---	52	130	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1723404)												
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	76.0	---	---	64	122	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	77.0	---	---	62	117	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)												
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	87.0	---	---	65	124	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	84.5	---	---	67	116	---	---
EP-075A: Phenols (QC Lot: 1721330)												
Phenol	108-95-2	2	µg/L	<2	5 µg/L	33.0	---	---	10	100	---	---
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1721330)												
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	61.4	---	---	48	102	---	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	60.5	---	---	43	110	---	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	62.3	---	---	45	107	---	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	65.5	---	---	51	104	---	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	71.5	---	---	60	107	---	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	73.4	---	---	58	105	---	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	84.3	---	---	67	105	---	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	85.7	---	---	65	105	---	---
Benzo(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	87.0	---	---	64	106	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	86.5	---	---	68	114	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	87.4	---	---	53	104	---	---
	207-08-9											
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	70.2	---	---	52	103	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	83.3	---	---	45	107	---	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	84.1	---	---	43	92	---	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	85.8	---	---	42	102	---	---





Matrix: WATER

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	Control Limit
EP-075C: Phthalate Esters (QC Lot: 1721330)	117-81-7	20	µg/L	<20	5 µg/L	80.6	---	---	0	226	---
Bis(2-ethylhexyl)phthalate											
EP-075G: Chlorinated Hydrocarbons (QC Lot: 1721330)	118-74-1	4	µg/L	<4	5 µg/L	72.7	---	---	52	110	---
Hexachlorobenzene (HCB)											
EP-066: Polychlorinated Biphenyls (QC Lot: 1721329)	---	1	µg/L	<1	10 µg/L	121	---	---	49	147	---
Total Polychlorinated biphenyls											

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			Recovery Limits (%)	MSD	Recovery Low	Recovery High	Value	RPD (%)	Control Limit
					MS	MSD	MSD							
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)														
HK1106832-001	Anonymous	EK025MD: Free Cyanide	---	19 mg/kg	82.3	---	---	75	75	125	---	---	---	
EG: Metals and Major Cations (QC Lot: 1726263)														
HK1106930-001	B-08-1.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	106	---	---	75	75	125	---	---	---	
EG: Metals and Major Cations (QC Lot: 1726269)														
HK1106930-001	B-08-1.5M	EG020: Cadmium	7440-43-9	5 mg/kg	92.8	---	---	75	75	125	---	---	---	
		EG020: Copper	7440-50-8	5 mg/kg	75.7	---	---	75	75	125	---	---	---	
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	---	75	75	125	---	---	---	
		EG020: Nickel	7440-02-0	5 mg/kg	85.1	---	---	75	75	125	---	---	---	
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	---	75	75	125	---	---	---	
EG: Metals and Major Cations (QC Lot: 1726271)														
HK1106930-001	B-08-1.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	93.8	---	---	75	75	125	---	---	---	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717365)														
HK1106741-005	Anonymous	C9 - C16 Fraction	---	31 mg/kg	95.1	---	---	50	50	130	---	---	---	
		C17 - C35 Fraction	---	75 mg/kg	107	---	---	50	50	130	---	---	---	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1717374)														
HK1106741-005	Anonymous	C6 - C8 Fraction	---	3 mg/kg	98.7	---	---	50	50	130	---	---	---	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)														
HK1106930-012	B-09-3.0M	C9 - C16 Fraction	---	31 mg/kg	78.5	---	---	50	50	130	---	---	---	
		C17 - C35 Fraction	---	75 mg/kg	84.7	---	---	50	50	130	---	---	---	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)														
HK1106930-012	B-09-3.0M	C6 - C8 Fraction	---	3 mg/kg	108	---	---	50	50	130	---	---	---	

Matrix: WATER

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report



Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)		
				Spike Concentration	MS	MSD		Recovery Limits (%)	
<b>EDIEK: Inorganic Nonmetallic Parameters (QC Lot: 1726339)</b>									
HK1106930-006	FIELD BLANK-1	EK025MID: Free Cyanide	---	0.19 mg/L	96.8	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>									
HK1106930-006	FIELD BLANK-1	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	92.4	---	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728470)</b>									
HK1106930-006	FIELD BLANK-1	EG020: Cadmium	7440-49-9	0.1 mg/L	97.0	---	75	125	---
		EG020: Copper	7440-50-8	0.1 mg/L	90.2	---	75	125	---
		EG020: Lead	7439-92-1	0.1 mg/L	100	---	75	125	---
		EG020: Nickel	7440-02-0	0.1 mg/L	91.1	---	75	125	---
		EG020: Zinc	7440-66-6	0.1 mg/L	85.5	---	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728471)</b>									
HK1106930-006	FIELD BLANK-1	EG036: Mercury	7439-97-6	0.0002 mg/L	83.0	---	75	125	---

Matrix: WATER

### Surrogate Control Limits

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>Sub-Matrix: SOIL</b>			
<b>EP-080S: TPH(Volatile)/BTX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorodate	1770-80-5	50	130
<b>Sub-Matrix: WATER</b>			
<b>Compound</b>			
		Recovery Limits (%)	
		Low	High
<b>EP-080S: TPH(Volatile)/BTX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			



Compound	CAS Number	Recovery Limits (%)	
		Low	High
Sub-Matrix: WATER			
EP-074S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloride	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 19
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107020
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 24-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 08-APR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ****	No. of samples received	: 10
Order number	: ****			No. of samples analysed	: 10
C-O-C number	: H020244				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

#### ALS Laboratory Group ALS Technichem (HK) Pty Ltd

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A Campbell Brothers Limited Company



Page Number : 2 of 19  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107020

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1107020

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID		Unit	B-06-0.5M 24-MAR-2011 11:50 HK1107020-001	B-06-1.5M 24-MAR-2011 13:30 HK1107020-002	B-06-3.0M 24-MAR-2011 14:30 HK1107020-003	B-07-0.5M 24-MAR-2011 14:45 HK1107020-004	B-07-1.5M 24-MAR-2011 15:30 HK1107020-005
			Client sampling date / time	Client sampling date / time						
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%		15.7	15.9	13.5	12.3		16.5
ED/EK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg		<1	<1	<1	<1		<1
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg		1.0	<0.2	<0.2	0.2		<0.2
EG020: Copper	7440-50-8	1	mg/kg		80	8	11	10		13
EG020: Lead	7439-92-1	1	mg/kg		103	30	47	100		48
EG020: Nickel	7440-02-0	1	mg/kg		8	6	5	4		5
EG020: Zinc	7440-66-6	1	mg/kg		445	67	81	109		84
EG036: Mercury	7439-97-6	1	mg/kg		<1	<1	<1	<1		<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg		24	18	24	7		19
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg		<1	<1	<1	<1		<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg		<5	<5	<5	<5		<5
C9 - C16 Fraction	---	200	mg/kg		<200	<200	<200	<200		<200
C17 - C35 Fraction	---	500	mg/kg		<500	<500	<500	<500		<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
meta- & para-Xylene	106-38-3 106-42-3	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0		<1.0
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg		<50	<50	<50	<50		<50
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5		<5
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg		<2.5	<2.5	<2.5	<2.5		<2.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5		<0.5
EP-074L: Methyl-tert-butyl Ether										



Compound	Client sample ID		Unit	Client sampling date / time								
	CAS Number	LOR		B-06-0.5M	B-06-1.5M	B-06-3.0M	B-07-0.5M	B-07-1.5M				
Sub-Matrix: SOIL												
EP-074L: Methyl-tert-butyl Ether - Continued												
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls												
Total Polychlorinated biphenyls		0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)												
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate												
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate												
Dibromofluoromethane	1868-53-7	0.1	%	106	109	114	106	114	106	111	106	111
Toluene-D8	2037-26-5	0.1	%	99.6	100	101	99.6	101	100	99.2	100	99.2
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	97.7	98.2	97.2	98.2	96.7	97.4	96.7	97.4
EP-074S: VOC Surrogates												
Dibromofluoromethane	1868-53-7	0.1	%	106	109	114	106	114	106	111	106	111
Toluene-D8	2037-26-5	0.1	%	99.6	100	101	99.6	101	100	99.2	100	99.2
4-Bromofluorobenzene	460-00-4	0.1	%	97.2	97.7	98.2	97.2	98.2	96.7	97.4	96.7	97.4
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates												
2-Fluorobiphenyl	321-60-8	0.1	%	80.1	74.5	67.7	80.1	67.7	86.6	70.1	86.6	70.1
4-Terphenyl-d14	1718-51-0	0.1	%	70.7	70.5	65.5	70.7	65.5	81.4	68.0	81.4	68.0
EP-066S: PCB Surrogate												
Tetrachlorometaxylene	877-09-6	0.1	%	65.6	54.5	62.0	65.6	62.0	58.7	60.6	58.7	60.6
Dibutylchlorodate	1770-80-5	0.1	%	60.1	72.9	85.0	60.1	85.0	63.1	63.6	63.1	63.6



Compound	CAS Number	LOR	Client sample ID		Unit	LOR	Client sampling date / time		Unit
			B-06-4.5M	B-06-6.0M			B-06-4.5M	B-10-0.5M	
Sub-Matrix: SOIL									
EAJED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	12.1		17.8		12.9	
EDIEK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1	mg/kg	<1		<1		<1	
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2		<0.2		<0.2	
EG020: Copper	7440-50-8	1	mg/kg	24		24		37	
EG020: Lead	7439-92-1	1	mg/kg	214		72		138	
EG020: Nickel	7440-02-0	1	mg/kg	2		5		5	
EG020: Zinc	7440-66-6	1	mg/kg	57		114		123	
EG036: Mercury	7439-97-6	1	mg/kg	<1		<1		<1	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	8		23		9	
EG3060: Hexavalent Chromium	18640-29-9	1	mg/kg	<1		<1		<1	
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5	mg/kg	<5		<5		<5	
C9 - C16 Fraction	---	200	mg/kg	<200		<200		<200	
C17 - C35 Fraction	---	500	mg/kg	<500		<500		<500	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	mg/kg	<0.5		<0.5		<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5		<0.5		<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5		<0.5		<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0		<1.0		<1.0	
	106-42-3								
Styrene	100-42-5	0.5	mg/kg	<0.5		<0.5		<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5		<0.5		<0.5	
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50		<50		<50	
2-Butanone (MEK)	78-93-3	5	mg/kg	<5		<5		<5	
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	mg/kg	<2.5		<2.5		<2.5	
Trichloroethene	79-01-6	0.5	mg/kg	<0.5		<0.5		<0.5	
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5		<0.5		<0.5	
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	mg/kg	<0.5		<0.5		<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5		<0.5		<0.5	
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50		<0.50		<0.50	





Compound	CAS Number	Client sampling date / time		Unit	LOR	Client sample ID		
		B-06-4.5M	B-06-6.0M			B-10-0.5M		
Sub-Matrix: SOIL								
EP-066: Polychlorinated Biphenyls	---	0.1	<0.1	mg/kg				<0.1
Total Polychlorinated biphenyls								
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	<0.500	mg/kg				<0.500
Acenaphthylene	208-96-8	0.500	<0.500	mg/kg				<0.500
Acenaphthene	83-32-9	0.500	<0.500	mg/kg				<0.500
Fluorene	86-73-7	0.500	<0.500	mg/kg				<0.500
Phenanthrene	85-01-8	0.500	<0.500	mg/kg				<0.500
Anthracene	120-12-7	0.500	<0.500	mg/kg				<0.500
Fluoranthene	206-44-0	0.500	<0.500	mg/kg				<0.500
Pyrene	129-00-0	0.500	<0.500	mg/kg				<0.500
Benz(a)anthracene	56-55-3	0.500	<0.500	mg/kg				<0.500
Chrysene	218-01-9	0.500	<0.500	mg/kg				<0.500
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	mg/kg				<0.500
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	mg/kg				<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500	mg/kg				<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	mg/kg				<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	mg/kg				<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	mg/kg				<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	<0.50	mg/kg				<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	mg/kg				<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	mg/kg				<5.00
EP-080S: TPH(Volatile)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	107	%				112
Toluene-D8	2037-26-5	0.1	99.8	%				98.7
4-Bromofluorobenzene	460-00-4	0.1	96.3	%				97.5
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	107	%				112
Toluene-D8	2037-26-5	0.1	99.8	%				98.7
4-Bromofluorobenzene	460-00-4	0.1	96.3	%				97.5
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	69.0	%				82.6
4-Terphenyl-d14	1718-51-0	0.1	64.5	%				76.4
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1	51.6	%				56.8
Dibutylchlorodate	1770-80-5	0.1	67.9	%				55.2



Sub-Matrix: WATER

Compound	CAS Number		Client sampling date / time		Unit	LOR	Client sample ID	TRIP BLANK-2 [24-MAR-2011] HK1107020-009	FIELD BLANK-2 [24-MAR-2011] HK1107020-010
<b>ED/EK: Inorganic Nonmetallic Parameters</b>									
EK025MD: Free Cyanide	---	0.01	---	---	mg/L	---	---	---	<0.01
<b>EG: Metals and Major Cations</b>									
EG049: Trivalent Chromium	16065-83-1	0.02	---	---	mg/L	---	---	---	<0.02
EG050: Hexavalent Chromium	18540-29-9	0.02	---	---	mg/L	---	---	---	<0.02
<b>EG: Metals and Major Cations - Filtered</b>									
EG020: Cadmium	7440-43-9	0.0002	---	---	mg/L	---	---	---	<0.0002
EG020: Copper	7440-50-8	0.001	---	---	mg/L	---	---	---	0.009
EG020: Lead	7439-92-1	0.001	---	---	mg/L	---	---	---	<0.001
EG020: Nickel	7440-02-0	0.001	---	---	mg/L	---	---	---	<0.001
EG020: Zinc	7440-66-6	0.01	---	---	mg/L	---	---	---	<0.01
EG036: Mercury	7439-97-6	0.0005	---	---	mg/L	---	---	---	<0.0005
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>									
C6 - C8 Fraction	---	0.02	---	---	mg/L	---	---	---	<0.02
C9 - C16 Fraction	---	0.5	---	---	mg/L	---	---	---	<0.5
C17 - C35 Fraction	---	0.5	---	---	mg/L	---	---	---	<0.5
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>									
Benzene	71-43-2	0.005	---	---	mg/L	---	---	---	<0.005
Toluene	108-88-3	0.005	---	---	mg/L	---	---	---	<0.005
Ethylbenzene	100-41-4	0.005	---	---	mg/L	---	---	---	<0.005
meta- & para-Xylene	108-38-3	0.010	---	---	mg/L	---	---	---	<0.010
	106-42-3		---	---		---	---	---	
Styrene	100-42-5	0.005	---	---	mg/L	---	---	---	<0.005
ortho-Xylene	95-47-6	0.005	---	---	mg/L	---	---	---	<0.005
<b>EP-074B: Oxygenated Compounds</b>									
2-Propanone (Acetone)	67-64-1	0.50	---	---	mg/L	---	---	---	<0.50
2-Butanone (MEK)	78-93-3	0.05	---	---	mg/L	---	---	---	<0.05
<b>EP-074E: Halogenated Aliphatics</b>									
Methylene chloride	75-09-2	0.025	---	---	mg/L	---	---	---	<0.025
Trichloroethene	79-01-6	0.005	---	---	mg/L	---	---	---	<0.005
Tetrachloroethene	127-18-4	0.005	---	---	mg/L	---	---	---	<0.005
<b>EP-074G: Trihalomethanes (THM)</b>									
Chloroform	67-66-3	0.005	---	---	mg/L	---	---	---	<0.005
Bromodichloromethane	75-27-4	0.005	---	---	mg/L	---	---	---	<0.005
<b>EP-074L: Methyl-tert-butyl Ether</b>									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	---	---	mg/L	---	---	---	<0.005
<b>EP-075A: Phenols</b>									
Phenol	108-95-2	0.002	---	---	mg/L	---	---	---	<0.002



Compound	Client sample ID			FIELD BLANK-2
	CAS Number	LOR	Unit	
Sub-Matrix: WATER				
Sub-Matrix: WATER				
Client sampling date / time				
TRIP BLANK-2 [24-MAR-2011] HK1107020-009				
FIELD BLANK-2 [24-MAR-2011] HK1107020-010				
EP-075B: Polyaromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.002	mg/L	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002
Benz(a)anthracene	56-55-3	0.002	mg/L	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004
	207-08-9			
Benzo(a)pyrene	50-32-8	0.002	mg/L	<0.002
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	mg/L	<0.002
Dibenz(a,h)anthracene	53-70-3	0.002	mg/L	<0.002
Benzo(g,h,i)perylene	191-24-2	0.002	mg/L	<0.002
EP-075C: Phthalate Esters				
Bis(2-ethylhexyl)phthalate	117-81-7	0.020	mg/L	<0.020
EP-075G: Chlorinated Hydrocarbons				
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004
EP-066: Polychlorinated Biphenyls				
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00
EP-080S: TPH(Volatile)/BTEX Surrogate				
Dibromofluoromethane	1868-53-7	0.1	%	112
Toluene-D8	2037-26-5	0.1	%	103
4-Bromofluorobenzene	460-00-4	0.1	%	94.4
EP-074S: VOC Surrogates				
Dibromofluoromethane	1868-53-7	0.1	%	110
Toluene-D8	2037-26-5	0.1	%	102
4-Bromofluorobenzene	460-00-4	0.1	%	93.6
EP-075S: Acid Extractable Surrogates				
2-Fluorophenol	367-12-4	0.1	%	42.6
Phenol-d6	13127-88-3	0.1	%	27.5
2,4,6-Tribromophenol	118-79-6	0.1	%	72.7
EP-075T: Base/Neutral Extractable Surrogates				
Nitrobenzene -d5	4165-60-0	0.1	%	70.1
2-Fluorobiphenyl	321-60-8	0.1	%	68.0
4-Terphenyl-d14	1718-51-0	0.1	%	92.2



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1107020

Compound	CAS Number	LOR	Client sample ID		FIELD BLANK-2
			Client sampling date / time	Unit	
EP-066S: PCB Surrogate			TRIP BLANK-2	[24-MAR-2011]	[24-MAR-2011]
Tetrachlorometaxylene	877-09-8	0.1	---	---	67.7
Dibutylchlorendate	1770-80-5	0.1	---	---	64.9

Surrogate control limits listed at end of this report.



### Laboratory Duplicate (DUP) Report

Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Matrix: SOIL
<b>EA/IED: Physical and Aggregate Properties (QC Lot: 1724356)</b>									
HK1107013-004	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	35.0	35.3	0.8	
HK1107020-004	B-07-0.5M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	12.3	12.0	2.2	
<b>ED/IEK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>									
HK1106832-002	Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0	
<b>ED/IEK: Inorganic Nonmetallic Parameters (QC Lot: 1724993)</b>									
HK1107020-003	B-06-3.0M	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1726263)</b>									
HK1106930-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
HK1106930-013	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1726264)</b>									
HK1107020-008	B-10-0.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1726269)</b>									
HK1106930-002	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	12	12	0.0	
		EG020: Lead	7439-92-1	1	mg/kg	42	40	3.4	
		EG020: Nickel	7440-02-0	1	mg/kg	6	5	0.0	
		EG020: Zinc	7440-66-6	1	mg/kg	86	81	5.5	
HK1106930-013	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	78	74	4.3	
		EG020: Lead	7439-92-1	1	mg/kg	177	213	18.5	
		EG020: Nickel	7440-02-0	1	mg/kg	9	10	11.8	
		EG020: Zinc	7440-66-6	1	mg/kg	177	148	17.6	
<b>EG: Metals and Major Cations (QC Lot: 1726270)</b>									
HK1107020-008	B-10-0.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	37	38	3.5	
		EG020: Lead	7439-92-1	1	mg/kg	138	152	10.1	
		EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0	
		EG020: Zinc	7440-66-6	1	mg/kg	123	138	10.9	
<b>EG: Metals and Major Cations (QC Lot: 1726271)</b>									
HK1106930-002	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
HK1106930-013	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1726272)</b>									
HK1107020-008	B-10-0.5M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)</b>									
HK1106930-005	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0	
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)</b>									
HK1106930-005	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0	



Matrix: SOIL							Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)		
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1721332)</b>										
HK1106930-005	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0		
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0		
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0		
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0		
		106-42-3								
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723874)</b>										
HK1107020-002	B-06-1.5M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0		
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0		
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0		
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0		
		106-42-3								
<b>EP-074B: Oxygenated Compounds (QC Lot: 1721332)</b>										
HK1106930-005	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0		
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0		
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723874)</b>										
HK1107020-002	B-06-1.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0		
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0		
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1721332)</b>										
HK1106930-005	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0		
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0		
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723874)</b>										
HK1107020-002	B-06-1.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0		
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0		
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0		
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1721332)</b>										
HK1106930-005	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0		
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723874)</b>										
HK1107020-002	B-06-1.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0		
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0		
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1721332)</b>										
HK1106930-005	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0		
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723874)</b>										
HK1107020-002	B-06-1.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0		
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1721327)</b>										



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1721327) - Continued</b>								
HK1106930-005	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1723873)</b>								
HK1107020-002	B-06-1.5M	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326)</b>								
HK1106930-005	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benzo(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	59-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326)</b>								
HK1106930-005	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
<b>Matrix: WATER</b>								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1726339)</b>								
HK1107020-010	FIELD BLANK-2	EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	<0.01	0.0
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>								
HK1107020-010	FIELD BLANK-2	EG050: Hexavalent Chromium	16540-29-9	0.02	mg/L	<0.02	<0.02	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728470)</b>								
HK1107020-010	FIELD BLANK-2	EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	<0.0002	0.0
		EG020: Copper	7440-50-8	0.001	mg/L	0.009	0.008	0.0
		EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	<0.01	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728471)</b>								
HK1107020-010	FIELD BLANK-2	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)</b>								



Matrix: WATER		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405) - Continued</b>								
HK1106930-006	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	<10	0.0
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery (%)	Low	High	Value	Control Limit	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>													
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	94.7	---	85	85	115	---	---	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724993)</b>													
EK025MD: Free Cyanide	---	1	mg/kg	<1	1.9 mg/kg	91.8	---	85	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1726263)</b>													
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	101	---	85	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1726264)</b>													
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	108	---	85	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1726269)</b>													
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	91.6	---	85	85	115	---	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	89.3	---	85	85	115	---	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.6	---	85	85	115	---	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	96.4	---	85	85	115	---	---	---





Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
Matrix: SOIL											
EG: Metals and Major Cations (QC Lot: 1726269) - Continued											
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	104	---	85	---	---	---
EG: Metals and Major Cations (QC Lot: 1726270)											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	94.6	---	85	---	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	92.4	---	85	---	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	94.0	---	85	---	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	98.7	---	85	---	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	102	---	85	---	---	---
EG: Metals and Major Cations (QC Lot: 1726271)											
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	---	85	---	---	---
EG: Metals and Major Cations (QC Lot: 1726272)											
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	97.7	---	85	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	91.2	---	56	---	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	93.9	---	56	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	96.6	---	74	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1721332)											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	92.8	---	69	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	---	68	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	89.2	---	77	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	87.9	---	62	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	85.2	---	79	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	---	71	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723874)											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	127	---	69	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	115	---	68	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	106	---	77	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	105	---	62	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	79	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	109	---	71	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1721332)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	88.4	---	26	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1723874)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	118	---	26	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1721332)											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.8	---	74	---	---	---



Method: Compound		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
Matrix: SOIL												
Method: Compound												
EP-074E: Halogenated Aliphatics (QC Lot: 1721332) - Continued												
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	85.2	---	69	151	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1723874)												
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	114	---	74	136	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	69	151	---	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1721332)												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	93.5	---	69	139	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	88.0	---	71	137	---	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1723874)												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	131	---	69	139	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	71	137	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1721327)												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	94.1	---	28	138	---	---	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1723873)												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	80.8	---	28	138	---	---	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326)												
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	95.3	---	41	120	---	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	84.7	---	42	98	---	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	97.5	---	46	117	---	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	96.9	---	50	119	---	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	97.8	---	49	118	---	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	97.8	---	49	107	---	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	103	---	58	120	---	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	101	---	57	118	---	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	89.5	---	59	116	---	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	113	---	60	127	---	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	97.2	---	63	120	---	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	94.6	---	56	126	---	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	80.3	---	53	101	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	113	---	64	130	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	93.0	---	57	125	---	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	96.0	---	59	125	---	---	---
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326)												
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	106	---	29	129	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	91.2	---	54	120	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	119	---	87	123	---	---	---
Matrix: WATER												
Method: Compound												
CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit



Matrix: WATER

Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method/Compound	CAS Number	LOR	Unit	Result	Spike Recovery (%)			Recovery Limits (%)			RPD (%)
					Concentration	LCS	DCS	Low	High	Value	
<b>EG: Inorganic Nonmetallic Parameters (QC Lot: 1726339)</b>											
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	0.19 mg/L	---	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>											
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	0.5 mg/L	---	---	85	115	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728470)</b>											
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	0.1 mg/L	---	---	85	115	---	---
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	---	---	85	115	---	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	---	---	85	115	---	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	---	---	85	115	---	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	0.1 mg/L	---	---	85	115	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728471)</b>											
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.00005	0.0002 mg/L	---	---	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721331)</b>											
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	---	---	17	170	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	---	---	32	143	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)</b>											
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	---	---	68	127	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)</b>											
Benzene	71-43-2	5	µg/L	<5	10 µg/L	---	---	56	117	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	---	---	55	125	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	---	---	68	114	---	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	---	---	64	114	---	---
Styrene	100-42-5	5	µg/L	<5	10 µg/L	---	---	68	108	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	---	---	77	111	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723404)</b>											
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	---	---	52	130	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723404)</b>											
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	---	---	64	122	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	---	---	62	117	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)</b>											
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	---	---	65	124	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	---	---	67	116	---	---
<b>EP-075A: Phenols (QC Lot: 1721330)</b>											
Phenol	108-95-2	2	µg/L	<2	5 µg/L	---	---	10	100	---	---
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1721330)</b>											
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	---	---	48	102	---	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	---	---	43	110	---	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	---	---	45	107	---	---



Matrix: WATER		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721330) - Continued</b>													
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	65.5	---	51	104	---	---	---	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	71.5	---	60	107	---	---	---	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	73.4	---	58	105	---	---	---	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	84.3	---	67	105	---	---	---	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	85.7	---	65	105	---	---	---	---
Benzo(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	87.0	---	64	106	---	---	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	86.5	---	68	114	---	---	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	87.4	---	53	104	---	---	---	---
	207-08-9												
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	70.2	---	52	103	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	83.3	---	45	107	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	84.1	---	43	92	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	85.8	---	42	102	---	---	---	---
<b>EP-075C: Phthalate Esters (QC Lot: 1721330)</b>													
Bis(2-ethylhexyl)phthalate	117-81-7	20	µg/L	<20	5 µg/L	80.6	---	0	226	---	---	---	---
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1721330)</b>													
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	72.7	---	52	110	---	---	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1721329)</b>													
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	121	---	49	147	---	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)			
					MS	MSD	Recovery Limits (%)	Low	High	Value	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724992)</b>											
HK1106832-001	Anonymous	EK025MMD: Free Cyanide	---	19 mg/kg	82.3	---	75	125	---	---	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1724993)</b>											
HK1107020-002	B-06-1.5M	EK025MMD: Free Cyanide	---	19 mg/kg	103	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1726263)</b>											
HK1106930-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	106	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1726264)</b>											
HK1107020-007	B-06-6.0M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	107	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1726269)</b>											
HK1106930-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	92.8	---	75	125	---	---	---
		EG020: Copper	7440-50-8	5 mg/kg	75.7	---	75	125	---	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---	---



Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	
				Low	High	Value	Control Limit		
<b>EG: Metals and Major Cations (QC Lot: 1726269) - Continued</b>									
HK1106930-001	Anonymous	EG020: Nickel	7440-02-0	5 mg/kg	85.1	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1726270)</b>									
HK1107020-007	B-06-6.0M	EG020: Cadmium	7440-43-9	5 mg/kg	90.6	---	75	125	---
		EG020: Copper	7440-50-8	5 mg/kg	76.3	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	80.4	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1726271)</b>									
HK1106930-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	93.8	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1726272)</b>									
HK1107020-007	B-06-6.0M	EG036: Mercury	7439-97-6	0.1 mg/kg	78.2	---	75	125	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)</b>									
HK1106930-012	Anonymous	C9 - C16 Fraction	---	31 mg/kg	78.5	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	84.7	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)</b>									
HK1106930-012	Anonymous	C6 - C8 Fraction	---	3 mg/kg	108	---	50	130	---

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	
				Low	High	Value	Control Limit		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1726339)</b>									
HK1106930-006	Anonymous	EK025MD: Free Cyanide	---	0.19 mg/L	96.8	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>									
HK1106930-006	Anonymous	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	92.4	---	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728470)</b>									
HK1106930-006	Anonymous	EG020: Cadmium	7440-43-9	0.1 mg/L	97.0	---	75	125	---
		EG020: Copper	7440-50-8	0.1 mg/L	90.2	---	75	125	---
		EG020: Lead	7439-92-1	0.1 mg/L	100	---	75	125	---
		EG020: Nickel	7440-02-0	0.1 mg/L	91.1	---	75	125	---
		EG020: Zinc	7440-66-6	0.1 mg/L	85.5	---	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1728471)</b>									
HK1106930-006	Anonymous	EG036: Mercury	7439-97-6	0.0002 mg/L	83.0	---	75	125	---



**Surrogate Control Limits**

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130
Sub-Matrix: WATER			
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 16
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107121
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Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 25-MAR-2011
Order number	: ----			Issue Date	: 12-APR-2011
C-O-C number	: H020209-H020210			No. of samples received	: 17
Site	: XRL823B-SITE B			No. of samples analysed	: 17

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics

**ALS Laboratory Group**  
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A Campbell Brothers Limited Company



Page Number : 2 of 16  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107121

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1107121

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.





**Analytical Results**

Compound	CAS Number	LOR	Unit	Client sample ID						
				B-07-3.0M 25-MAR-2011 09:30 HK1107121-001	B-07-4.5M 25-MAR-2011 10:30 HK1107121-002	B-04-1.5M 25-MAR-2011 10:45 HK1107121-003	B-07-6.0M 25-MAR-2011 11:15 HK1107121-004	B-04-3.0M 25-MAR-2011 11:30 HK1107121-005		
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	17.0	24.6	16.5	25.5	13.8		
ED/IEK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1		
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2		
EG020: Copper	7440-50-8	1	mg/kg	171	319	7	20	12		
EG020: Lead	7439-92-1	1	mg/kg	88	139	35	128	79		
EG020: Nickel	7440-02-0	1	mg/kg	5	7	5	4	4		
EG020: Zinc	7440-66-6	1	mg/kg	164	374	71	81	95		
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1		
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	15	9	17	4	14		
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1		
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5		
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200		
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0		
	106-42-3									
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50		
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5		
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5		
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074L: Methyl-tert-butyl Ether										



Compound	CAS Number	LOR	Unit	Client sample ID				B-04-3.0M
				B-07-3.0M	B-07-4.5M	B-04-1.5M	B-07-6.0M	
				25-MAR-2011 09:30	25-MAR-2011 10:30	25-MAR-2011 10:45	25-MAR-2011 11:15	25-MAR-2011 11:30
				HK1107121-001	HK1107121-002	HK1107121-003	HK1107121-004	HK1107121-005
Sub-Matrix: SOIL								
EP-074L: Methyl-tert-butyl Ether - Continued								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	58-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	104	101	103	106	114
Toluene-D8	2037-26-5	0.1	%	99.6	100	99.3	98.3	99.1
4-Bromofluorobenzene	460-00-4	0.1	%	96.8	93.9	95.1	95.4	97.9
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	104	101	103	106	114
Toluene-D8	2037-26-5	0.1	%	99.6	100	99.3	98.3	99.1
4-Bromofluorobenzene	460-00-4	0.1	%	96.8	93.9	95.1	95.4	97.9
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	79.6	79.5	66.2	64.4	59.3
4-Terphenyl-d14	1718-51-0	0.1	%	75.0	69.8	68.2	63.4	52.6
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1	%	63.0	55.3	73.5	59.2	54.4
Dibutylchlorodane	1770-80-5	0.1	%	85.7	69.8	76.3	73.0	59.7



Compound	Client sample ID		LOR	Unit	Client sampling date / time				
	CAS Number	Sub-Matrix: SOIL			B-04-4.5M 25-MAR-2011 12:15 HK1107121-006	B-10-1.5M 25-MAR-2011 13:30 HK1107121-007	B-04-6.0M 25-MAR-2011 13:45 HK1107121-008	B-42-4.5M 25-MAR-2011 12:15 HK1107121-009	B-01-0.5M 25-MAR-2011 14:00 HK1107121-010
<b>EA/ED: Physical and Aggregate Properties</b>									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	17.6	16.9	20.6	17.4	11.9	
<b>ED/EK: Inorganic Nonmetallic Parameters</b>									
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1	
<b>EG: Metals and Major Cations</b>									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	
EG020: Copper	7440-50-8	1	mg/kg	13	9	45	10	26	
EG020: Lead	7439-92-1	1	mg/kg	76	37	62	94	67	
EG020: Nickel	7440-02-0	1	mg/kg	4	5	3	4	4	
EG020: Zinc	7440-66-6	1	mg/kg	64	78	124	60	137	
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	12	18	10	12	9	
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>									
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5	
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200	
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>									
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	
	106-42-3								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
<b>EP-074B: Oxygenated Compounds</b>									
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50	
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5	
<b>EP-074E: Halogenated Aliphatics</b>									
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
<b>EP-074G: Trihalomethanes (THM)</b>									
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
<b>EP-074L: Methyl-tert-butyl Ether</b>									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	



Compound	CAS Number	LOR	Client sample ID				Unit
			B-04-4.5M	B-10-1.5M	B-04-6.0M	B-42-4.5M	
Sub-Matrix: SOIL							
Client sampling date / time							
25-MAR-2011 12:15							
25-MAR-2011 13:30							
25-MAR-2011 13:45							
25-MAR-2011 12:15							
25-MAR-2011 12:15							
25-MAR-2011 13:45							
25-MAR-2011 14:00							
HK1107121-006							
HK1107121-007							
HK1107121-008							
HK1107121-009							
HK1107121-010							
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls							
		0.1	<0.1	<0.1	<0.1	<0.1	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene	91-20-3	0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthene	83-32-9	0.500	<0.500	<0.500	<0.500	<0.500	
Fluorene	86-73-7	0.500	<0.500	<0.500	<0.500	<0.500	
Phenanthrene	85-01-8	0.500	<0.500	<0.500	<0.500	<0.500	
Anthracene	120-12-7	0.500	<0.500	<0.500	<0.500	<0.500	
Fluoranthene	206-44-0	0.500	<0.500	<0.500	<0.500	<0.500	
Pyrene	129-00-0	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)anthracene	56-55-3	0.500	<0.500	<0.500	<0.500	<0.500	
Chrysene	218-01-9	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	<0.500	<0.500	
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	<0.500	<0.500	
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	<0.500	<0.500	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate							
Phenol	108-95-2	0.50	<0.50	<0.50	<0.50	<0.50	
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	<0.200	<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	<5.00	<5.00	
EP-080S: TPH(Volatile)/BTX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	106	103	104	107	
Toluene-D8	2037-26-5	0.1	99.3	99.4	98.8	100	
4-Bromofluorobenzene	460-00-4	0.1	96.2	96.3	95.8	97.0	
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	106	103	104	107	
Toluene-D8	2037-26-5	0.1	99.3	99.4	98.8	100	
4-Bromofluorobenzene	460-00-4	0.1	96.2	96.3	95.8	97.0	
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates							
2-Fluorobiphenyl	321-60-8	0.1	67.6	55.8	80.5	69.2	
4-Terphenyl-d14	1718-51-0	0.1	64.3	56.8	84.4	69.6	
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1	56.7	61.3	55.6	86.6	
Dibutylchlorodiate	1770-80-5	0.1	80.0	72.2	78.2	74.8	



Compound	CAS Number	LOR	Client sample ID		B-02-0.5M 25-MAR-2011 14:45 HK1107121-011	B-01-1.5M 25-MAR-2011 15:00 HK1107121-012	B-10-3.0M 25-MAR-2011 15:20 HK1107121-013	B-10-4.5M 25-MAR-2011 16:45 HK1107121-014	B-01-3.0M 25-MAR-2011 17:00 HK1107121-015
			Client sampling date / time	Unit					
Sub-Matrix: SOIL									
EA/ED: Physical and Aggregate Properties.									
EA056: Moisture Content (dried @ 103°C)	---	0.1	%		9.6	15.3	19.4	21.0	16.6
ED/EK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1	mg/kg		<1	<1	<1	<1	<1
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	mg/kg		0.3	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg		45	38	50	20	17
EG020: Lead	7439-92-1	1	mg/kg		57	37	117	106	77
EG020: Nickel	7440-02-0	1	mg/kg		5	7	6	2	5
EG020: Zinc	7440-66-6	1	mg/kg		170	82	110	49	48
EG036: Mercury	7439-97-6	1	mg/kg		<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg		21	14	17	5	14
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg		<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5	mg/kg		<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg		<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg		<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3	3							
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg		<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	mg/kg		<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50



Compound	CAS Number	LOR	Unit	Client sample ID				B-01-3.0M	B-10-3.0M	B-10-4.5M	B-01-3.0M
				Client sampling date / time	Client sampling date / time	Client sampling date / time	Client sampling date / time				
Sub-Matrix: SOIL											
EP-066: Polychlorinated Biphenyls		—	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Total Polychlorinated biphenyls											
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)											
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate											
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	
EP-080S: TPH(Volatile)/BTEX Surrogate											
Dibromofluoromethane	1868-53-7	0.1	%	104	108	109	107	115	107	115	
Toluene-D8	2037-26-5	0.1	%	99.5	100	101	99.4	99.0	99.4	99.0	
4-Bromofluorobenzene	460-00-4	0.1	%	97.6	97.0	96.8	97.1	98.4	97.1	98.4	
EP-074S: VOC Surrogates											
Dibromofluoromethane	1868-53-7	0.1	%	104	108	109	107	115	107	115	
Toluene-D8	2037-26-5	0.1	%	99.5	100	101	99.4	99.0	99.4	99.0	
4-Bromofluorobenzene	460-00-4	0.1	%	97.6	97.0	96.8	97.1	98.4	97.1	98.4	
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates											
2-Fluorobiphenyl	321-60-8	0.1	%	77.4	71.8	66.7	78.8	74.6	71.5	66.7	
4-Terphenyl-d14	1718-51-0	0.1	%	70.8	71.8	60.3	71.5	66.7	71.5	66.7	
EP-066S: PCB Surrogate											
Tetrachlorometaxylene	877-09-8	0.1	%	52.1	50.2	86.4	52.0	51.4	52.0	51.4	
Dibutylchlorodate	1770-80-5	0.1	%	75.3	73.5	73.1	52.1	82.3	52.1	82.3	



Compound	Client sample ID		Unit	Client sampling date / time	LOR	CAS Number	Client sample ID		Unit	Client sampling date / time
	B-03-0.5M	B-10-6.0M					B-03-0.5M	B-10-6.0M		
Sub-Matrix: SOIL										
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	25-MAR-2011 17:15	---	---	14.1	---	22.4	25-MAR-2011 17:30
ED/EK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg	25-MAR-2011 17:15	---	---	<1	---	<1	HK1107121-017
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg	25-MAR-2011 17:15	---	---	0.2	---	<0.2	---
EG020: Copper	7440-50-8	1	mg/kg	25-MAR-2011 17:15	---	---	23	---	16	---
EG020: Lead	7439-92-1	1	mg/kg	25-MAR-2011 17:15	---	---	100	---	95	---
EG020: Nickel	7440-02-0	1	mg/kg	25-MAR-2011 17:15	---	---	8	---	6	---
EG020: Zinc	7440-66-6	1	mg/kg	25-MAR-2011 17:15	---	---	111	---	48	---
EG036: Mercury	7439-97-6	1	mg/kg	25-MAR-2011 17:15	---	---	<1	---	<1	---
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	25-MAR-2011 17:15	---	---	10	---	5	---
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	25-MAR-2011 17:15	---	---	<1	---	<1	---
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg	25-MAR-2011 17:15	---	---	<5	---	<5	---
C9 - C16 Fraction	---	200	mg/kg	25-MAR-2011 17:15	---	---	<200	---	<200	---
C17 - C35 Fraction	---	500	mg/kg	25-MAR-2011 17:15	---	---	<500	---	<500	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
Toluene	108-88-3	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
Ethylbenzene	100-41-4	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	25-MAR-2011 17:15	---	---	<1.0	---	<1.0	---
	106-42-3	3	mg/kg	25-MAR-2011 17:15	---	---	<1.0	---	<1.0	---
Styrene	100-42-5	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
ortho-Xylene	95-47-6	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg	25-MAR-2011 17:15	---	---	<50	---	<50	---
2-Butanone (MEK)	78-93-3	5	mg/kg	25-MAR-2011 17:15	---	---	<5	---	<5	---
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg	25-MAR-2011 17:15	---	---	<2.5	---	<2.5	---
Trichloroethene	79-01-6	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
Tetrachloroethene	127-18-4	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
EP-074C: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
Bromodichloromethane	75-27-4	0.5	mg/kg	25-MAR-2011 17:15	---	---	<0.5	---	<0.5	---
EP-074L: Methyl-tert-butyl Ether										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	25-MAR-2011 17:15	---	---	<0.50	---	<0.50	---



Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID		Unit	Surrogate control limits listed at end of this report.
			Client sampling date / time	Client sampling date / time		
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	—	0.1	<0.1	<0.1	mg/kg	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500	<0.500	<0.500	mg/kg	<0.500
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	mg/kg	<0.500
Acenaphthene	83-32-9	0.500	<0.500	<0.500	mg/kg	<0.500
Fluorene	86-73-7	0.500	<0.500	<0.500	mg/kg	<0.500
Phenanthrene	85-01-8	0.500	<0.500	<0.500	mg/kg	<0.500
Anthracene	120-12-7	0.500	<0.500	<0.500	mg/kg	<0.500
Fluoranthene	206-44-0	0.500	<0.500	<0.500	mg/kg	<0.500
Pyrene	129-00-0	0.500	<0.500	<0.500	mg/kg	<0.500
Benz(a)anthracene	56-55-3	0.500	<0.500	<0.500	mg/kg	<0.500
Chrysene	218-01-9	0.500	<0.500	<0.500	mg/kg	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	mg/kg	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	mg/kg	<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	mg/kg	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	mg/kg	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	mg/kg	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	mg/kg	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	<0.50	<0.50	mg/kg	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	mg/kg	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	mg/kg	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	114	110	%	110
Toluene-D8	2037-26-5	0.1	98.8	100	%	100
4-Bromofluorobenzene	460-00-4	0.1	96.9	96.8	%	96.8
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	114	110	%	110
Toluene-D8	2037-26-5	0.1	98.8	100	%	100
4-Bromofluorobenzene	460-00-4	0.1	96.9	96.8	%	96.8
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	66.1	78.1	%	78.1
4-Terphenyl-d14	1718-51-0	0.1	66.0	67.7	%	67.7
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	76.5	72.3	%	72.3
Dibutylchlorodate	1770-80-5	0.1	55.3	68.2	%	68.2





**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1726237)</b>									
HK1107121-001	B-07-3.0M		EA055: Moisture Content (dried @ 103°C)		0.1	%	17.0	17.0	0.0
HK1107121-011	B-02-0.5M		EA055: Moisture Content (dried @ 103°C)		0.1	%	9.6	8.7	9.4
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740101)</b>									
HK1107121-002	B-07-4.5M		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1729795)</b>									
HK1107121-011	B-02-0.5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	0.3	0.4	0.0
			EG020: Copper	7440-50-8	1	mg/kg	45	52	14.5
			EG020: Lead	7439-92-1	1	mg/kg	57	49	13.9
			EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	170	146	15.0
<b>EG: Metals and Major Cations (QC Lot: 1729799)</b>									
HK1107121-002	B-07-4.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1107121-011	B-02-0.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1729826)</b>									
HK1107121-011	B-02-0.5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)</b>									
HK1106930-005	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724552)</b>									
HK1107121-007	B-10-1.5M		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559)</b>									
HK1107121-007	B-10-1.5M		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous		2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
			2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous		Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
			Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
			Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723874)</b>									



Matrix: SOIL									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723874) - Continued</b>									
HK1107020-002	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0	
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1724560)</b>									
HK1107121-007	B-10-1.5M	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326)</b>									
HK1106930-005	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0	
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0	
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0	
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0	
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0	
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0	
		Fluoranthene	208-44-0	500	µg/kg	<500	<500	0.0	
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0	
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0	
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0	
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0	
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0	
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0	
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0	
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0	
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724558)</b>									
HK1107121-007	B-10-1.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0	
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0	
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0	
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0	
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0	
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0	
		Fluoranthene	208-44-0	500	µg/kg	<500	<500	0.0	
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0	
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0	
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0	
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0	
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0	
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0	
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0	
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0	
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0	



Laboratory sample ID	Client sample ID	Method: Compound	Laboratory Duplicate (DUP) Report			
			CAS Number	LOR	Unit	RPD (%)
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326)</b>						
HK1106930-005	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200
		Phenol	108-95-2	500	µg/kg	<500
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724558)</b>						
HK1107121-007	B-10-1.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200
		Phenol	108-95-2	500	µg/kg	<500
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Method: Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740101)</b>													
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	97.4	---	---	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729795)</b>													
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	98.3	---	---	85	115	---	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	101	---	---	85	115	---	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.9	---	---	85	115	---	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	93.1	---	---	85	115	---	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	112	---	---	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729799)</b>													
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	94.8	---	---	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729826)</b>													
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	100	---	---	85	115	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)</b>													
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	96.6	---	---	74	138	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724552)</b>													
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	112	---	---	63	126	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559)</b>													
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	82.4	---	---	56	116	---	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	83.2	---	---	56	116	---	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723874)</b>													
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	127	---	---	69	141	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	115	---	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	106	---	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	105	---	---	62	160	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	---	79	136	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	109	---	---	71	149	---	---	---



Method: Compound	CAS Number	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
		LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
								Low	High		
<b>Matrix: SOIL</b>											
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723874)</b>											
2-Butanone (MIEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	118	---	26	177	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723874)</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	114	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723874)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	131	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1724560)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	70.0	---	28	138	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1721326)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	95.3	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	84.7	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	97.5	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	96.9	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	97.8	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	97.8	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	103	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	101	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	89.5	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	113	---	60	127	---	---
Benz(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	97.2	---	63	120	---	---
Benz(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	94.6	---	56	126	---	---
Benz(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	80.3	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	113	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	93.0	---	57	125	---	---
Benz(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	96.0	---	59	125	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724558)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	90.3	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	77.3	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	89.2	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	88.8	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	90.5	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	88.0	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	94.3	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	92.5	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	82.4	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	103	---	60	127	---	---
Benz(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	74.6	---	63	120	---	---
Benz(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	105	---	56	126	---	---



Matrix: SOIL

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724558) - Continued</b>											
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	69.3	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	102	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	83.6	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	84.8	---	59	125	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1721326)</b>											
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	106	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	91.2	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	119	---	87	123	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724558)</b>											
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	100	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	84.2	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	103	---	87	123	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Low	Recovery High	Value	RPD (%)	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740101)</b>											
HK1107121-001	B-07-3.0M	EK025MD: Free Cyanide	---	19 mg/kg	78.9	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729795)</b>											
HK1107121-001	B-07-3.0M	EG020: Cadmium	7440-43-9	5 mg/kg	94.4	---	75	125	---	---	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	76.1	---	75	125	---	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729799)</b>											
HK1107121-001	B-07-3.0M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	82.8	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729826)</b>											
HK1107121-001	B-07-3.0M	EG036: Mercury	7439-97-6	0.1 mg/kg	86.0	---	75	125	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721333)</b>											
HK1106930-012	Anonymous	C6 - C8 Fraction	---	3 mg/kg	108	---	50	130	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724552)</b>											
HK1107121-008	B-04-6.0M	C6 - C8 Fraction	---	3 mg/kg	113	---	50	130	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559)</b>											



Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559) - Continued HK1107121-008	B-04-6.0M	C9 - C16 Fraction	---	31 mg/kg	70.2	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	64.3	---	50	130	---

Surrogate Control Limits

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>Sub-Matrix: SOIL</b>			
<b>EP-080S: TPH(Volatile)/BTX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloride	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 14
Contact	: MR JAMES CHAN	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107163
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: works@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 26-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 12-APR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 9
Order number	: ----			No. of samples analysed	: 9
C-O-C number	: H020211				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics



Page Number : 2 of 14  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107163

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1107163**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.





**Analytical Results**

Compound	CAS Number	LOR	Client sample ID		Unit	%	LOR	Client sampling date / time	LOR	Client sampling date / time	Unit	%	LOR	Client sampling date / time	LOR	Client sampling date / time	Unit	%	LOR	Client sampling date / time	LOR	Client sampling date / time	
			B-01-4.5M	B-30-0.5M																			B-01-6.0M
Sub-Matrix: SOIL																							
EA/IED: Physical and Aggregate Properties																							
EA055: Moisture Content (dried @ 103°C)																							
ED/EK: Inorganic Nonmetallic Parameters																							
EK025MD: Free Cyanide																							
EG: Metals and Major Cations																							
EG020: Cadmium	7440-43-9	0.2	<0.2	<0.2	mg/kg	<1	<1	16.2	10.4	24.7	14.8	<1	<1	14.8	<1	<1	<1	<1	<1	<1	<1	<1	<1
EG020: Copper	7440-50-8	1	40	36	mg/kg	<0.2	<0.2	40	36	23	13	<0.2	<0.2	23	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Lead	7439-92-1	1	188	221	mg/kg	<1	<1	188	221	137	44	<1	<1	44	<1	<1	<1	<1	<1	<1	<1	<1	<1
EG020: Nickel	7440-02-0	1	3	6	mg/kg	<1	<1	3	6	6	7	<1	<1	7	<1	<1	<1	<1	<1	<1	<1	<1	<1
EG020: Zinc	7440-66-6	1	96	197	mg/kg	<1	<1	96	197	140	94	<1	<1	94	<1	<1	<1	<1	<1	<1	<1	<1	<1
EG036: Mercury	7439-97-6	1	<1	<1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
EG048: Trivalent Chromium	16065-83-1	1	8	25	mg/kg	<1	<1	8	25	6	19	<1	<1	19	<1	<1	<1	<1	<1	<1	<1	<1	<1
EG3060: Hexavalent Chromium	18540-29-9	1	<1	<1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)																							
C6 - C8 Fraction	---	5	<5	<5	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	<200	<200	mg/kg	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	<500	<500	mg/kg	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)																							
Benzene	71-43-2	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	<1.0	<1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3				mg/kg																		
Styrene	100-42-5	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds																							
2-Propanone (Acetone)	67-64-1	50	<50	<50	mg/kg	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	<5	<5	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics																							
Methylene chloride	75-09-2	2.5	<2.5	<2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)																							
Chloroform	67-66-3	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	<0.5	<0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether																							



Compound	CAS Number	LOR	Unit	Client sample ID									
				Client sampling date / time	B-01-4.5M	B-30-0.5M	B-01-6.0M	B-02-1.5M	B-30-1.5M				
Sub-Matrix: SOIL													
EP-074L: Methyl-tert-butyl Ether - Continued													
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
EP-066: Polychlorinated Biphenyls													
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)													
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate													
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	
EP-080S: TPH(Volatile)/BTEX Surrogate													
Dibromofluoromethane	1868-53-7	0.1	%	105	102	103	103	96.3	96.3	102	102	102	
Toluene-D8	2037-26-5	0.1	%	98.6	101	99.9	99.9	98.7	98.7	99.1	99.1	99.1	
4-Bromofluorobenzene	460-00-4	0.1	%	96.3	97.9	97.0	97.0	93.7	93.7	96.8	96.8	96.8	
EP-074S: VOC Surrogates													
Dibromofluoromethane	1868-53-7	0.1	%	105	102	103	103	96.3	96.3	102	102	102	
Toluene-D8	2037-26-5	0.1	%	98.6	101	99.9	99.9	98.7	98.7	99.1	99.1	99.1	
4-Bromofluorobenzene	460-00-4	0.1	%	96.3	97.9	97.0	97.0	93.7	93.7	96.8	96.8	96.8	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates													
2-Fluorobiphenyl	321-60-8	0.1	%	80.4	78.0	73.7	73.7	62.4	62.4	63.7	63.7	63.7	
4-Terphenyl-d14	1718-51-0	0.1	%	74.4	69.6	69.7	69.7	60.4	60.4	60.2	60.2	60.2	
EP-066S: PCB Surrogate													
Tetrachlorometaxylene	877-09-8	0.1	%	52.2	51.1	51.4	51.4	53.8	53.8	58.6	58.6	58.6	
Dibutylchlorendate	1770-80-5	0.1	%	63.6	60.7	65.0	65.0	67.0	67.0	70.2	70.2	70.2	



Compound	CAS Number	LOR	Client sample ID		Unit	%	B-28-0.5M	B-02-3.0M	B-30-3.0M	B-43-0.5M
			Client sampling date / time	Client sampling date / time						
Sub-Matrix: SOIL										
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1			%	9.6	14.5	14.0		17.0
ED/EK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1			mg/kg	<1	<1	<1		<1
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2			mg/kg	<0.2	<0.2	<0.2		<0.2
EG020: Copper	7440-50-8	1			mg/kg	12	12	19		12
EG020: Lead	7439-92-1	1			mg/kg	56	105	68		52
EG020: Nickel	7440-02-0	1			mg/kg	6	5	4		5
EG020: Zinc	7440-66-6	1			mg/kg	118	118	134		114
EG036: Mercury	7439-97-6	1			mg/kg	<1	<1	<1		<1
EG049: Trivalent Chromium	16065-83-1	1			mg/kg	10	15	15		10
EG3060: Hexavalent Chromium	18540-29-9	1			mg/kg	<1	<1	<1		<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5			mg/kg	<5	<5	<5		<5
C9 - C16 Fraction	---	200			mg/kg	<200	<200	<200		<200
C17 - C35 Fraction	---	500			mg/kg	<500	<500	<500		<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
Toluene	108-88-3	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
Ethylbenzene	100-41-4	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
meta- & para-Xylene	108-38-3	1.0			mg/kg	<1.0	<1.0	<1.0		<1.0
	106-42-3									
Styrene	100-42-5	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
ortho-Xylene	95-47-6	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50			mg/kg	<50	<50	<50		<50
2-Butanone (MEK)	78-93-3	5			mg/kg	<5	<5	<5		<5
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5			mg/kg	<2.5	<2.5	<2.5		<2.5
Trichloroethene	79-01-6	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
Tetrachloroethene	127-18-4	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
Bromodichloromethane	75-27-4	0.5			mg/kg	<0.5	<0.5	<0.5		<0.5
EP-074L: Methyl-tert-butyl Ether										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50			mg/kg	<0.50	<0.50	<0.50		<0.50



Sub-Matrix: SOIL		Client sample ID		Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time	
Compound	CAS Number	LOR	Unit	B-28-0.5M	B-02-3.0M	B-30-3.0M	B-43-0.5M	B-28-0.5M	B-02-3.0M	B-30-3.0M	B-43-0.5M
				26-MAR-2011 11:40	26-MAR-2011 12:05	26-MAR-2011 12:15	26-MAR-2011 11:45	26-MAR-2011 11:40	26-MAR-2011 12:05	26-MAR-2011 12:15	26-MAR-2011 11:45
				HK1107163-006	HK1107163-007	HK1107163-008	HK1107163-009	HK1107163-006	HK1107163-007	HK1107163-008	HK1107163-009
<b>EP-066: Polychlorinated Biphenyls</b>											
<b>Total Polychlorinated biphenyls</b>											
		---	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)</b>											
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate</b>											
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>											
Dibromofluoromethane	1868-53-7	0.1	%	105	103	103	106	105	103	103	106
Toluene-D8	2037-26-5	0.1	%	98.8	99.5	99.8	100	98.8	99.5	99.8	100
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	96.1	94.8	97.0	95.6	96.1	94.8	97.0
<b>EP-074S: VOC Surrogates</b>											
Dibromofluoromethane	1868-53-7	0.1	%	105	103	103	106	105	103	103	106
Toluene-D8	2037-26-5	0.1	%	98.8	99.5	99.8	100	98.8	99.5	99.8	100
4-Bromofluorobenzene	460-00-4	0.1	%	95.6	96.1	94.8	97.0	95.6	96.1	94.8	97.0
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>											
2-Fluorobiphenyl	321-60-8	0.1	%	69.0	72.8	70.0	72.9	69.0	72.8	70.0	72.9
4-Terphenyl-d14	1718-51-0	0.1	%	63.0	67.3	63.5	67.0	63.0	67.3	63.5	67.0
<b>EP-066S: PCB Surrogate</b>											
Tetrachlorometaxylene	877-09-8	0.1	%	61.6	62.8	63.8	63.1	61.6	62.8	63.8	63.1
Dibutylchlorodendate	1770-80-5	0.1	%	77.6	75.2	70.8	74.5	77.6	75.2	70.8	74.5



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1107163

**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1726237)</b>									
HK1107121-001	Anonymous		EA056: Moisture Content (dried @ 103°C)		0.1	%	17.0	17.0	0.0
HK1107121-011	Anonymous		EA056: Moisture Content (dried @ 103°C)		0.1	%	9.6	8.7	9.4
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1726238)</b>									
HK1107163-004	B-02-1.5M		EA055: Moisture Content (dried @ 103°C)		0.1	%	14.8	15.0	1.5
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740101)</b>									
HK1107121-002	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)</b>									
HK1107163-005	B-30-1.5M		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1729795)</b>									
HK1107121-011	Anonymous		EG020: Cadmium	7440-43-9	0.2	mg/kg	0.3	0.4	0.0
			EG020: Copper	7440-50-8	1	mg/kg	45	52	14.5
			EG020: Lead	7439-92-1	1	mg/kg	57	49	13.9
			EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	170	148	15.0
<b>EG: Metals and Major Cations (QC Lot: 1729796)</b>									
HK1107163-005	B-30-1.5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	27	26	6.1
			EG020: Lead	7439-92-1	1	mg/kg	106	125	16.8
			EG020: Nickel	7440-02-0	1	mg/kg	7	6	17.1
			EG020: Zinc	7440-66-6	1	mg/kg	134	153	13.0
HK1107262-005	Anonymous		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	10	11	13.0
			EG020: Lead	7439-92-1	1	mg/kg	24	21	11.8
			EG020: Nickel	7440-02-0	1	mg/kg	2	3	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	37	42	13.7
<b>EG: Metals and Major Cations (QC Lot: 1729799)</b>									
HK1107121-002	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1107121-011	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1729800)</b>									
HK1107163-005	B-30-1.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1107262-005	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1729826)</b>									
HK1107121-011	Anonymous		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1729827)</b>									
HK1107163-005	B-30-1.5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1107262-005	Anonymous		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EP-074HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)</b>									
HK1106930-005	Anonymous		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0



Matrix: SOIL									
Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328) - Continued</b>									
HK1106930-005	Anonymous	C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724552)</b>									
HK1107121-007	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559)</b>									
HK1107121-007	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0	
HK1107121-007	Anonymous	C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0	
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0	
			106-42-3						
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1724972)</b>									
HK1107163-006	B-28-0.5M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0	
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0	
			106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0	
<b>EP-074B: Oxygenated Compounds (QC Lot: 1724972)</b>									
HK1107163-006	B-28-0.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0	
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0	
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1724972)</b>									
HK1107163-006	B-28-0.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723874)</b>									
HK1107020-002	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1724972)</b>									
HK1107163-006	B-28-0.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	



Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOD	Unit	Original Result	Duplicate Result	RPD (%)
Matrix: SOIL									
EP-074G: Trihalomethanes (THM) (QC Lot: 1724972) - Continued									
HK1107163-006	B-28-0.5M		Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
			Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723874)									
HK1107020-002	Anonymous		Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1724972)									
HK1107163-006	B-28-0.5M		Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
EP-066: Polychlorinated Biphenyls (QC Lot: 1723873)									
HK1107020-002	Anonymous		Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
EP-066: Polychlorinated Biphenyls (QC Lot: 1724560)									
HK1107121-007	Anonymous		Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724558)									
HK1107121-007	Anonymous		Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
			Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
			Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
			Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
			Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
			Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
			Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
			Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
			Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
			Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
			Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
			Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
			Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
			Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
			Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
			Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970)									
HK1107163-006	B-28-0.5M		Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
			Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
			Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
			Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
			Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
			Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
			Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
			Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
			Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
			Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
			Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
			Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970) - Continued</b>								
HK1107163-006	B-28-0.5M	Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724558)</b>								
HK1107121-007	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724970)</b>								
HK1107163-006	B-28-0.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	Control Limit	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740101)</b>												
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	97.4	---	---	85	115	---	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)</b>												
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	97.6	---	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729795)</b>												
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	98.3	---	---	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	101	---	---	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	92.9	---	---	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	93.1	---	---	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	112	---	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729796)</b>												
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	94.9	---	---	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	97.5	---	---	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	86.4	---	---	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	91.2	---	---	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	109	---	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729799)</b>												
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	94.8	---	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729800)</b>												
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	96.1	---	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729826)</b>												
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	100	---	---	85	115	---	---





Matrix: SOIL

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
EG: Metals and Major Cations (QC Lot: 1729827)											
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	112	---	85	115	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	91.2	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	93.9	---	56	116	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724552)											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	112	---	63	126	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559)											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	82.4	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	83.2	---	56	116	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723874)											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	127	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	115	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	106	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	105	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	109	---	71	149	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1724972)											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	106	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	95.0	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	97.7	---	71	149	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1723874)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	118	---	26	177	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1724972)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	107	---	26	177	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1723874)											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	114	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	69	151	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1724972)											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	99.1	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	98.6	---	69	151	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1723874)											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	131	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	---	71	137	---	---



Method: Compound	CAS Number	LOR	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
			Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		Value	RPD (%)	Control Limit
			mg/kg	<0.5		LCS	DCS	Low	High			
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1724972)</b>												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	109	---	69	139	---	---	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	71	137	---	---	
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1723873)</b>												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	80.8	---	28	138	---	---	
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1724560)</b>												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	70.0	---	28	138	---	---	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724558)</b>												
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	90.3	---	41	120	---	---	
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	77.3	---	42	98	---	---	
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	89.2	---	46	117	---	---	
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	88.8	---	50	119	---	---	
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	90.5	---	49	118	---	---	
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	88.0	---	49	107	---	---	
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	94.3	---	58	120	---	---	
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	92.5	---	57	118	---	---	
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	82.4	---	59	116	---	---	
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	103	---	60	127	---	---	
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	74.6	---	63	120	---	---	
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	105	---	56	126	---	---	
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	69.3	---	53	101	---	---	
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	102	---	64	130	---	---	
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	83.6	---	57	125	---	---	
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	84.8	---	59	125	---	---	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970)</b>												
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	85.7	---	41	120	---	---	
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	75.2	---	42	98	---	---	
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	85.5	---	46	117	---	---	
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	84.8	---	50	119	---	---	
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	85.1	---	49	118	---	---	
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	83.1	---	49	107	---	---	
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	89.7	---	58	120	---	---	
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	87.9	---	57	118	---	---	
Benzo(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	82.2	---	59	116	---	---	
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	99.2	---	60	127	---	---	
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	76.8	---	63	120	---	---	
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	95.4	---	56	126	---	---	
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	66.3	---	53	101	---	---	
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	94.4	---	64	130	---	---	
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	77.5	---	57	125	---	---	
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	78.6	---	59	125	---	---	



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724558)									
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	100	---	29	129
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	84.2	---	54	120
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	103	---	87	123
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724970)									
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	97.8	---	29	129
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	79.2	---	54	120
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	101	---	87	123

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Method/Compound				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740101)									
HK1107121-001	Anonymous	EK025MD: Free Cyanide	---	19 mg/kg	78.9	---	75	125	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)									
HK1107163-004	B-02-1.5M	EK025MD: Free Cyanide	---	19 mg/kg	105	---	75	125	---
EG: Metals and Major Cations (QC Lot: 1729795)									
HK1107121-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	94.4	---	75	125	---
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	76.1	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
EG: Metals and Major Cations (QC Lot: 1729796)									
HK1107163-004	B-02-1.5M	EG020: Cadmium	7440-43-9	5 mg/kg	96.1	---	75	125	---
		EG020: Copper	7440-50-8	50 mg/kg	87.1	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	76.0	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
EG: Metals and Major Cations (QC Lot: 1729799)									
HK1107121-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	82.8	---	75	125	---
EG: Metals and Major Cations (QC Lot: 1729800)									
HK1107163-004	B-02-1.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	103	---	75	125	---



Matrix: SOIL

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration			Spike Recovery (%)			Recovery Limits (%)			Control Limit
				MS	MSD	Low	High	Value	MS	MSD	Low	High	
<b>EG: Metals and Major Cations (QC Lot: 1729826)</b>													
HK1107121-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	---	75	125	---	---	---	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729827)</b>													
HK1107163-004	B-02-1.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	---	75	125	---	---	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721328)</b>													
HK1106930-012	Anonymous	C9 - C16 Fraction	---	31 mg/kg	---	50	130	---	---	---	---	---	---
		C17 - C35 Fraction	---	75 mg/kg	---	50	130	---	---	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724552)</b>													
HK1107121-008	Anonymous	C6 - C8 Fraction	---	3 mg/kg	---	50	130	---	---	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1724559)</b>													
HK1107121-008	Anonymous	C9 - C16 Fraction	---	31 mg/kg	---	50	130	---	---	---	---	---	---
		C17 - C35 Fraction	---	75 mg/kg	---	50	130	---	---	---	---	---	---

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)		
Compound	CAS Number	Low	High	
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>				
Dibromofluoromethane	1868-53-7	80	120	
Toluene-D8	2037-26-5	81	117	
4-Bromofluorobenzene	460-00-4	74	121	
<b>EP-074S: VOC Surrogates</b>				
Dibromofluoromethane	1868-53-7	80	120	
Toluene-D8	2037-26-5	81	117	
4-Bromofluorobenzene	460-00-4	74	121	
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>				
2-Fluorobiphenyl	321-60-8	50	130	
4-Terphenyl-d14	1718-51-0	50	130	
<b>EP-066S: PCB Surrogate</b>				
Tetrachlorometylene	877-09-8	50	130	
Dibutylchloride	1770-80-5	50	130	

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 17
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107262
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Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 28-MAR-2011
Order number	: ----			Issue Date	: 13-APR-2011
C-O-C number	: H020212			No. of samples received	: 11
Site	: XRL823B-SITE B			No. of samples analysed	: 11

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

**ALS Laboratory Group**  
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A Campbell Brothers Limited Company



Page Number : 2 of 17  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107262

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1107262

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Compound	CAS Number	LOR	Client sample ID						
			B-03-1.5M 28-MAR-2011 10:00 HK1107262-001	B-30-4.5M 28-MAR-2011 10:15 HK1107262-002	B-03-3.0M 28-MAR-2011 11:25 HK1107262-003	B-30-6.0M 28-MAR-2011 11:40 HK1107262-004	B-02-4.5M 28-MAR-2011 11:45 HK1107262-005		
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	14.7	16.4	14.2	23.9	16.0		
ED/EK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1	<1	<1	<1	<1	<1		
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
EG020: Copper	7440-50-8	1	10	99	15	45	10		
EG020: Lead	7439-92-1	1	44	44	98	193	24		
EG020: Nickel	7440-02-0	1	5	4	5	5	2		
EG020: Zinc	7440-66-6	1	86	142	106	114	37		
EG036: Mercury	7439-97-6	1	<1	<1	<1	<1	<1		
EG049: Trivalent Chromium	16065-83-1	1	22	5	16	6	2		
EG3060: Hexavalent Chromium	18540-29-9	1	<1	<1	<1	<1	<1		
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5	<5	<5	<5	<5	<5		
C9 - C16 Fraction	---	200	<200	<200	<200	<200	<200		
C17 - C35 Fraction	---	500	<500	<500	<500	<500	<500		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Toluene	108-88-3	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3	1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
	106-42-3								
Styrene	100-42-5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	<50	<50	<50	<50	<50		
2-Butanone (MEK)	78-93-3	5	<5	<5	<5	<5	<5		
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	<2.5	<2.5	<2.5	<2.5	<2.5		
Trichloroethene	79-01-6	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Tetrachloroethene	127-18-4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Bromodichloromethane	75-27-4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074L: Methyl-tert-butyl Ether									



Compound	Client sample ID		Client sampling date / time		CAS Number		LOR		Unit		B-03-1.5M		B-30-4.5M		B-03-3.0M		B-30-6.0M		B-02-4.5M		
	CAS Number	LOR	Unit	Unit	CAS Number	LOR	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Sub-Matrix: SOIL																					
EP-074L: Methyl-tert-butyl Ether - Continued																					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg									<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls																					
Total Polychlorinated biphenyls	---	0.1	mg/kg									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)																					
Naphthalene	91-20-3	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg									<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate																					
Phenol	108-95-2	0.50	mg/kg									<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg									<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg									<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-089S: TPH(Volatile)/BTEX Surrogate																					
Dibromofluoromethane	1868-53-7	0.1	%									104	118	104	110	104	110	104	110	113	113
Toluene-D8	2037-26-5	0.1	%									98.8	100	100	100	97.4	100	97.4	100	98.3	100
4-Bromofluorobenzene	460-00-4	0.1	%									96.5	98.7	96.0	97.4	96.0	97.4	97.4	98.3	98.3	98.3
EP-074S: VOC Surrogates																					
Dibromofluoromethane	1868-53-7	0.1	%									104	118	104	110	104	110	104	110	113	113
Toluene-D8	2037-26-5	0.1	%									98.8	100	100	100	97.4	100	97.4	100	98.3	100
4-Bromofluorobenzene	460-00-4	0.1	%									96.5	98.7	96.0	97.4	96.0	97.4	97.4	98.3	98.3	98.3
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates																					
2-Fluorobiphenyl	321-60-8	0.1	%									69.5	76.8	83.6	76.5	83.6	76.5	83.6	76.5	75.2	75.2
4-Terphenyl-d14	1718-51-0	0.1	%									70.7	84.3	77.9	77.3	77.9	77.3	83.4	71.9	71.9	71.9
EP-066S: PCB Surrogate																					
Tetrachlorometaxylene	877-09-8	0.1	%									80.6	64.8	53.2	69.6	53.2	69.6	83.4	69.6	69.6	69.6
Dibutylchlorodane	1770-80-5	0.1	%									52.7	60.0	58.3	58.2	58.3	58.2	69.6	58.2	58.2	58.2





Compound	Client sample ID			Unit	Result	Date / Time	Sample ID
	CAS Number	LOR	Unit				
Sub-Matrix: SOIL							
EA/ED: Physical and Aggregate Properties							
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	20.2	23.9	15.0	
ED/EK: Inorganic Nonmetallic Parameters							
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	
EG: Metals and Major Cations							
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	
EG020: Copper	7440-50-8	1	mg/kg	19	29	40	
EG020: Lead	7439-92-1	1	mg/kg	92	78	151	
EG020: Nickel	7440-02-0	1	mg/kg	4	12	7	
EG020: Zinc	7440-66-6	1	mg/kg	81	336	165	
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	6	11	14	
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	
EP-071HK: Total Petroleum Hydrocarbons (TPH)							
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)							
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	
	106-42-3	3					
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	
EP-074B: Oxygenated Compounds							
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	
EP-074E: Halogenated Aliphatics							
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	
EP-074G: Trihalomethanes (THM)							
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	
EP-074L: Methyl-tert-butyl Ether							
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	



Compound	CAS Number	LOR	Client sample ID		Unit	mg/kg	Client sampling date / time		Unit	mg/kg
			B-02-6.0M	B-03-6.3M			B-28-1.5M	B-28-1.5M		
Sub-Matrix: SOIL										
EP-066: Polychlorinated Biphenyls										
Total Polychlorinated biphenyls										
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate										
Phenol	108-95-2	0.50	<0.50	<0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatiles)/BTEX Surrogate										
Dibromofluoromethane	1868-53-7	0.1	82.9	104	%	82.9	97.4	104	109	109
Toluene-D8	2037-26-5	0.1	97.4	99.9	%	97.4	99.9	99.9	99.9	99.9
4-Bromofluorobenzene	460-00-4	0.1	87.1	95.4	%	87.1	95.4	95.4	96.6	96.6
EP-074S: VOC Surrogates										
Dibromofluoromethane	1868-53-7	0.1	82.9	104	%	82.9	97.4	104	109	109
Toluene-D8	2037-26-5	0.1	97.4	99.9	%	97.4	99.9	99.9	99.9	99.9
4-Bromofluorobenzene	460-00-4	0.1	87.1	95.4	%	87.1	95.4	95.4	96.6	96.6
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates										
2-Fluorobiphenyl	321-60-8	0.1	89.0	76.9	%	89.0	76.9	76.9	81.0	81.0
4-Terphenyl-d14	1718-51-0	0.1	88.1	73.7	%	88.1	73.7	73.7	80.1	80.1
EP-066S: PCB Surrogate										
Tetrachlorometaxylene	877-09-8	0.1	68.9	73.0	%	68.9	73.0	73.0	69.8	69.8
Dibutylchlorodendate	1770-80-5	0.1	52.2	54.7	%	52.2	54.7	54.7	72.6	72.6
Surrogate control limits listed at end of this report.										



Compound	CAS Number	Client sample ID		EQUIPMENT BLANK EQ1	TRIP BLANK-3	FIELD BLANK-3
		LOR	Unit			
Sub-Matrix: WATER						
ED/EK: Inorganic Nonmetallic Parameters						
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	---	<0.01
EG: Metals and Major Cations						
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L	<0.02	---	<0.02
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	---	<0.02
EG: Metals and Major Cations - Filtered						
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	---	<0.0002
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	---	0.004
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	---	<0.001
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	---	<0.001
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	---	<0.01
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	---	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)						
C6 - C8 Fraction	---	0.02	mg/L	<0.02	---	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	---	<0.5
C17 - C36 Fraction	---	0.5	mg/L	<0.5	---	<0.5
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)						
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010
	106-42-3					
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds						
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics						
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)						
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether						
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005
EP-075A: Phenols						



Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sampling date / time		Unit	EQ1	TRIP BLANK-3	FIELD BLANK-3
			CAS Number	LOR				
EP-075A: Phenols - Continued								
Phenol	108-95-2	0.002			mg/L	<0.002	---	<0.002
EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.002			mg/L	<0.002	---	<0.002
Acenaphthylene	208-96-8	0.002			mg/L	<0.002	---	<0.002
Acenaphthene	83-32-9	0.002			mg/L	<0.002	---	<0.002
Fluorene	86-73-7	0.002			mg/L	<0.002	---	<0.002
Phenanthrene	85-01-8	0.002			mg/L	<0.002	---	<0.002
Anthracene	120-12-7	0.002			mg/L	<0.002	---	<0.002
Fluoranthene	206-44-0	0.002			mg/L	<0.002	---	<0.002
Pyrene	129-00-0	0.002			mg/L	<0.002	---	<0.002
Benz(a)anthracene	56-55-3	0.002			mg/L	<0.002	---	<0.002
Chrysene	218-01-9	0.002			mg/L	<0.002	---	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004			mg/L	<0.004	---	<0.004
	207-08-9							
Benzo(a)pyrene	50-32-8	0.002			mg/L	<0.002	---	<0.002
Indeno(1,2,3-cd)pyrene	193-39-5	0.002			mg/L	<0.002	---	<0.002
Dibenz(a,h)anthracene	53-70-3	0.002			mg/L	<0.002	---	<0.002
Benzo(g,h,i)perylene	191-24-2	0.002			mg/L	<0.002	---	<0.002
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	0.020			mg/L	<0.020	---	<0.020
EP-075G: Chlorinated Hydrocarbons								
Hexachlorobenzene (HCB)	118-74-1	0.004			mg/L	<0.004	---	<0.004
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	---	1.00			mg/L	<1.00	---	<1.00
EP-080S: TPH(Volatiles)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1			%	113	---	105
Toluene-D8	2037-26-5	0.1			%	102	---	102
4-Bromofluorobenzene	460-00-4	0.1			%	96.5	---	95.7
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1			%	113	108	105
Toluene-D8	2037-26-5	0.1			%	102	102	102
4-Bromofluorobenzene	460-00-4	0.1			%	96.5	95.9	95.7
EP-075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1			%	36.4	---	42.7
Phenol-d6	13127-88-3	0.1			%	27.2	---	31.0
2,4,6-Tribromophenol	118-79-6	0.1			%	27.9	---	27.9



Compound	CAS Number		Client sampling date / time		LOR	Unit	EQUIPMENT BLANK EQ1	TRIP BLANK-3	FIELD BLANK-3
Sub-Matrix: WATER									
EP-075T: Base/Neutral Extractable Surrogates									
Nitrobenzene -d5	4165-60-0	0.1			%	51.4	---	61.7	
2-Fluorobiphenyl	321-60-8	0.1			%	52.7	---	64.4	
4-Terphenyl-d14	1718-51-0	0.1			%	75.3	---	86.0	
Surrogate control limits listed at end of this report.									
EP-066S: PCB Surrogate									
Tetrachlorometaxylene	877-09-8	0.1			%	68.0	---	83.1	
Dibutylchlorendate	1770-80-5	0.1			%	93.8	---	97.1	
Surrogate control limits listed at end of this report.									



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL									
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1728119)</b>									
HK1107199-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	78.3	78.5	0.1	
HK1107280-001	Anonymous	EA056: Moisture Content (dried @ 103°C)	---	0.1	%	15.8	16.7	6.0	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)</b>									
HK1107163-005	Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1729796)</b>									
HK1107163-005	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	27	26	6.1	
		EG020: Lead	7439-92-1	1	mg/kg	106	125	16.8	
		EG020: Nickel	7440-02-0	1	mg/kg	7	6	17.1	
		EG020: Zinc	7440-66-6	1	mg/kg	134	153	13.0	
HK1107262-005	B-02-4.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	10	11	13.0	
		EG020: Lead	7439-92-1	1	mg/kg	24	21	11.8	
		EG020: Nickel	7440-02-0	1	mg/kg	2	3	0.0	
		EG020: Zinc	7440-66-6	1	mg/kg	37	42	13.7	
<b>EG: Metals and Major Cations (QC Lot: 1729800)</b>									
HK1107163-005	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
HK1107262-005	B-02-4.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1729827)</b>									
HK1107163-005	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
HK1107262-005	B-02-4.5M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1727077)</b>									
HK1107262-001	B-03-1.5M	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1727081)</b>									
HK1107262-001	B-03-1.5M	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0	
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1724972)</b>									
HK1107163-006	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0	
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0	
			106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1724972)</b>									
HK1107163-006	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0	
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1724972)</b>									



Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	RPD (%)
<b>Matrix: SOIL</b>						
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1724972) - Continued</b>						
HK1107163-006	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1724972)</b>						
HK1107163-006	Anonymous	Chloroform	67-66-3	0.5	mg/kg	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1724972)</b>						
HK1107163-006	Anonymous	Methyl tert-Butyl Ether (MTBE)	1694-04-4	0.50	mg/kg	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1723873)</b>						
HK1107020-002	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1727082)</b>						
HK1107262-001	B-03-1.5M	Total Polychlorinated biphenyls	---	0.1	mg/kg	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970)</b>						
HK1107163-006	Anonymous	Naphthalene	91-20-3	500	µg/kg	0.0
		Acenaphthylene	208-86-8	500	µg/kg	0.0
		Acenaphthene	83-32-9	500	µg/kg	0.0
		Fluorene	86-73-7	500	µg/kg	0.0
		Phenanthrene	85-01-8	500	µg/kg	0.0
		Anthracene	120-12-7	500	µg/kg	0.0
		Fluoranthene	206-44-0	500	µg/kg	0.0
		Pyrene	129-00-0	500	µg/kg	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	0.0
		Chrysene	218-01-9	500	µg/kg	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724970)</b>						
HK1107163-006	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	0.0
		Phenol	108-95-2	500	µg/kg	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	0.0
<b>Matrix: WATER</b>						
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>						
HK1107262-011	FIELD BLANK-3	EK025MD: Free Cyanide	---	0.01	mg/L	0.0
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>						
HK1107020-010	Anonymous	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	0.0



Matrix: WATER									
Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1730327)</b>									
HK1107262-011	FIELD BLANK-3								
		EG020: Cadmium	7440-43-8	0.0002	mg/L	<0.0002	<0.0002	0.0	
		EG020: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	
		EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	
		EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	
		EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	<0.01	0.0	
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1730328)</b>									
HK1107262-011	FIELD BLANK-3								
		EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)</b>									
HK1106930-006	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)</b>									
HK1106930-006	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0	
			106-42-3						
		Benzene	71-43-2	5	µg/L	<5	<5	0.0	
		Toluene	108-88-3	5	µg/L	<5	<5	0.0	
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0	
		Styrene	100-42-5	5	µg/L	<5	<5	0.0	
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0	
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723404)</b>									
HK1106930-006	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0	
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723404)</b>									
HK1106930-006	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0	
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)</b>									
HK1106930-006	Anonymous	Chloroform	67-66-3	5	µg/L	<5	<5	0.0	
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723404)</b>									
HK1106930-006	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0	

Matrix: SOIL									
Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report									
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)			RPD (%)
						LCS	Low	High	
<b>Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report</b>									
Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report									
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)	---	1	mg/kg	<1	0.19 mg/kg	97.6	85	115	---
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	97.6	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1729796)</b>									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	94.9	85	115	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	97.5	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	86.4	85	115	---





Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
						Low	High				
<b>EG: Metals and Major Cations (QC Lot: 1729796) - Continued</b>											
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	91.2	115	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	109	115	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729800)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	96.1	115	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729827)</b>											
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	112	115	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1727077)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	105	126	63	126	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1727081)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	85.2	116	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	95.8	116	56	116	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1724972)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	106	141	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	149	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	137	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	95.0	160	62	160	---	---
	106-42-3										
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	136	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	97.7	149	71	149	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1724972)</b>											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	107	177	26	177	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1724972)</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	99.1	136	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	98.6	151	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1724972)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	109	139	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	137	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1723873)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	80.8	138	28	138	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1727082)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	66.1	138	28	138	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	85.7	120	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	75.2	98	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	85.5	117	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	84.8	119	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	85.1	118	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	83.1	107	49	107	---	---



Method: Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
	CAS Number	LOR	Unit	Result	Spike Recovery (%)		Recovery Limits (%)		Value	RPD (%)	Control Limit
					LCS	DCS	Low	High			
<b>Matrix: SOIL</b>											
<b>Method: Compound</b>											
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970) - Continued</b>											
Fluoranthene	206-44-0	50	µg/kg	<50	89.7	---	58	120	---	---	---
Pyrene	129-00-0	50	µg/kg	<50	87.9	---	57	118	---	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	82.2	---	59	116	---	---	---
Chrysene	218-01-9	50	µg/kg	<50	99.2	---	60	127	---	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	76.8	---	63	120	---	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	95.4	---	56	126	---	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	66.3	---	53	101	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	94.4	---	64	130	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	77.5	---	57	125	---	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	78.6	---	59	125	---	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724970)</b>											
Phenol	108-95-2	500	µg/kg	<500	97.8	---	29	129	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	79.2	---	54	120	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	101	---	87	123	---	---	---
<b>Matrix: WATER</b>											
<b>Method: Compound</b>											
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>											
EG025MD: Free Cyanide	---	0.01	mg/L	<0.01	89.0	---	85	115	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>											
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	99.6	---	85	115	---	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1730327)</b>											
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	91.6	---	85	115	---	---	---
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	91.7	---	85	115	---	---	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	90.8	---	85	115	---	---	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	91.8	---	85	115	---	---	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	90.1	---	85	115	---	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1730328)</b>											
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.0005	97.0	---	85	115	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721331)</b>											
C9 - C16 Fraction	---	0.5	mg/L	<0.5	84.7	---	17	170	---	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	95.0	---	32	143	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)</b>											
C6 - C8 Fraction	---	0.02	mg/L	<0.02	94.6	---	68	127	---	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)</b>											
Benzene	71-43-2	5	µg/L	<5	77.0	---	56	117	---	---	---
Toluene	108-88-3	5	µg/L	<5	79.0	---	55	125	---	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	79.0	---	68	114	---	---	---



Method: Compound		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
		CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404) - Continued</b>												
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	79.0	---	64	114	---	---	---
	106-42-3											
Styrene	100-42-5	5	µg/L	<5	10 µg/L	71.5	---	68	108	---	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	78.0	---	77	111	---	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723404)</b>												
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	69.8	---	52	130	---	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723404)</b>												
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	76.0	---	64	122	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	77.0	---	62	117	---	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)</b>												
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	87.0	---	65	124	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	84.5	---	67	116	---	---	---
<b>EP-075A: Phenols (QC Lot: 1721330)</b>												
Phenol	108-95-2	2	µg/L	<2	5 µg/L	33.0	---	10	100	---	---	---
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1721330)</b>												
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	61.4	---	48	102	---	---	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	60.5	---	43	110	---	---	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	62.3	---	45	107	---	---	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	65.5	---	51	104	---	---	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	71.5	---	60	107	---	---	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	73.4	---	58	105	---	---	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	84.3	---	67	105	---	---	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	85.7	---	65	105	---	---	---
Benz(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	87.0	---	64	106	---	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	86.5	---	68	114	---	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	87.4	---	53	104	---	---	---
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	70.2	---	52	103	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	83.3	---	45	107	---	---	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	84.1	---	43	92	---	---	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	85.8	---	42	102	---	---	---
<b>EP-075C: Phthalate Esters (QC Lot: 1721330)</b>												
Bis(2-ethylhexyl)phthalate	117-81-7	20	µg/L	<20	5 µg/L	80.6	---	0	226	---	---	---
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1721330)</b>												
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	72.7	---	52	110	---	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1721329)</b>												
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	121	---	49	147	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**



Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				MS	MSD	Recovery Limits (%)	RPD (%)			
				Spike Concentration	MS	MSD	Low	High	Value	Control Limit
<b>EDIEK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)</b>										
HK1107163-004	Anonymous	EK025MD: Free Cyanide	---	19 mg/kg	105	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729796)</b>										
HK1107163-004	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	96.1	---	75	125	---	---
		EG020: Copper	7440-50-8	50 mg/kg	87.1	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	76.0	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729800)</b>										
HK1107163-004	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	103	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1729827)</b>										
HK1107163-004	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	79.5	---	75	125	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1727077)</b>										
HK1107262-002	B-30-4.5M	C6 - C8 Fraction	---	3 mg/kg	96.7	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1727081)</b>										
HK1107262-002	B-30-4.5M	C9 - C16 Fraction	---	31 mg/kg	73.1	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	78.4	---	50	130	---	---
<b>Matrix: WATER</b>										
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				MS	MSD	Recovery Limits (%)	RPD (%)			
				Spike Concentration	MS	MSD	Low	High	Value	Control Limit
<b>ED/IEK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>										
HK1107262-008	EQUIPMENT BLANK EQ1	EK025MD: Free Cyanide	---	0.19 mg/L	94.7	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1733696)</b>										
HK1106930-006	Anonymous	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	92.4	---	75	125	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1730327)</b>										
HK1107262-008	EQUIPMENT BLANK EQ1	EG020: Cadmium	7440-43-9	0.1 mg/L	89.8	---	75	125	3.1	---
		EG020: Copper	7440-50-8	0.1 mg/L	91.8	---	75	125	0.6	---
		EG020: Lead	7439-92-1	0.1 mg/L	93.0	---	75	125	0.6	---
		EG020: Nickel	7440-02-0	0.1 mg/L	93.1	---	75	125	0.7	---
		EG020: Zinc	7440-66-6	0.1 mg/L	89.9	---	75	125	0.5	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1730328)</b>										
HK1107262-008	EQUIPMENT BLANK EQ1	EG036: Mercury	7439-97-6	0.0002 mg/L	91.0	---	75	125	---	---

**Surrogate Control Limits**



Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>EP-080S: TPH(Volatile)/BTX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

Sub-Matrix: WATER

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>EP-080S: TPH(Volatile)/BTX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 24
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107467
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Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 30-MAR-2011
Order number	: ----			Issue Date	: 14-APR-2011
C-O-C number	: H020217-H020218			No. of samples received	: 21
Site	: XRL823B-SITE B			No. of samples analysed	: 21

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics



Page Number : 2 of 24  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107467

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 12-APR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1107467**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Compound	CAS Number	LOR	Unit	Client sample ID	Client sampling date / time	B-24-0.5M	B-20-0.5M	B-24-1.5M	B-20-1.5M	B-27-0.5M
Sub-Matrix: SOIL										
EA/ED: Physical and Aggregate Properties										
EA055: Moisture Content (dried @ 103°C)	---	0.1	%			12.7	11.8	16.0	14.9	11.9
ED/EK: Inorganic Nonmetallic Parameters										
EK025MD: Free Cyanide	---	1	mg/kg			<1	<1	<1	<1	<1
EG: Metals and Major Cations										
EG020: Cadmium	7440-43-9	0.2	mg/kg			<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg			8	5	21	17	8
EG020: Lead	7439-92-1	1	mg/kg			35	29	53	60	33
EG020: Nickel	7440-02-0	1	mg/kg			3	2	6	6	4
EG020: Zinc	7440-66-6	1	mg/kg			76	51	106	96	82
EG036: Mercury	7439-97-6	1	mg/kg			<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg			9	5	21	26	7
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg			<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	5	mg/kg			<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg			<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg			<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg			<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3									
Styrene	100-42-5	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	50	mg/kg			<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg			<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	2.5	mg/kg			<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether										





Compound	CAS Number	LOR	Client sampling date / time		Client sample ID	
			B-24-0.5M	B-20-0.5M	B-24-1.5M	B-20-1.5M
Sub-Matrix: SOIL						
EP-074L: Methyl-tert-butyl Ether - Continued						
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	30-MAR-2011 10:00	30-MAR-2011 10:09	30-MAR-2011 11:35
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	0.1	mg/kg	HK1107467-001	HK1107467-002	HK1107467-003
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500	mg/kg	<0.50	<0.50	<0.50
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	%	95.9	99.4	101
Toluene-D8	2037-26-5	0.1	%	98.9	100	101
4-Bromofluorobenzene	450-00-4	0.1	%	95.3	95.6	97.7
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	%	95.9	99.4	101
Toluene-D8	2037-26-5	0.1	%	98.9	100	101
4-Bromofluorobenzene	450-00-4	0.1	%	95.3	95.6	97.7
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	%	75.6	84.6	83.7
4-Terphenyl-d14	1718-51-0	0.1	%	75.8	86.7	81.4
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	%	102	106	121
Dibutylchloridate	1770-80-5	0.1	%	120	121	119



Compound	CAS Number	LOR	Unit	Client sample ID				B-20-4.5M
				Client sampling date / time	B-24-3.0M	B-27-1.5M	B-20-3.0M	
Sub-Matrix: SOIL								
EAAVED: Physical and Aggregate Properties								
EAO55: Moisture Content (dried @ 103°C)	---	0.1	%	13.4	16.5	16.6	13.2	18.1
EDIEK: Inorganic Nonmetallic Parameters								
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1
EG: Metals and Major Cations								
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	46	14	16	18	15
EG020: Lead	7439-92-1	1	mg/kg	70	45	48	58	74
EG020: Nickel	7440-02-0	1	mg/kg	3	6	4	5	5
EG020: Zinc	7440-66-6	1	mg/kg	100	97	100	115	94
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	16	13	10	18	6
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3							
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Compound	CAS Number	LOR	Client sample ID				
			B-24-3.0M 30-MAR-2011 11:50 HK1107467-006	B-27-1.5M 30-MAR-2011 12:18 HK1107467-007	B-20-3.0M 30-MAR-2011 13:10 HK1107467-008	B-27-3.0M 30-MAR-2011 13:45 HK1107467-009	B-20-4.5M 30-MAR-2011 13:55 HK1107467-010
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
<b>Sub-Matrix: SOIL</b>							
<b>EP-066: Polychlorinated Biphenyls</b>							
<b>Total Polychlorinated biphenyls</b>							
		0.1	<0.1	<0.1	<0.1	<0.1	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)</b>							
Naphthalene	91-20-3	0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthene	83-32-9	0.500	<0.500	<0.500	<0.500	<0.500	
Fluorene	86-73-7	0.500	<0.500	<0.500	<0.500	<0.500	
Phenanthrene	85-01-8	0.500	<0.500	<0.500	<0.500	<0.500	
Anthracene	120-12-7	0.500	<0.500	<0.500	<0.500	<0.500	
Fluoranthene	206-44-0	0.500	<0.500	<0.500	<0.500	<0.500	
Pyrene	129-00-0	0.500	<0.500	<0.500	<0.500	<0.500	
Benz(a)anthracene	56-55-3	0.500	<0.500	<0.500	<0.500	<0.500	
Chrysene	218-01-9	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	<0.500	<0.500	
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	<0.500	<0.500	
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	<0.500	<0.500	
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate</b>							
Phenol	108-95-2	0.50	<0.50	<0.50	<0.50	<0.50	
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	<0.200	<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	<5.00	<5.00	
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>							
Dibromofluoromethane	1868-53-7	0.1	102	101	105	107	
Toluene-D8	2037-26-5	0.1	101	100	100	100	
4-Bromofluorobenzene	460-00-4	0.1	96.8	96.9	95.3	96.6	
<b>EP-074S: VOC Surrogates</b>							
Dibromofluoromethane	1868-53-7	0.1	102	101	105	107	
Toluene-D8	2037-26-5	0.1	101	100	100	100	
4-Bromofluorobenzene	460-00-4	0.1	96.8	96.9	95.3	96.6	
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>							
2-Fluorobiphenyl	321-60-8	0.1	77.6	72.4	83.7	92.7	
4-Terphenyl-d14	1718-51-0	0.1	80.5	78.8	81.5	89.4	
<b>EP-066S: PCB Surrogate</b>							
Tetrachlorometaxylene	877-09-8	0.1	97.6	110	102	103	
Dibutylchlorodate	1770-80-5	0.1	101	108	121	117	



Compound	CAS Number	LOR	Client sample ID		Unit	Client sampling date / time	B-24-4.5M	B-27-4.5M	B-27-6.0M	B-24-6.0M	B-20-6.0M
			30-MAR-2011 14:00	30-MAR-2011 14:22			30-MAR-2011 14:46	30-MAR-2011 15:03	30-MAR-2011 15:30		
Sub-Matrix: SOIL											
EA/VED: Physical and Aggregate Properties											
EA055: Moisture Content (dried @ 103°C)	---	0.1	%			16.0	13.9	18.3	19.0	17.4	
ED/IEK: Inorganic Nonmetallic Parameters											
EK025MD: Free Cyanide	---	1	mg/kg			<1	<1	<1	<1	<1	
EG: Metals and Major Cations											
EG020: Cadmium	7440-43-9	0.2	mg/kg			<0.2	<0.2	<0.2	<0.2	<0.2	
EG020: Copper	7440-50-8	1	mg/kg			15	18	17	63	63	
EG020: Lead	7439-92-1	1	mg/kg			127	142	177	99	119	
EG020: Nickel	7440-02-0	1	mg/kg			4	4	4	3	3	
EG020: Zinc	7440-66-6	1	mg/kg			108	89	72	140	124	
EG036: Mercury	7439-97-6	1	mg/kg			<1	<1	<1	<1	<1	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg			4	8	4	11	5	
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg			<1	<1	<1	<1	<1	
EP-071HK: Total Petroleum Hydrocarbons (TPH)											
C6 - C8 Fraction	---	5	mg/kg			<5	<5	<5	<5	<5	
C9 - C16 Fraction	---	200	mg/kg			<200	<200	<200	<200	<200	
C17 - C35 Fraction	---	500	mg/kg			<500	<500	<500	<500	<500	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)											
Benzene	71-43-2	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
Toluene	108-88-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg			<1.0	<1.0	<1.0	<1.0	<1.0	
	106-42-3										
Styrene	100-42-5	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
EP-074B: Oxygenated Compounds											
2-Propanone (Acetone)	67-64-1	50	mg/kg			<50	<50	<50	<50	<50	
2-Butanone (MEK)	78-93-3	5	mg/kg			<5	<5	<5	<5	<5	
EP-074E: Halogenated Aliphatics											
Methylene chloride	75-09-2	2.5	mg/kg			<2.5	<2.5	<2.5	<2.5	<2.5	
Trichloroethene	79-01-6	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
Tetrachloroethene	127-18-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
EP-074G: Trihalomethanes (THM)											
Chloroform	67-66-3	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg			<0.5	<0.5	<0.5	<0.5	<0.5	
EP-074L: Methyl-tert-butyl Ether (MTBE)											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg			<0.50	<0.50	<0.50	<0.50	<0.50	



Compound	CAS Number	LOR	Client sample ID					Unit
			B-24-4.5M 30-MAR-2011 14:00 HK1107467-011	B-27-4.5M 30-MAR-2011 14:22 HK1107467-012	B-27-6.0M 30-MAR-2011 14:46 HK1107467-013	B-24-6.0M 30-MAR-2011 15:03 HK1107467-014	B-20-6.0M 30-MAR-2011 15:30 HK1107467-015	
Sub-Matrix: SOIL								
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls								
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthylene	208-96-8	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Acenaphthene	83-32-9	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Fluorene	86-73-7	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Phenanthrene	85-01-8	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Anthracene	120-12-7	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Fluoranthene	206-44-0	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Pyrene	129-00-0	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)anthracene	56-55-3	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Chrysene	218-01-9	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(b)fluoranthene	205-99-2	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(k)fluoranthene	207-08-9	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(a)pyrene	50-32-8	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Dibenz(a,h)anthracene	53-70-3	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
Benzo(g,h,i)perylene	191-24-2	0.500	<0.500	<0.500	<0.500	<0.500	<0.500	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Phenol	108-95-2	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Hexachlorobenzene (HCB)	118-74-1	0.200	<0.200	<0.200	<0.200	<0.200	<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	<5.00	<5.00	<5.00	<5.00	<5.00	
EP-080S: TPH(Volatile)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	102	104	108	103	103	
Toluene-D8	2037-26-5	0.1	100	101	101	101	101	
4-Bromofluorobenzene	460-00-4	0.1	96.0	95.9	97.2	97.3	95.9	
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	102	104	108	103	103	
Toluene-D8	2037-26-5	0.1	100	101	101	101	101	
4-Bromofluorobenzene	460-00-4	0.1	96.0	95.9	97.2	97.3	95.9	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	87.9	80.1	81.2	81.5	85.3	
4-Terphenyl-d14	1718-51-0	0.1	89.4	83.4	79.1	80.2	84.2	
EP-066S: PCB Surrogate								
Tetrachlorometylene	877-09-8	0.1	116	120	123	113	109	
Dibutylchlorodenate	1770-80-5	0.1	124	101	109	114	121	



Compound	CAS Number	LOR	Client sample ID		Unit	%	Client sampling date / time		B-26-0.5M	B-23-0.5M	B-22-0.5M
			30-MAR-2011 16:08	30-MAR-2011 16:25			30-MAR-2011 16:36				
Sub-Matrix: SOIL											
EA/ED: Physical and Aggregate Properties											
EA055: Moisture Content (dried @ 103°C)	---	0.1			%	12.7	13.4		15.4		
ED/IEK: Inorganic Nonmetallic Parameters											
EK025MD: Free Cyanide	---	1			mg/kg	<1	<1		<1		
EG: Metals and Major Cations											
EG020: Cadmium	7440-43-9	0.2			mg/kg	<0.2	<0.2		<0.2		
EG020: Copper	7440-50-8	1			mg/kg	11	10		9		
EG020: Lead	7439-92-1	1			mg/kg	53	40		74		
EG020: Nickel	7440-02-0	1			mg/kg	6	6		7		
EG020: Zinc	7440-66-6	1			mg/kg	331	97		122		
EG036: Mercury	7439-97-6	1			mg/kg	<1	<1		<1		
EG049: Trivalent Chromium	16065-83-1	1			mg/kg	10	15		14		
EG3060: Hexavalent Chromium	18540-29-9	1			mg/kg	<1	<1		<1		
EP-071HK: Total Petroleum Hydrocarbons (TPH)											
C6 - C8 Fraction	---	5			mg/kg	<5	<5		<5		
C9 - C16 Fraction	---	200			mg/kg	<200	<200		<200		
C17 - C35 Fraction	---	500			mg/kg	<500	<500		<500		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)											
Benzene	71-43-2	0.5			mg/kg	<0.5	<0.5		<0.5		
Toluene	108-88-3	0.5			mg/kg	<0.5	<0.5		<0.5		
Ethylbenzene	100-41-4	0.5			mg/kg	<0.5	<0.5		<0.5		
meta- & para-Xylene	108-38-3	1.0			mg/kg	<1.0	<1.0		<1.0		
	106-42-3										
Styrene	100-42-5	0.5			mg/kg	<0.5	<0.5		<0.5		
ortho-Xylene	95-47-6	0.5			mg/kg	<0.5	<0.5		<0.5		
EP-074B: Oxygenated Compounds											
2-Propanone (Acetone)	67-64-1	50			mg/kg	<50	<50		<50		
2-Butanone (MEK)	78-93-3	5			mg/kg	<5	<5		<5		
EP-074E: Halogenated Aliphatics											
Methylene chloride	75-09-2	2.5			mg/kg	<2.5	<2.5		<2.5		
Trichloroethene	79-01-6	0.5			mg/kg	<0.5	<0.5		<0.5		
Tetrachloroethene	127-18-4	0.5			mg/kg	<0.5	<0.5		<0.5		
EP-074G: Trihalomethanes (THM)											
Chloroform	67-66-3	0.5			mg/kg	<0.5	<0.5		<0.5		
Bromodichloromethane	75-27-4	0.5			mg/kg	<0.5	<0.5		<0.5		
EP-074L: Methyl-tert-butyl Ether											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50			mg/kg	<0.50	<0.50		<0.50		



Compound	CAS Number	Client sampling date / time		Unit	Client sample ID		
		LOR	Unit		B-26-0.5M	B-23-0.5M	B-22-0.5M
Sub-Matrix: SOIL							
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
EP-076B: Pheno, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate							
Pheno	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	%	106	102	104	104
Toluene-D8	2037-26-5	0.1	%	103	102	101	101
4-Bromofluorobenzene	460-00-4	0.1	%	96.5	95.2	96.6	96.6
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	%	106	102	104	104
Toluene-D8	2037-26-5	0.1	%	103	102	101	101
4-Bromofluorobenzene	460-00-4	0.1	%	96.5	95.2	96.6	96.6
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates							
2-Fluorobiphenyl	321-60-8	0.1	%	88.9	87.6	91.7	91.7
4-Terphenyl-d14	1718-51-0	0.1	%	90.2	88.1	90.1	90.1
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1	%	121	103	101	101
Dibutylchlorodate	1770-80-5	0.1	%	108	118	104	104



Sub-Matrix: WATER

Compound	CAS Number	Client sampling date / time		Unit	Client sample ID		
		LOR	Unit		FIELD BLANK FB-04	EQUIPMENT BLANK	TRIP BLANK-5
<b>ED/EK: Inorganic Nonmetallic Parameters</b>							
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	<0.01	---	---
<b>EG: Metals and Major Cations</b>							
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L	<0.02	<0.02	---	---
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	<0.02	---	---
<b>EG: Metals and Major Cations - Filtered</b>							
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	<0.0002	---	---
EG020: Copper	7440-50-8	0.001	mg/L	0.002	0.003	---	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	---	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	---	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	<0.01	---	---
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>							
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	---	---
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	<0.5	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>							
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010
	106-42-3						
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
<b>EP-074B: Oxygenated Compounds</b>							
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05
<b>EP-074E: Halogenated Aliphatics</b>							
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
<b>EP-074G: Trihalomethanes (THM)</b>							
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
<b>EP-074L: Methyl-tert-butyl Ether (MTBE)</b>							
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
<b>EP-075A: Phenols</b>							





Compound	Client sample ID		FIELD BLANK FB-04	EQUIPMENT BLANK EQ2	TRIP BLANK-5
	CAS Number	Client sampling date / time			
Sub-Matrix: WATER					
EP-075A: Phenols - Continued					
Phenol	108-95-2	0.002	<0.002	<0.002	---
EP-075B: Polyaromatic Hydrocarbons (PAHs)					
Naphthalene	91-20-3	0.002	<0.002	<0.002	---
Acenaphthylene	208-96-8	0.002	<0.002	<0.002	---
Acenaphthene	83-32-9	0.002	<0.002	<0.002	---
Fluorene	86-73-7	0.002	<0.002	<0.002	---
Phenanthrene	85-01-8	0.002	<0.002	<0.002	---
Anthracene	120-12-7	0.002	<0.002	<0.002	---
Fluoranthene	206-44-0	0.002	<0.002	<0.002	---
Pyrene	129-00-0	0.002	<0.002	<0.002	---
Benz(a)anthracene	56-55-3	0.002	<0.002	<0.002	---
Chrysene	218-01-9	0.002	<0.002	<0.002	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	<0.004	<0.004	---
	207-08-9				
Benzo(a)pyrene	50-32-8	0.002	<0.002	<0.002	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	<0.002	<0.002	---
Dibenz(a,h)anthracene	53-70-3	0.002	<0.002	<0.002	---
Benzo(g,h,i)perylene	191-24-2	0.002	<0.002	<0.002	---
EP-075C: Phthalate Esters					
Bis(2-ethylhexyl)phthalate	117-81-7	0.020	<0.020	<0.020	---
EP-075G: Chlorinated Hydrocarbons					
Hexachlorobenzene (HCB)	118-74-1	0.004	<0.004	<0.004	---
EP-066: Polychlorinated Biphenyls					
Total Polychlorinated biphenyls	---	1.00	<1.00	<1.00	---
EP-080S: TPH(Volatile)/BTEX Surrogate					
Dibromofluoromethane	1868-53-7	0.1	115	116	---
Toluene-D8	2037-26-5	0.1	101	102	---
4-Bromofluorobenzene	460-00-4	0.1	94.7	94.9	---
EP-074S: VOC Surrogates					
Dibromofluoromethane	1868-53-7	0.1	115	116	114
Toluene-D8	2037-26-5	0.1	101	102	102
4-Bromofluorobenzene	460-00-4	0.1	94.7	94.9	94.3
EP-075S: Acid Extractable Surrogates					
2-Fluorophenol	367-12-4	0.1	36.6	32.8	---
Phenol-d6	13127-88-3	0.1	24.5	22.6	---
2,4,6-Tribromophenol	118-79-6	0.1	52.6	34.4	---



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1107467

Sub-Matrix: WATER

Compound	Client sample ID		FIELD BLANK FB-04	EQUIPMENT BLANK	TRIP BLANK-5
	CAS Number	LOR			
Client sampling date / time					
EP-075T: Base/Neutral Extractable Surrogates					
Nitrobenzene -d5	4165-60-0	0.1	44.8	42.7	---
2-Fluorobiphenyl	321-60-8	0.1	44.4	46.8	---
4-Terphenyl-d14	1718-51-0	0.1	81.6	74.5	---
EP-066S: PCB Surrogate					
Tetrachlorometaxylene	877-09-8	0.1	87.7	90.9	---
Dibutylchlorendate	1770-80-5	0.1	96.4	91.6	---

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.



**Laboratory Duplicate (DUP) Report**

Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Matrix: SOIL
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1731829)</b>									
HK1107317-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	53.1	53.4	0.6	
HK1107359-009	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	23.0	23.4	1.8	
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1731830)</b>									
HK1107467-003	B-24-1.5M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	16.0	15.7	2.3	
HK1107467-013	B-27-6.0M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	18.3	18.7	2.1	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103)</b>									
HK1107359-008	Anonymous	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740104)</b>									
HK1107467-015	B-20-6.0M	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1733619)</b>									
HK1107467-002	B-20-0.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	5	5	0.0	
		EG020: Lead	7439-92-1	1	mg/kg	29	28	0.0	
		EG020: Nickel	7440-02-0	1	mg/kg	2	2	0.0	
		EG020: Zinc	7440-66-6	1	mg/kg	51	52	0.0	
HK1107467-011	B-24-4.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0	
		EG020: Copper	7440-50-8	1	mg/kg	15	16	8.6	
		EG020: Lead	7439-92-1	1	mg/kg	127	113	11.5	
		EG020: Nickel	7440-02-0	1	mg/kg	4	4	0.0	
		EG020: Zinc	7440-66-6	1	mg/kg	108	114	5.9	
<b>EG: Metals and Major Cations (QC Lot: 1733620)</b>									
HK1107467-002	B-20-0.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
HK1107467-011	B-24-4.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0	
<b>EG: Metals and Major Cations (QC Lot: 1737304)</b>									
HK1107467-002	B-20-0.5M	EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
HK1107467-011	B-24-4.5M	EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730824)</b>									
HK1107467-001	B-24-0.5M	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0	
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0	
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730826)</b>									
HK1107467-001	B-24-0.5M	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730088)</b>									
HK1107359-005	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0	
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	



Matrix: SOIL							Laboratory Duplicate (DUP) Report		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOD	Unit	Original Result	Duplicate Result	RPD (%)	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730088) - Continued</b>									
HK1107359-005	Anonymous	meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0	
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730827)</b>									
HK1107467-001	B-24-0.5M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0	
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	
		meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0	
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730088)</b>									
HK1107359-005	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0	
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730827)</b>									
HK1107467-001	B-24-0.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0	
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730088)</b>									
HK1107359-005	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0	
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730827)</b>									
HK1107467-001	B-24-0.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730088)</b>									
HK1107359-005	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730827)</b>									
HK1107467-001	B-24-0.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730088)</b>									
HK1107359-005	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0	
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730827)</b>									
HK1107467-001	B-24-0.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0	
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1730734)</b>									
HK1106175-008	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0	
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730079)</b>									
HK1107359-005	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0	
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0	
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0	



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730079) - Continued</b>								
HK1107359-005	Anonymous	Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benzo(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenzo(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825)</b>								
HK1107467-001	B-24-0.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benzo(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenzo(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730079)</b>								
HK1107359-005	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825)</b>								
HK1107467-001	B-24-0.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
<b>Matrix: WATER</b>								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)



Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>								
HK1107262-011	Anonymous	EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	<0.01	0.0
<b>EG: Metals and Major Cations (QC Lot: 1740037)</b>								
HK1107467-020	EQUIPMENT BLANK EQ2	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	<0.02	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>								
HK1107359-034	Anonymous	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732730)</b>								
HK1107467-020	EQUIPMENT BLANK EQ2	EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	<0.0002	0.0
		EG020: Copper	7440-50-8	0.001	mg/L	0.003	0.002	0.0
		EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	<0.01	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>								
HK1107359-025	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
		Benzene	106-42-3	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike Duplicate (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL				Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103)	---	1	mg/kg	<1	0.19 mg/kg	102	---	---	85	115	---	---	---
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	102	---	---	85	115	---	---	---



Matrix: SOIL

Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)			Recovery Limits (%)			RPD (%)
						LCS	DCS	High	Low	High	Value	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103) - Continued												
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740104)												
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	93.6	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1733619)												
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	99.5	---	85	115	---	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	100	---	85	115	---	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	100	---	85	115	---	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	101	---	85	115	---	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	113	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1733620)												
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	99.6	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1737304)												
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	100	---	85	115	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730824)												
C8 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	88.7	---	56	116	---	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	87.2	---	56	116	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730826)												
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	107	---	63	126	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730088)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	112	---	69	141	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	106	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	97.4	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	95.3	---	62	160	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	91.9	---	79	136	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	98.8	---	71	149	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730827)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	99.4	---	69	141	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	99.2	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	90.4	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	90.4	---	62	160	---	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	90.0	---	79	136	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.5	---	71	149	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1730088)												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	106	---	26	177	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1730827)												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	107	---	26	177	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1730088)												



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
								Low	High		
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730088) - Continued</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	99.0	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	69	151	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730827)</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	89.5	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.0	---	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730088)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	112	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	71	137	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730827)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1730734)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	83.0	---	28	138	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730079)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	89.2	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	81.0	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	83.6	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	85.4	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	85.3	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	84.6	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	84.3	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	82.2	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	81.2	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	96.6	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	70.7	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	92.5	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	64.2	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	88.0	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	61.4	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	70.3	---	59	125	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	86.3	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	76.5	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	86.1	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	87.4	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	87.7	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	82.2	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	88.7	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	87.6	---	57	118	---	---





Matrix: SOIL

Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method: Compound	CAS Number	LOR	Unit	Result	Spike Recovery (%)			RPD (%)		
					LCS	DCS	High	Low	High	Value
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825) - Continued</b>										
Benz(a)anthracene	56-55-3	50	µg/kg	<50	86.3	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	96.4	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	82.0	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	81.4	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	65.0	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	69.6	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	68.5	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	79.0	---	59	125	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730079)</b>										
Phenol	108-95-2	500	µg/kg	<500	77.8	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	88.4	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	104	---	87	123	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825)</b>										
Phenol	108-95-2	500	µg/kg	<500	83.6	---	29	129	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	86.6	---	54	120	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	95.1	---	87	123	---	---

Matrix: WATER

Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method: Compound	CAS Number	LOR	Unit	Result	Spike Recovery (%)			RPD (%)		
					LCS	DCS	High	Low	High	Value
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>										
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	89.0	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1740037)</b>										
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	100	---	85	115	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>										
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.00005	96.5	---	85	115	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732730)</b>										
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	96.9	---	85	115	---	---
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	89.5	---	85	115	---	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	92.6	---	85	115	---	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	90.7	---	85	115	---	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	93.3	---	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730082)</b>										
C9 - C16 Fraction	---	0.5	mg/L	<0.5	90.8	---	17	170	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	91.6	---	32	143	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>										
C6 - C8 Fraction	---	0.02	mg/L	<0.02	105	---	68	127	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)</b>										
Benzene	71-43-2	5	µg/L	<5	92.4	---	56	117	---	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Matrix: WATER	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
Method: Compound								Low	High		
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218) - Continued</b>											
Toluene	108-88-3	5	µg/L	<5	10 µg/L	87.5	---	55	125	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	87.0	---	68	114	---	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	96.9	---	64	114	---	---
	106-42-3										
Styrene	100-42-5	5	µg/L	<5	10 µg/L	86.6	---	68	108	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	84.8	---	77	111	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730218)</b>											
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	87.9	---	52	130	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730218)</b>											
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	92.8	---	64	122	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	71.9	---	62	117	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)</b>											
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	92.2	---	65	124	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	85.5	---	67	116	---	---
<b>EP-075A: Phenols (QC Lot: 1730080)</b>											
Phenol	108-95-2	2	µg/L	<2	5 µg/L	51.6	---	10	100	---	---
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1730080)</b>											
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	77.8	---	48	102	---	---
Acenaphthylene	208-98-8	2	µg/L	<2	5 µg/L	75.9	---	43	110	---	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	73.5	---	45	107	---	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	81.5	---	51	104	---	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	78.7	---	60	107	---	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	84.1	---	58	105	---	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	86.4	---	67	105	---	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	87.9	---	65	105	---	---
Benz(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	94.7	---	64	106	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	99.8	---	68	114	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	94.7	---	53	104	---	---
	207-08-9										
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	76.9	---	52	103	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	94.0	---	45	107	---	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	# 95.8	---	43	92	---	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	# 103	---	42	102	---	---
<b>EP-075C: Phthalate Esters (QC Lot: 1730080)</b>											
Bis(2-ethylhexyl)phthalate	117-81-7	20	µg/L	<20	5 µg/L	91.3	---	0	226	---	---
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1730080)</b>											
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	77.7	---	52	110	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1730081)</b>											
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	117	---	49	147	---	---



**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				
					MS	MSD	Recovery Limits (%)	RPD (%)	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103)</b>									
HK1107359-007	Anonymous	EK025MD: Free Cyanide	---	19 mg/kg	94.7	---	75	125	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740104)</b>									
HK1107467-014	B-24-6.0M	EK025MD: Free Cyanide	---	19 mg/kg	94.7	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1733619)</b>									
HK1107467-001	B-24-0.5M	EG020: Cadmium	7440-43-9	5 mg/kg	96.6	---	75	125	---
		EG020: Copper	7440-50-8	5 mg/kg	82.9	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	87.6	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1733620)</b>									
HK1107467-001	B-24-0.5M	EG3060: Hexavalent Chromium	16540-29-9	40 mg/kg	89.2	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1737304)</b>									
HK1107467-001	B-24-0.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	80.0	---	75	125	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730824)</b>									
HK1107467-002	B-20-0.5M	C9 - C16 Fraction	---	31 mg/kg	83.5	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	86.6	---	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730826)</b>									
HK1107467-002	B-20-0.5M	C6 - C8 Fraction	---	3 mg/kg	106	---	50	130	---

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				
					MS	MSD	Recovery Limits (%)	RPD (%)	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>									
HK1107262-008	Anonymous	EK025MD: Free Cyanide	---	0.18 mg/L	94.7	---	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1740037)</b>									
HK1107467-019	FIELD BLANK FB-04	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	101	---	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>									
HK1107359-033	Anonymous	EG036: Mercury	7439-97-6	0.0002 mg/L	99.0	---	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732730)</b>									
HK1107467-019	FIELD BLANK FB-04	EG020: Cadmium	7440-43-9	0.1 mg/L	94.9	96.8	75	125	2.0
		EG020: Copper	7440-50-8	0.1 mg/L	90.0	91.1	75	125	1.2
		EG020: Lead	7439-92-1	0.1 mg/L	89.4	88.9	75	125	0.5
		EG020: Nickel	7440-02-0	0.1 mg/L	88.6	92.3	75	125	4.1



Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		Control Limit
	MS	MSD	Low	High	
0.1 mg/L	86.0	91.3	75	125	6.0

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number
EG: Metals and Major Cations - Filtered (QC Lot: 1732730) - Continued			
HK1107467-019	FIELD BLANK FB-04	EG020: Zinc	7440-66-6

### Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130
<b>Sub-Matrix: WATER</b>			
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141



Sub-Matrix: WATER

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 19
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107542
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Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 31-MAR-2011
Order number	: ----			Issue Date	: 15-APR-2011
C-O-C number	: H020215;H020219			No. of samples received	: 14
Site	: XRL823B-SITE B			No. of samples analysed	: 14

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
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A Campbell Brothers Limited Company



Page Number : 2 of 19  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107542

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 13-APR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1107542**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID				
				B-23-1.5M	B-26-1.5M	B-23-3.0M	B-44-3.0M	B-26-3.0M
Client sampling date / time				31-MAR-2011 09:50	31-MAR-2011 10:00	31-MAR-2011 10:22	31-MAR-2011 10:22	31-MAR-2011 10:30
Client sampling date / time				HK1107542-001	HK1107542-002	HK1107542-003	HK1107542-004	HK1107542-005
<b>EA/ED: Physical and Aggregate Properties</b>								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	16.8	17.2	14.0	13.6	13.6
<b>ED/IEK: Inorganic Nonmetallic Parameters</b>								
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1
<b>EG: Metals and Major Cations</b>								
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	54	12	10	13	36
EG020: Lead	7439-92-1	1	mg/kg	46	44	34	47	73
EG020: Nickel	7440-02-0	1	mg/kg	7	6	4	4	4
EG020: Zinc	7440-66-8	1	mg/kg	119	98	59	82	89
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	22	22	13	21	20
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>								
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>								
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3							
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP-074B: Oxygenated Compounds</b>								
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5
<b>EP-074E: Halogenated Aliphatics</b>								
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP-074G: Trihalomethanes (THM)</b>								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP-074L: Methyl-tert-butyl Ether</b>								





Compound	CAS Number	LOR	Client sample ID		B-26-1.5M	B-23-3.0M	B-44-3.0M	B-26-3.0M			
			Client sampling date / time	Unit							
Sub-Matrix: SOIL											
EP-074L: Methyl-tert-butyl Ether - Continued											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	31-MAR-2011 09:50	HK1107542-001	31-MAR-2011 10:00	HK1107542-002	31-MAR-2011 10:22	HK1107542-004	31-MAR-2011 10:30	HK1107542-005
EP-066: Polychlorinated Biphenyls											
Total Polychlorinated biphenyls	---	0.1	mg/kg								
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)											
Naphthalene	91-20-3	0.500	mg/kg								
Acenaphthylene	208-96-8	0.500	mg/kg								
Acenaphthene	83-32-9	0.500	mg/kg								
Fluorene	86-73-7	0.500	mg/kg								
Phenanthrene	85-01-8	0.500	mg/kg								
Anthracene	120-12-7	0.500	mg/kg								
Fluoranthene	206-44-0	0.500	mg/kg								
Pyrene	129-00-0	0.500	mg/kg								
Benz(a)anthracene	56-55-3	0.500	mg/kg								
Chrysene	218-01-9	0.500	mg/kg								
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg								
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg								
Benzo(a)pyrene	50-32-8	0.500	mg/kg								
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg								
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg								
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg								
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate											
Phenol	108-95-2	0.50	mg/kg								
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg								
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg								
EP-080S: TPH(Volatile)/BTEX Surrogate											
Dibromofluoromethane	1868-53-7	0.1	%								
Toluene-D8	2037-26-5	0.1	%								
4-Bromofluorobenzene	460-00-4	0.1	%								
EP-074S: VOC Surrogates											
Dibromofluoromethane	1868-53-7	0.1	%								
Toluene-D8	2037-26-5	0.1	%								
4-Bromofluorobenzene	460-00-4	0.1	%								
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates											
2-Fluorobiphenyl	321-60-8	0.1	%								
4-Terphenyl-d14	1718-51-0	0.1	%								
EP-066S: PCB Surrogate											
Tetrachlorometaxylene	877-09-6	0.1	%								
Dibutylchlorodate	1770-80-5	0.1	%								



Compound	CAS Number	LOR	Client sample ID		Unit	Client sampling date / time					
			CAS Number	LOR		B-45-3.0M	B-26-4.5M	B-23-4.5M	B-26-6.0M	B-23-6.0M	
Sub-Matrix: SOIL											
EA/ED: Physical and Aggregate Properties											
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	12.0	19.8	18.6	14.4	23.8			
ED/IEK: Inorganic Nonmetallic Parameters											
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
EG: Metals and Major Cations											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	17	20	12	11	12	11	12	12
EG020: Lead	7439-92-1	1	mg/kg	58	65	153	39	206	39	206	206
EG020: Nickel	7440-02-0	1	mg/kg	4	4	4	<1	3	<1	3	3
EG020: Zinc	7440-66-6	1	mg/kg	79	80	51	19	68	19	68	68
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	20	9	6	<1	5	<1	<1	5
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)											
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)											
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds											
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics											
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)											
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether											
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50



Compound	CAS Number	LOR	Client sample ID		Unit	mg/kg	B-45-3.0M 31-MAR-2011 10:30 HK1107542-006	B-26-4.5M 31-MAR-2011 11:10 HK1107542-009	B-23-4.5M 31-MAR-2011 11:38 HK1107542-010	B-26-6.0M 31-MAR-2011 11:50 HK1107542-011	B-23-6.0M 31-MAR-2011 13:25 HK1107542-012
			CAS Number	Unit							
Sub-Matrix: SOIL											
EP-066: Polychlorinated Biphenyls			0.1		mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Polychlorinated biphenyls											
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)					mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Naphthalene	91-20-3	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)anthracene	56-55-3	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	205-99-2	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	207-08-9	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	50-32-8	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	193-39-5	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	53-70-3	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(i)perylene	191-24-2	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate											
Phenol	108-95-2	0.50			mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200			mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00			mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate											
Dibromofluoromethane	1868-53-7	0.1	%			108	113	118	110	111	111
Toluene-D8	2037-26-5	0.1	%			101	102	103	101	101	101
4-Bromofluorobenzene	460-00-4	0.1	%			98.2	100	101	99.0	98.7	98.7
EP-074S: VOC Surrogates											
Dibromofluoromethane	1868-53-7	0.1	%			108	113	118	110	111	111
Toluene-D8	2037-26-5	0.1	%			101	102	103	101	101	101
4-Bromofluorobenzene	460-00-4	0.1	%			98.2	100	101	99.0	98.7	98.7
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates											
2-Fluorobiphenyl	321-60-8	0.1	%			93.4	82.4	83.4	79.8	83.2	83.2
4-Terphenyl-d14	1718-51-0	0.1	%			88.5	84.2	84.8	79.5	81.0	81.0
EP-066S: PCB Surrogate											
Tetrachlorometaxylene	877-09-8	0.1	%			116	99.6	106	100	106	106
Dibutylchlorodiate	1770-80-5	0.1	%			124	100	111	107	107	107



Compound	CAS Number	LOR	Client sample ID		TRIP BLANK 6	FIELD BLANK 5	FIELD BLANK 6	EQUIPMENT BLANK 3
			Client sampling date / time	Unit				
Sub-Matrix: WATER								
<b>EDIEK: Inorganic Nonmetallic Parameters</b>								
EK025MD: Free Cyanide	---	0.01	mg/L	---	<0.01	<0.01	<0.01	<0.01
<b>EG: Metals and Major Cations</b>								
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L	---	<0.02	<0.02	<0.02	<0.02
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	---	<0.02	<0.02	<0.02	<0.02
<b>EG: Metals and Major Cations - Filtered</b>								
EG020: Cadmium	7440-43-9	0.0002	mg/L	---	<0.0002	<0.0002	<0.0002	<0.0002
EG020: Copper	7440-50-8	0.001	mg/L	---	0.004	<0.001	<0.001	<0.001
EG020: Lead	7439-92-1	0.001	mg/L	---	<0.001	<0.001	<0.001	<0.001
EG020: Nickel	7440-02-0	0.001	mg/L	---	<0.001	<0.001	<0.001	<0.001
EG020: Zinc	7440-86-6	0.01	mg/L	---	<0.01	<0.01	<0.01	<0.01
EG036: Mercury	7439-97-6	0.0005	mg/L	---	<0.0005	<0.0005	<0.0005	<0.0005
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>								
C6 - C8 Fraction	---	0.02	mg/L	---	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	---	<0.5	<0.5	<0.5	<0.5
C17 - C35 Fraction	---	0.5	mg/L	---	<0.5	<0.5	<0.5	<0.5
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>								
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
	106-42-3							
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
<b>EP-074B: Oxygenated Compounds</b>								
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EP-074E: Halogenated Aliphatics</b>								
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
<b>EP-074G: Trihalomethanes (THM)</b>								
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
<b>EP-074L: Methyl-tert-butyl Ether</b>								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
<b>EP-075A: Phenols</b>								
Phenol	108-95-2	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002



Compound	Client sample ID		LOR	Unit	TRIP BLANK 6 [31-MAR-2011]	FIELD BLANK 5 31-MAR-2011 11:00	FIELD BLANK 6 31-MAR-2011 13:50	EQUIPMENT BLANK 3 31-MAR-2011 15:20
	CAS Number	Client sampling date / time						
Sub-Matrix: WATER								
EP-075B: Polyaromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Benz(a)anthracene	56-55-3	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	---	<0.004	<0.004	<0.004	<0.004
	207-08-9							
Benzo(a)pyrene	50-32-8	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Dibenz(a,h)anthracene	53-70-3	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
Benzo(g,h,i)perylene	191-24-2	0.002	mg/L	---	<0.002	<0.002	<0.002	<0.002
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	0.020	mg/L	---	<0.020	<0.020	<0.020	<0.020
EP-075G: Chlorinated Hydrocarbons								
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	---	<0.004	<0.004	<0.004	<0.004
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	---	1.00	mg/L	---	<1.00	<1.00	<1.00	<1.00
EP-080S: TPH(Volatile)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	---	101	92.6	105	105
Toluene-D8	2037-26-5	0.1	%	---	98.6	97.5	98.5	98.5
4-Bromofluorobenzene	460-00-4	0.1	%	---	95.8	92.1	95.9	95.9
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	95.7	101	92.6	105	105
Toluene-D8	2037-26-5	0.1	%	97.2	98.6	97.5	98.5	98.5
4-Bromofluorobenzene	460-00-4	0.1	%	94.5	95.8	92.1	95.9	95.9
EP-075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	---	32.6	41.8	40.3	40.3
Phenol-d6	13127-88-3	0.1	%	---	24.4	26.2	26.6	26.6
2,4,6-Tribromophenol	118-79-6	0.1	%	---	45.5	60.7	52.8	52.8
EP-075T: Base/Neutral Extractable Surrogates								
Nitrobenzene -d5	4165-60-0	0.1	%	---	48.7	54.8	44.4	44.4
2-Fluorobiphenyl	321-60-8	0.1	%	---	47.5	69.6	59.0	59.0
4-Terphenyl-d14	1718-51-0	0.1	%	---	85.2	82.6	85.4	85.4



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1107542

Compound	CAS Number	LOR	Client sample ID		TRIP BLANK 6	FIELD BLANK 5	FIELD BLANK 6	EQUIPMENT BLANK 3
			Client sampling date / time	Unit				
EP-066S; PCB Surrogate					HK1107542-007	HK1107542-008	HK1107542-013	HK1107542-014
Tetrachlorometaxylene	877-09-8	0.1	%	---		70.9	94.6	90.0
Dibutylchlorendate	1770-80-5	0.1	%	---		113	109	120
Surrogate control limits listed at end of this report.								



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1733642)</b>									
HK1107525-001	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	23.6	22.3	5.8
HK1107525-011	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	13.4	13.5	0.0
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1733643)</b>									
HK1107542-011	B-26-6.0M		EA055: Moisture Content (dried @ 103°C)		0.1	%	14.4	14.0	3.2
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>									
HK1107359-012	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737295)</b>									
HK1107359-002	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1107359-011	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737296)</b>									
HK1107542-012	B-23-6.0M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737297)</b>									
HK1107359-002	Anonymous		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	16	17	0.0
			EG020: Lead	7439-92-1	1	mg/kg	52	50	2.2
			EG020: Nickel	7440-02-0	1	mg/kg	7	6	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	106	105	0.0
HK1107359-011	Anonymous		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	10	10	0.0
			EG020: Lead	7439-92-1	1	mg/kg	53	64	18.4
			EG020: Nickel	7440-02-0	1	mg/kg	2	2	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	35	35	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737298)</b>									
HK1107542-012	B-23-6.0M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	12	11	0.0
			EG020: Lead	7439-92-1	1	mg/kg	206	231	11.6
			EG020: Nickel	7440-02-0	1	mg/kg	3	3	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	68	68	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737311)</b>									
HK1107359-002	Anonymous		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1107359-011	Anonymous		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737312)</b>									
HK1107542-012	B-23-6.0M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730824)</b>									
HK1107467-001	Anonymous		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730826)</b>									
HK1107467-001	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0



Laboratory sample ID		Client sample ID	Method/Compound	CAS Number	LOD	Unit	Original Result	Duplicate Result	RPD (%)
<b>Matrix: SOIL</b>									
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732613)</b>									
HK1107542-003		B-23-3.0M	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732619)</b>									
HK1107542-003		B-23-3.0M	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730827)</b>									
HK1107467-001		Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730827)</b>									
HK1107467-001		Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
			2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730827)</b>									
HK1107467-001		Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
			Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
			Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730827)</b>									
HK1107467-001		Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
			Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730827)</b>									
HK1107467-001		Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1732047)</b>									
HK1105579-001		Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825)</b>									
HK1107467-001		Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
			Acenaphthylene	206-96-8	500	µg/kg	<500	<500	0.0
			Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
			Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
			Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
			Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
			Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
			Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
			Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0
			Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
			Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
			Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
			Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0





Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825) - Continued</b>								
HK1107467-001	Anonymous	Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825)</b>								
HK1107467-001	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0
Matrix: WATER								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>								
HK1107262-011	Anonymous	EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	<0.01	0.0
<b>EG: Metals and Major Cations (QC Lot: 1740037)</b>								
HK1107467-020	Anonymous	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	<0.02	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>								
HK1107359-034	Anonymous	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732730)</b>								
HK1107467-020	Anonymous	EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	<0.0002	0.0
		EG020: Copper	7440-50-8	0.001	mg/L	0.003	0.002	0.0
		EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	<0.01	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>								
HK1107359-025	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
		Benzene	106-42-3	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)</b>								



Matrix: WATER		Method: Compound		Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	CAS Number	Unit	Original Result	Duplicate Result	RPD (%)	
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218) - Continued</b>							
HK1107359-025	Anonymous	67-66-3	µg/L	<5	<5	0.0	
		75-27-4	µg/L	<5	<5	0.0	
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730218)</b>							
HK1107359-025	Anonymous	1634-04-4	µg/L	<5	<5	0.0	

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL											
Method Blank (MB) Report					Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	RPD (%)	
									Low	High	
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>											
EK025MD: Free Cyanide	---	1	mg/kg	<1	19 mg/kg	108	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1737295)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	94.2	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1737296)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	94.8	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1737297)</b>											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	96.6	---	---	85	115	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	95.3	---	---	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	96.5	---	---	85	115	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	90.2	---	---	85	115	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	104	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1737298)</b>											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	102	---	---	85	115	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	93.4	---	---	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	86.3	---	---	85	115	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	97.0	---	---	85	115	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	97.9	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1737311)</b>											
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	110	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1737312)</b>											
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	90.0	---	---	85	115	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730824)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	88.7	---	---	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	87.2	---	---	56	116	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730826)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	107	---	---	63	126	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732613)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	78.4	---	---	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	73.8	---	---	56	116	---



Matrix: SOIL Method Blank (MB) Report Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report RPD (%)

Method: Compound	CAS Number	LOR	Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				RPD (%)	
			Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)		Value
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732619)</b>										
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	114	---	63	126	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730827)</b>										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	99.4	---	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	99.2	---	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	90.4	---	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	90.4	---	62	160	---
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	90.0	---	79	136	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.5	---	71	149	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730827)</b>										
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	107	---	26	177	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730827)</b>										
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	89.5	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.0	---	69	151	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730827)</b>										
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	---	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	71	137	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1732047)</b>										
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	80.4	---	28	138	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825)</b>										
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	86.3	---	41	120	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	76.5	---	42	98	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	86.1	---	46	117	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	87.4	---	50	119	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	87.7	---	49	118	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	82.2	---	49	107	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	88.7	---	58	120	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	87.6	---	57	118	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	86.3	---	59	116	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	96.4	---	60	127	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	82.0	---	63	120	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	81.4	---	56	126	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	65.0	---	53	101	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	69.6	---	64	130	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	68.5	---	57	125	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	79.0	---	59	125	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825)</b>										
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	83.6	---	29	129	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	86.6	---	54	120	---



Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825) - Continued													
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	95.1	---	---	87	123	---	---	---
Matrix: WATER													
Method Blank (MB) Report													
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)													
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	0.19 mg/L	89.0	---	---	85	115	---	---	---
EG: Metals and Major Cations (QC Lot: 1740037)													
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	0.5 mg/L	100	---	---	85	115	---	---	---
EG: Metals and Major Cations - Filtered (QC Lot: 1732728)													
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.00005	0.0002 mg/L	96.5	---	---	85	115	---	---	---
EG: Metals and Major Cations - Filtered (QC Lot: 1732730)													
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	0.1 mg/L	98.9	---	---	85	115	---	---	---
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.5	---	---	85	115	---	---	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.6	---	---	85	115	---	---	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.7	---	---	85	115	---	---	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	0.1 mg/L	93.3	---	---	85	115	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730082)													
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	90.8	---	---	17	170	---	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	91.6	---	---	32	143	---	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)													
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	105	---	---	68	127	---	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)													
Benzene	71-43-2	5	µg/L	<5	10 µg/L	92.4	---	---	56	117	---	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	87.5	---	---	55	125	---	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	87.0	---	---	68	114	---	---	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	96.9	---	---	64	114	---	---	---
Styrene	106-42-3	5	µg/L	<5	10 µg/L	86.6	---	---	68	108	---	---	---
ortho-Xylene	100-42-5	5	µg/L	<5	10 µg/L	84.8	---	---	77	111	---	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1730218)													
2-Butanone (MEK)	78-98-3	50	µg/L	<50	100 µg/L	87.9	---	---	52	130	---	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1730218)													
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	92.8	---	---	64	122	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	71.9	---	---	62	117	---	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)													
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	92.2	---	---	65	124	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	85.5	---	---	67	116	---	---	---



Matrix: WATER

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)	
						Low	High	Value	Control Limit	
EP-075A: Phenols (QC Lot: 1730080)	108-95-2	2	µg/L	<2	5 µg/L	51.6	---	10	100	---
Phenol										
EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730080)										
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	77.8	---	48	102	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	75.9	---	43	110	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	73.5	---	45	107	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	81.5	---	51	104	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	78.7	---	60	107	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	84.1	---	58	105	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	86.4	---	67	105	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	87.9	---	65	105	---
Benz(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	94.7	---	64	106	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	99.8	---	68	114	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	94.7	---	53	104	---
207-08-9										
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	76.9	---	52	103	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	94.0	---	45	107	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	# 95.8	---	43	92	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	# 103	---	42	102	---
EP-075C: Phthalate Esters (QC Lot: 1730080)										
Bis(2-ethylhexyl)phthalate	117-81-7	20	µg/L	<20	5 µg/L	91.3	---	0	226	---
EP-075G: Chlorinated Hydrocarbons (QC Lot: 1730080)										
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	77.7	---	52	110	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1730081)										
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	117	---	49	147	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)		
					MS	MSD	Recovery Limits (%)			
				MS	MSD	Low	High	Value	Control Limit	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)										
HK1107359-011	Anonymous	EK025MD: Free Cyanide	---	2 mg/kg	93.3	75	125	---	---	---
EG: Metals and Major Cations (QC Lot: 1737295)										
HK1107359-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	98.1	75	125	---	---	---
EG: Metals and Major Cations (QC Lot: 1737296)										
HK1107542-011	B-26-6.0M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	91.9	75	125	---	---	---
EG: Metals and Major Cations (QC Lot: 1737297)										
HK1107359-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	97.3	75	125	---	---	---



Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				MS	MSD	Recovery Limits (%)	Value	RPD (%)	
Matrix: SOIL				MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations (QC Lot: 1737297) - Continued</b>									
HK1107359-001	Anonymous	EG020: Copper	7440-50-8	86.6	---	75	125	---	---
		EG020: Lead	7439-92-1	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	96.8	---	75	125	---	---
		EG020: Zinc	7440-66-6	# Not Determined	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737298)</b>									
HK1107542-011	B-26-6.0M	EG020: Cadmium	7440-43-9	96.1	---	75	125	---	---
		EG020: Copper	7440-50-8	86.6	---	75	125	---	---
		EG020: Lead	7439-92-1	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	86.7	---	75	125	---	---
		EG020: Zinc	7440-66-6	87.7	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737311)</b>									
HK1107359-001	Anonymous	EG036: Mercury	7439-97-6	110	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737312)</b>									
HK1107542-011	B-26-6.0M	EG036: Mercury	7439-97-6	80.0	---	75	125	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730824)</b>									
HK1107467-002	Anonymous	C9 - C16 Fraction	---	83.5	---	50	130	---	---
		C17 - C35 Fraction	---	86.6	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730826)</b>									
HK1107467-002	Anonymous	C6 - C8 Fraction	---	106	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732613)</b>									
HK1107542-004	B-44-3.0M	C9 - C16 Fraction	---	81.8	---	50	130	---	---
		C17 - C35 Fraction	---	72.1	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732619)</b>									
HK1107542-004	B-44-3.0M	C6 - C8 Fraction	---	98.8	---	50	130	---	---
<b>Matrix: WATER</b>									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
				MS	MSD	Recovery Limits (%)	Value	RPD (%)	
Matrix: WATER				MS	MSD	Low	High	Value	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>									
HK1107262-008	Anonymous	EK025MD: Free Cyanide	---	94.7	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1740037)</b>									
HK1107467-019	Anonymous	EG050: Hexavalent Chromium	18540-29-9	101	---	75	125	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>									
HK1107359-033	Anonymous	EG036: Mercury	7439-97-6	99.0	---	75	125	---	---



Matrix: WATER

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration		Spike Recovery (%)		Recovery Limits (%)		RPD (%)
				MS	MSD	Low	High	Low	High	
HK1107487-019	Anonymous	EG020: Cadmium	7440-43-9	94.9	96.8	75	125	75	125	2.0
		EG020: Copper	7440-50-8	90.0	91.1	75	125	75	125	1.2
		EG020: Lead	7439-92-1	89.4	88.9	75	125	75	125	0.5
		EG020: Nickel	7440-02-0	88.6	92.3	75	125	75	125	4.1
		EG020: Zinc	7440-66-6	86.0	91.3	75	125	75	125	6.0

EG: Metals and Major Cations - Filtered (QC Lot: 1732730)

Surrogate Control Limits

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

Sub-Matrix: WATER

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123



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Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107542

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130



# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 18
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107607
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 01-APR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 18-APR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 7
Order number	: ----			No. of samples analysed	: 7
C-O-C number	: H020261				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics



Page Number : 2 of 18  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107607

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

13-APR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: **HK1107607**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID		Client sampling date / time	
			Unit	Unit	Unit	Unit
EA/ED: Physical and Aggregate Properties						
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	13.0	16.7	18.0
ED/IEK: Inorganic Nonmetallic Parameters						
EG025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1
EG: Metals and Major Cations						
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	23	16	8
EG020: Lead	7439-92-1	1	mg/kg	47	53	48
EG020: Nickel	7440-02-0	1	mg/kg	4	5	2
EG020: Zinc	7440-66-6	1	mg/kg	72	96	37
EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	34	14	2
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)						
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)						
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0
	106-42-3	3				
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds						
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5
EP-074E: Halogenated Aliphatics						
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)						
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether						



Compound	CAS Number	LOR	Client sample ID		Unit	B-22-1.5M 01-APR-2011 09:45 HK1107607-001	B-22-3.0M 01-APR-2011 10:40 HK1107607-002	B-22-4.5M 01-APR-2011 17:00 HK1107607-003	B-46-4.5M 01-APR-2011 17:00 HK1107607-004	B-22-6.0M 01-APR-2011 17:45 HK1107607-005
			Client sampling date / time	Unit						
Sub-Matrix: SOIL										
EP-074L: Methyl-tert-butyl Ether - Continued										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50			mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls										
Total Polychlorinated biphenyls	—	0.1			mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	206-96-8	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500			mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate										
Phenol	108-95-2	0.50			mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200			mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00			mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTEX Surrogate										
Dibromofluoromethane	1868-53-7	0.1			%	112	111	110	113	104
Toluene-D8	2037-26-5	0.1			%	102	102	103	102	100
4-Bromofluorobenzene	460-00-4	0.1			%	101	99.2	98.4	99.0	97.1
EP-074S: VOC Surrogates										
Dibromofluoromethane	1868-53-7	0.1			%	112	111	110	113	104
Toluene-D8	2037-26-5	0.1			%	102	102	103	102	100
4-Bromofluorobenzene	460-00-4	0.1			%	101	99.2	98.4	99.0	97.1
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates										
2-Fluorobiphenyl	321-60-8	0.1			%	78.0	75.9	78.3	79.4	80.9
4-Terphenyl-d14	1718-51-0	0.1			%	73.9	81.5	75.6	80.0	74.0
EP-066S: PCB Surrogate										
Tetrachlorometaxylene	877-09-8	0.1			%	119	113	120	102	123
Dibutylchlorodate	1770-80-5	0.1			%	114	116	119	98.0	116



Compound	Client sample ID			FIELD BLANK 7	TRIP BLANK 7
	CAS Number	LOR	Unit		
Sub-Matrix: WATER					
ED/EK: Inorganic Nonmetallic Parameters					
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	---
EG: Metals and Major Cations					
EG049: Trivalent Chromium	16065-83-1	0.02	mg/L	<0.02	---
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	---
EG: Metals and Major Cations - Filtered					
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	---
EG020: Copper	7440-50-8	0.001	mg/L	0.006	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	---
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	---
EP-071HK: Total Petroleum Hydrocarbons (TPH)					
C6 - C8 Fraction	---	0.02	mg/L	<0.02	---
C9 - C16 Fraction	---	0.5	mg/L	<0.5	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)					
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010
	106-42-3				
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005
EP-074B: Oxygenated Compounds					
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05
EP-074E: Halogenated Aliphatics					
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005
EP-074G: Trihalomethanes (THM)					
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005
EP-075A: Phenols					
Phenol	108-95-2	0.002	mg/L	<0.002	---



Compound	CAS Number	LOR	Unit	Client sample ID		TRIP BLANK 7
				Client sampling date / time	FIELD BLANK 7	
Sub-Matrix: WATER						
EP-075B: Polyaromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.002	mg/L	<0.002		---
Acenaphthylene	208-96-8	0.002	mg/L	<0.002		---
Acenaphthene	83-32-9	0.002	mg/L	<0.002		---
Fluorene	86-73-7	0.002	mg/L	<0.002		---
Phenanthrene	85-01-8	0.002	mg/L	<0.002		---
Anthracene	120-12-7	0.002	mg/L	<0.002		---
Fluoranthene	206-44-0	0.002	mg/L	<0.002		---
Pyrene	129-00-0	0.002	mg/L	<0.002		---
Benz(a)anthracene	56-55-3	0.002	mg/L	<0.002		---
Chrysene	218-01-9	0.002	mg/L	<0.002		---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004		---
	207-08-9					
Benzo(a)pyrene	50-32-8	0.002	mg/L	<0.002		---
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	mg/L	<0.002		---
Dibenz(a,h)anthracene	53-70-3	0.002	mg/L	<0.002		---
Benzo(g,h,i)perylene	191-24-2	0.002	mg/L	<0.002		---
EP-075C: Phthalate Esters						
Bis(2-ethylhexyl)phthalate	117-81-7	0.020	mg/L	<0.020		---
EP-075G: Chlorinated Hydrocarbons						
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004		---
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00		---
EP-080S: TPH(Volatile)/BTX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	%	110		---
Toluene-D8	2037-26-5	0.1	%	102		---
4-Bromofluorobenzene	460-00-4	0.1	%	95.6		---
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	%	110		113
Toluene-D8	2037-26-5	0.1	%	102		103
4-Bromofluorobenzene	460-00-4	0.1	%	95.6		95.6
EP-075S: Acid Extractable Surrogates						
2-Fluorophenol	367-12-4	0.1	%	44.3		---
Phenol-d6	13127-88-3	0.1	%	27.8		---
2,4,6-Tribromophenol	118-79-6	0.1	%	69.4		---
EP-075T: Base/Neutral Extractable Surrogates						
Nitrobenzene -d5	4165-60-0	0.1	%	68.1		---
2-Fluorobiphenyl	321-60-8	0.1	%	72.5		---
4-Terphenyl-d14	1718-51-0	0.1	%	88.8		---



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1107607

Compound	CAS Number	Client sample ID		LOR	Unit	FIELD BLANK 7 01-APR-2011 11:40 HK1107607-006	TRIP BLANK 7 [01-APR-2011] HK1107607-007
		Client sampling date / time	Unit				
Sub-Matrix: WATER							
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1	%		107		
Dibutylchlorendate	1770-80-5	0.1	%		113		
Surrogate control limits listed at end of this report.							



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
Matrix: SOIL									
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1733643)</b>									
HK1107542-011	Anonymous	EA055: Moisture Content (dried @ 103°C)		---	0.1	%	14.4	14.0	3.2
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>									
HK1107359-012	Anonymous	EK025MD: Free Cyanide		---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737296)</b>									
HK1107542-012	Anonymous	EG3060: Hexavalent Chromium		18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737298)</b>									
HK1107542-012	Anonymous	EG020: Cadmium		7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper		7440-50-8	1	mg/kg	12	11	0.0
		EG020: Lead		7439-92-1	1	mg/kg	206	231	11.6
		EG020: Nickel		7440-02-0	1	mg/kg	3	3	0.0
		EG020: Zinc		7440-66-6	1	mg/kg	68	68	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737312)</b>									
HK1107542-012	Anonymous	EG036: Mercury		7439-97-6	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732995)</b>									
HK1107607-001	B-22-1.5M	C9 - C16 Fraction		---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction		---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732997)</b>									
HK1107607-001	B-22-1.5M	C6 - C8 Fraction		---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730827)</b>									
HK1107467-001	Anonymous	Benzene		71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene		108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene		100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene		100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene		95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene		108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
				106-42-3					
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732998)</b>									
HK1107607-001	B-22-1.5M	Benzene		71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene		108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene		100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene		100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene		95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene		108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
				106-42-3					
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730827)</b>									
HK1107467-001	Anonymous	2-Butanone (MEK)		78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)		67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1732998)</b>									





Matrix: SOIL		Laboratory Duplicate (DUP) Report				RPD (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Duplicate Result
<b>EP-074B: Oxygenated Compounds (QC Lot: 1732998) - Continued</b>						
HK1107607-001	B-22-1.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5
		2-Propanone (Acetone)	67-84-1	50	mg/kg	<50
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730827)</b>						
HK1107467-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1732998)</b>						
HK1107607-001	B-22-1.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730827)</b>						
HK1107467-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1732998)</b>						
HK1107607-001	B-22-1.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730827)</b>						
HK1107467-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1732998)</b>						
HK1107607-001	B-22-1.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1732614)</b>						
HK1107525-009	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825)</b>						
HK1107467-001	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500
		Acenaphthylene	208-96-8	500	µg/kg	<500
		Acenaphthene	83-32-9	500	µg/kg	<500
		Fluorene	86-73-7	500	µg/kg	<500
		Phenanthrene	85-01-8	500	µg/kg	<500
		Anthracene	120-12-7	500	µg/kg	<500
		Fluoranthene	206-44-0	500	µg/kg	<500
		Pyrene	129-00-0	500	µg/kg	<500
		Benz(a)anthracene	56-55-3	500	µg/kg	<500
		Chrysene	218-01-9	500	µg/kg	<500
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1732996)</b>						



Matrix: SOIL							Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)		
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1732996) - Continued</b>										
HK1107607-001	B-22-1.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0		
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0		
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0		
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0		
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0		
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0		
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0		
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0		
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0		
		Chrysene	218-01-9	500	µg/kg	<500	<500	0.0		
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0		
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0		
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0		
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0		
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0		
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0		
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825)</b>										
HK1107467-001	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0		
		Phenol	106-95-2	500	µg/kg	<500	<500	0.0		
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0		
<b>EP-076C: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1732996)</b>										
HK1107607-001	B-22-1.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0		
		Phenol	106-95-2	500	µg/kg	<500	<500	0.0		
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0		
<b>Matrix: WATER</b>										
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>										
HK1107262-011	Anonymous	EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	<0.01	0.0		
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>										
HK1107359-025	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0		
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)</b>										
HK1107359-025	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0		
		Benzene	106-42-3	5	µg/L	<5	<5	0.0		
		Toluene	71-43-2	5	µg/L	<5	<5	0.0		
		Ethylbenzene	108-88-3	5	µg/L	<5	<5	0.0		
		Styrene	100-41-4	5	µg/L	<5	<5	0.0		
		ortho-Xylene	100-42-5	5	µg/L	<5	<5	0.0		
		95-47-6	95-47-6	5	µg/L	<5	<5	0.0		
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732999)</b>										



Matrix: WATER		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732999) - Continued</b>								
HK1107607-007	TRIP BLANK 7	meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	<10	0.0
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	106-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1732999)</b>								
HK1107607-007	TRIP BLANK 7	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1732999)</b>								
HK1107607-007	TRIP BLANK 7	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1732999)</b>								
HK1107607-007	TRIP BLANK 7	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730218)</b>								
HK1107359-025	Anonymous	Methyl tert-butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1732999)</b>								
HK1107607-007	TRIP BLANK 7	Methyl tert-butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike Duplicate (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)	---	1	mg/kg	<1	19 mg/kg	108	85	115	---
EG: Metals and Major Cations (QC Lot: 1737296)	---	1	mg/kg	<1	19 mg/kg	108	85	115	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
EG: Metals and Major Cations (QC Lot: 1737296) - Continued												
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	94.8	---	---	85	115	---	---
EG: Metals and Major Cations (QC Lot: 1737298)												
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	102	---	---	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	93.4	---	---	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	86.3	---	---	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	97.0	---	---	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	97.9	---	---	85	115	---	---
EG: Metals and Major Cations (QC Lot: 1737312)												
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	90.0	---	---	85	115	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732995)												
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	76.7	---	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	62.8	---	---	56	116	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732997)												
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	118	---	---	63	126	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730827)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	99.4	---	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	99.2	---	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	90.4	---	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	90.4	---	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	90.0	---	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	92.5	---	---	71	149	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732998)												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	124	---	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	131	---	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	108	---	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	109	---	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	103	---	---	79	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	111	---	---	71	149	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1730827)												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	107	---	---	26	177	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1732998)												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	146	---	---	26	177	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1730827)												
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	89.5	---	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	93.0	---	---	69	151	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1732998)												



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
								Low	High		
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1732998) - Continued</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	129	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	126	---	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730827)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	91.5	---	71	137	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1732998)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	122	---	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1732614)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	128	---	28	138	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730825)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	86.3	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	78.5	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	86.1	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	87.4	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	87.7	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	82.2	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	88.7	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	87.6	---	57	118	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	86.3	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	96.4	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	82.0	---	63	120	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	81.4	---	56	126	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	85.0	---	53	101	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	69.6	---	64	130	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	68.5	---	57	125	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	79.0	---	59	125	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1732996)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	72.1	---	41	120	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	65.0	---	42	98	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	71.5	---	46	117	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	72.6	---	50	119	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	75.5	---	49	118	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	72.2	---	49	107	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	76.1	---	58	120	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	74.2	---	57	118	---	---
Benzo(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	79.0	---	59	116	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	97.3	---	60	127	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	72.8	---	63	120	---	---



Method: Compound		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
		CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)
<b>Matrix: SOIL</b>														
<b>Method: Compound</b>														
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1732996) - Continued</b>														
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	92.1	---	---	56	126	---	---	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	68.0	---	---	53	101	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	76.8	---	---	64	130	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	67.7	---	---	57	125	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	83.7	---	---	59	125	---	---	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730825)</b>														
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	83.6	---	---	29	129	---	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	86.6	---	---	54	120	---	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	95.1	---	---	87	123	---	---	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1732996)</b>														
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	60.9	---	---	29	129	---	---	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	76.1	---	---	54	120	---	---	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	111	---	---	87	123	---	---	---	---
<b>Matrix: WATER</b>														
<b>Method: Compound</b>														
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)</b>														
EK025MD: Free Cyanide	---	0.01	mg/L	<0.01	0.19 mg/L	89.0	---	---	85	115	---	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1743564)</b>														
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	0.5 mg/L	101	---	---	85	115	---	---	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1739218)</b>														
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	0.1 mg/L	101	---	---	85	115	---	---	---	---
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	---	---	85	115	---	---	---	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	---	---	85	115	---	---	---	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	110	---	---	85	115	---	---	---	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	0.1 mg/L	106	---	---	85	115	---	---	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1739219)</b>														
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.0005	0.0002 mg/L	106	---	---	85	115	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730082)</b>														
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	90.8	---	---	17	170	---	---	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	91.6	---	---	32	143	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>														
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	105	---	---	68	127	---	---	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)</b>														
Benzene	71-43-2	5	µg/L	<5	10 µg/L	92.4	---	---	56	117	---	---	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	87.5	---	---	55	125	---	---	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	87.0	---	---	68	114	---	---	---	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218) - Continued</b>									
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	96.9	---	64 114	---
	106-42-3								
Styrene	100-42-5	5	µg/L	<5	10 µg/L	86.6	---	68 108	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	84.8	---	77 111	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732999)</b>									
Benzene	71-43-2	5	µg/L	<5	10 µg/L	104	---	56 117	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	95.4	---	55 125	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	90.4	---	68 114	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	88.0	---	64 114	---
	106-42-3								
Styrene	100-42-5	5	µg/L	<5	10 µg/L	85.2	---	68 108	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	90.9	---	77 111	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730218)</b>									
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	87.9	---	52 130	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1732999)</b>									
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	110	---	52 130	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730218)</b>									
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	92.8	---	64 122	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	71.9	---	62 117	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1732999)</b>									
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	87.9	---	64 122	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.7	---	62 117	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)</b>									
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	92.2	---	65 124	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	85.5	---	67 116	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1732999)</b>									
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	108	---	65 124	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.9	---	67 116	---
<b>EP-075A: Phenols (QC Lot: 1730080)</b>									
Phenol	108-95-2	2	µg/L	<2	5 µg/L	51.6	---	10 100	---
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1730080)</b>									
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	77.8	---	48 102	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	75.9	---	43 110	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	73.5	---	45 107	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	81.5	---	51 104	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	78.7	---	60 107	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	84.1	---	58 105	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	86.4	---	67 105	---



Matrix: WATER

Method: Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report									
	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730080) - Continued</b>														
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	87.9	---	---	65	105	---	---	---	---
Benz(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	94.7	---	---	64	106	---	---	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	99.8	---	---	88	114	---	---	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	94.7	---	---	53	104	---	---	---	---
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	76.9	---	---	52	103	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	94.0	---	---	45	107	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	# 95.8	---	---	43	92	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	# 103	---	---	42	102	---	---	---	---
<b>EP-075C: Phthalate Esters (QC Lot: 1730080)</b>														
Bis(2-ethylhexyl)phthalate	117-81-7	20	µg/L	<20	5 µg/L	91.3	---	---	0	226	---	---	---	---
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1730080)</b>														
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	77.7	---	---	52	110	---	---	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1730081)</b>														
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	117	---	---	49	147	---	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				RPD (%)	Control Limit
					MS	MSD	Recovery Limits (%)	Value		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>										
HK1107359-011	Anonymous	EK025IMD: Free Cyanide	---	2 mg/kg	93.3	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737296)</b>										
HK1107542-011	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	91.9	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737298)</b>										
HK1107542-011	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	96.1	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	86.6	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	86.7	---	75	125	---	---
		EG020: Zinc	7440-66-6	50 mg/kg	87.7	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737312)</b>										
HK1107542-011	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	80.0	---	75	125	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732995)</b>										
HK1107607-002	B-22-3.0M	C9 - C16 Fraction	---	31 mg/kg	89.4	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	81.5	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732997)</b>										





Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report									
				Spike Concentration	MS	Spike Recovery (%)	Recovery Limits (%)	RPD (%)					
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1732997) - Continued													
HK1107607-002	B-22-3.0M	C6 - C8 Fraction	---	3 mg/kg	107	---	50	130	---	---	---	---	---

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report									
				Spike Concentration	MS	Spike Recovery (%)	Recovery Limits (%)	RPD (%)					
ED/JK: Inorganic Nonmetallic Parameters (QC Lot: 1733944)													
HK1107607-008	Anonymous	EK025MD: Free Cyanide	---	0.19 mg/L	94.7	---	75	125	---	---	---	---	---
EG: Metals and Major Cations (QC Lot: 1743564)													
HK1107607-006	FIELD BLANK 7	EG060: Hexavalent Chromium	18540-29-9	0.5 mg/L	97.2	---	75	125	---	---	---	---	---
EG: Metals and Major Cations - Filtered (QC Lot: 1739218)													
HK1107607-006	FIELD BLANK 7	EG020: Cadmium	7440-43-9	0.1 mg/L	101	104	75	125	125	2.6	---	---	---
		EG020: Copper	7440-50-8	0.1 mg/L	103	106	75	125	125	3.3	---	---	---
		EG020: Lead	7439-92-1	0.1 mg/L	98.2	98.6	75	125	125	0.3	---	---	---
		EG020: Nickel	7440-02-0	0.1 mg/L	106	111	75	125	125	4.7	---	---	---
		EG020: Zinc	7440-66-6	0.1 mg/L	104	107	75	125	125	2.9	---	---	---
EG: Metals and Major Cations - Filtered (QC Lot: 1739219)													
HK1107607-006	FIELD BLANK 7	EG036: Mercury	7439-97-6	0.0002 mg/L	102	---	75	125	125	---	---	---	---

### Surrogate Control Limits

Compound	CAS Number	Recovery Limits (%)	
		Low	High
Sub-Matrix: SOIL			
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	450-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	450-00-4	74	121
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorodate	1770-80-5	50	130
Sub-Matrix: WATER			
		Recovery Limits (%)	



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 Work Order : HK1107607

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorododecane	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client : TEEMWAY ENGINEERING LTD  
Contact : MR THOMAS YEUNG  
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Project : EXPRESS RAIL LINK CONTRACT 823B  
Order number : ----  
C-O-C number : H020262  
Site : XRL823B-SITE B

Laboratory : ALS Technichem HK Pty Ltd  
Contact : Chan Kwok Fai, Godfrey  
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Quote number : ----  
Page : 1 of 11  
Work Order : HK1107637  
Date Samples Received : 02-APR-2011  
Issue Date : 18-APR-2011  
No. of samples received : 12  
No. of samples analysed : 12

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics



Page Number : 2 of 11  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107637

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

13-APR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: **HK1107637**

Water sample(s) analysed and reported on an as received basis.

Water sample(s) were filtered prior to dissolved metal analysis.

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.



**Analytical Results**

Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sample ID							
			Client sampling date / time	Unit	B-05-GW	B-28-GW	B-29-GW	B-20-GW	B-24-GW	
EG: Metals and Major Cations - Filtered										
EG038: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
C17 - C35 Fraction	---	0.5	mg/L	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	106-42-3									
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	0.040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002



Compound	CAS Number	LOR	Unit	Client sample ID				B-24-GW
				Client sampling date / time	B-05-GW	B-28-GW	B-29-GW	
Sub-Matrix: WATER								
EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs) - Continued								
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EP-075G: Chlorinated Hydrocarbons								
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00
EP-080S: TPH(Volatiles)/BTX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	113	114	104	106	107
Toluene-D8	2037-26-5	0.1	%	104	104	103	104	104
4-Bromofluorobenzene	460-00-4	0.1	%	95.5	96.2	95.3	97.3	98.1
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	113	114	104	106	107
Toluene-D8	2037-26-5	0.1	%	104	104	103	104	104
4-Bromofluorobenzene	460-00-4	0.1	%	95.5	96.2	95.3	97.3	98.1
EP-075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	47.7	49.0	52.4	35.9	45.2
Phenol-d6	13127-88-3	0.1	%	33.7	32.2	37.9	26.3	29.5
2,4,6-Tribromophenol	118-79-6	0.1	%	73.0	77.5	72.1	73.2	70.9
EP-075T: Base/Neutral Extractable Surrogates								
Nitrobenzene -d5	4165-60-0	0.1	%	61.0	59.8	74.3	49.0	57.6
2-Fluorobiphenyl	321-60-8	0.1	%	56.7	61.2	81.0	47.8	58.9
4-Terphenyl-d14	1718-51-0	0.1	%	87.1	85.9	89.8	86.2	77.8
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1	%	89.2	117	115	92.3	113
Dibutylchloroendate	1770-80-5	0.1	%	106	113	124	108	80.8



Compound	Client sample ID		Client sampling date / time				EQUIPMENT
	CAS Number	LOR	Unit	B-23-GW	B-27-GW	B-26-GW	
Sub-Matrix: WATER							
EG: Metals and Major Cations - Filtered							
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)							
C8 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	0.6	0.7	0.6	1.2
C17 - C35 Fraction	---	0.5	mg/L	1.0	2.1	1.0	2.3
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)							
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010
	106-42-3						
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds							
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics							
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)							
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether							
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)							
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002



Compound	CAS Number	LOR	Unit	Client sample ID				EQUIPMENT
				B-23-GW	B-27-GW	B-26-GW	B-22-GW	
				02-APR-2011 13:40	02-APR-2011 13:50	02-APR-2011 14:00	02-APR-2011 14:10	
				HK1107637-006	HK1107637-007	HK1107637-008	HK1107637-009	BLANK-GW [02-APR-2011]
Sub-Matrix: WATER								
<b>EP-076B: Polyaromatic Hydrocarbons (PAHs) - Continued</b>								
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
<b>EP-075G: Chlorinated Hydrocarbons</b>								
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
<b>EP-066: Polychlorinated Biphenyls</b>								
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>								
Dibromofluoromethane	1868-53-7	0.1	%	117	109	106	106	113
Toluene-D8	2037-26-5	0.1	%	103	103	103	103	102
4-Bromofluorobenzene	460-00-4	0.1	%	97.9	97.1	96.8	97.7	95.5
<b>EP-074S: VOC Surrogates</b>								
Dibromofluoromethane	1868-53-7	0.1	%	117	109	106	106	113
Toluene-D8	2037-26-5	0.1	%	103	103	103	103	102
4-Bromofluorobenzene	460-00-4	0.1	%	97.9	97.1	96.8	97.7	95.5
<b>EP-075S: Acid Extractable Surrogates</b>								
2-Fluorophenol	367-12-4	0.1	%	53.9	36.2	54.2	52.3	43.1
Phenol-d6	13127-88-3	0.1	%	39.4	28.8	42.6	44.8	29.4
2,4,6-Tribromophenol	118-79-6	0.1	%	80.5	79.4	88.7	93.5	75.0
<b>EP-075T: Base/Neutral Extractable Surrogates</b>								
Nitrobenzene -d5	4165-60-0	0.1	%	66.8	53.3	75.2	77.1	64.7
2-Fluorobiphenyl	321-60-8	0.1	%	75.2	51.9	80.7	84.9	71.9
4-Terphenyl-d14	1718-51-0	0.1	%	73.7	81.6	87.3	92.9	90.0
<b>EP-066S: PCB Surrogate</b>								
Tetrachlorometaxylene	877-09-8	0.1	%	94.8	98.4	110	92.5	102
Dibutylchlorodate	1770-80-5	0.1	%	103	103	97.0	117	125





Compound	Client sample ID		TRIP BLANK-GW [02-APR-2011]	FIELD BLANK-GW [02-APR-2011]
	CAS Number	Unit		
Sub-Matrix: WATER				
EG: Metals and Major Cations - Filtered				
EG036: Mercury	7439-97-6	0.0005 mg/L	---	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)				
C6 - C8 Fraction	---	0.02 mg/L	---	<0.02
C9 - C16 Fraction	---	0.5 mg/L	---	<0.5
C17 - C35 Fraction	---	0.5 mg/L	---	<0.5
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)				
Benzene	71-43-2	0.005 mg/L	<0.005	<0.005
Toluene	108-88-3	0.005 mg/L	<0.005	<0.005
Ethylbenzene	100-41-4	0.005 mg/L	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010 mg/L	<0.010	<0.010
	106-42-3			
Styrene	100-42-5	0.005 mg/L	<0.005	<0.005
ortho-Xylene	95-47-6	0.005 mg/L	<0.005	<0.005
EP-074B: Oxygenated Compounds				
2-Propanone (Acetone)	67-64-1	0.50 mg/L	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05 mg/L	<0.05	<0.05
EP-074E: Halogenated Aliphatics				
Methylene chloride	75-09-2	0.025 mg/L	<0.025	<0.025
Trichloroethene	79-01-6	0.005 mg/L	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005 mg/L	<0.005	<0.005
EP-074G: Trihalomethanes (THM)				
Chloroform	67-66-3	0.005 mg/L	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005 mg/L	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether (MTBE)				
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005 mg/L	<0.005	<0.005
EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	91-20-3	0.002 mg/L	---	<0.002
Acenaphthylene	208-96-8	0.002 mg/L	---	<0.002
Acenaphthene	83-32-9	0.002 mg/L	---	<0.002
Fluorene	86-73-7	0.002 mg/L	---	<0.002
Phenanthrene	85-01-8	0.002 mg/L	---	<0.002
Anthracene	120-12-7	0.002 mg/L	---	<0.002
Fluoranthene	206-44-0	0.002 mg/L	---	<0.002
Pyrene	129-00-0	0.002 mg/L	---	<0.002
Chrysene	218-01-9	0.002 mg/L	---	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004 mg/L	---	<0.004
	207-08-9			



Compound	CAS Number	LOR	Client sampling date / time		FIELD BLANK-GW
			Client sample ID	TRIP BLANK-GW	
			Unit		
Sub-Matrix: WATER					
EP-075G: Chlorinated Hydrocarbons					
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	---	<0.004
EP-066: Polychlorinated Biphenyls					
Total Polychlorinated biphenyls	---	1.00	mg/L	---	<1.00
EP-080S: TPH(Volatiles)/BTEX Surrogate					
Dibromofluoromethane	1868-53-7	0.1	%	---	114
Toluene-D8	2037-26-5	0.1	%	---	103
4-Bromofluorobenzene	460-00-4	0.1	%	---	95.2
EP-074S: VOC Surrogates					
Dibromofluoromethane	1868-53-7	0.1	%	114	114
Toluene-D8	2037-26-5	0.1	%	102	103
4-Bromofluorobenzene	460-00-4	0.1	%	97.5	95.2
EP-075S: Acid Extractable Surrogates					
2-Fluorophenol	367-12-4	0.1	%	---	33.3
Phenol-d6	13127-88-3	0.1	%	---	23.7
2,4,6-Tribromophenol	118-79-6	0.1	%	---	40.4
EP-075T: Base/Neutral Extractable Surrogates					
Nitrobenzene -d5	4165-60-0	0.1	%	---	46.4
2-Fluorobiphenyl	321-60-8	0.1	%	---	47.8
4-Terphenyl-d14	1718-51-0	0.1	%	---	92.2
EP-066S: PCB Surrogate					
Tetrachlorometaxylene	877-09-8	0.1	%	---	77.3
Dibutylchlorendate	1770-80-5	0.1	%	---	94.0

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.



**Laboratory Duplicate (DUP) Report**

Matrix: WATER		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1741053)</b>								
HK1107637-002	B-26-GW	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
HK1107637-010	EQUIPMENT BLANK-GW	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>								
HK1107359-025	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1734430)</b>								
HK1107637-008	B-26-GW	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732999)</b>								
HK1107607-007	Anonymous	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1732999)</b>								
HK1107607-007	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1732999)</b>								
HK1107607-007	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-8	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1732999)</b>								
HK1107607-007	Anonymous	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1732999)</b>								
HK1107607-007	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: WATER		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	Control Limit	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1741053)</b>														
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.00005	0.0002 mg/L	102	---	---	85	115	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>														
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	105	---	---	68	127	---	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1734430)</b>														
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	100	---	---	68	127	---	---	---	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1734448)</b>											
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	85.1	---	17	---	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	99.9	---	32	---	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1732999)</b>											
Benzene	71-43-2	5	µg/L	<5	10 µg/L	104	---	56	---	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	95.4	---	55	---	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	90.4	---	68	---	---	---
meta- & para-Xylene	106-38-3	10	µg/L	<10	20 µg/L	88.0	---	64	---	---	---
Styrene	100-42-5	5	µg/L	<5	10 µg/L	85.2	---	68	---	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	90.9	---	77	---	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1732999)</b>											
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	110	---	52	---	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1732999)</b>											
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	87.9	---	64	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.7	---	62	---	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1732999)</b>											
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	108	---	65	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.9	---	67	---	---	---
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1734446)</b>											
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	83.2	---	48	---	---	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	79.4	---	43	---	---	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	81.5	---	45	---	---	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	82.6	---	51	---	---	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	78.5	---	60	---	---	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	83.6	---	58	---	---	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	85.2	---	67	---	---	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	86.6	---	65	---	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	86.6	---	68	---	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	83.5	---	53	---	---	---
207-08-9											
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1734446)</b>											
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	80.7	---	52	---	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1734447)</b>											
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	121	---	49	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: WATER

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report	
Spike Concentration	RPD (%)
121 µg/L	49%
147 µg/L	147%



Matrix: WATER

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration		Spike Recovery (%)		Recovery Limits (%)		RPD (%)
				MS	MSD	Low	High	Value	Control Limit	
HK1107637-001	B-05-GW	EG036: Mercury	7439-97-6	100	---	75	125	---	---	---

EG: Metals and Major Cations - Filtered (QC Lot: 1741053)

Surrogate Control Limits

Sub-Matrix: WATER

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 29
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1107359
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 29-MAR-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 20-APR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 36
Order number	: ----			No. of samples analysed	: 35
C-O-C number	: H020213-H020214,H020216				
Site	: XRL823B-SITE B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

### Position

Senior Chemist  
General Manager

### Authorised results for

Organics  
Inorganics

**ALS Laboratory Group**  
**ALS Technichem (HK) Pty Ltd**

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A Campbell Brothers Limited Company



Page Number : 2 of 29  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107359

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 31-MAR-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1107359

Particular samples required dilution prior to SVOC analysis due to matrix interference. LOR values have been adjusted accordingly.

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID					
				B-29-0.5M	B-29-1.5M	B-29-3.0M	B-28-3.0M	B-05-1.5M	
EA/ED: Physical and Aggregate Properties				29-MAR-2011 09:30	29-MAR-2011 10:00	29-MAR-2011 10:50	29-MAR-2011 11:00	29-MAR-2011 11:10	
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	13.3	14.4	12.9	12.0	16.0	
ED/IEK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1	
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	
EG020: Copper	7440-50-8	1	mg/kg	19	16	16	72	10	
EG020: Lead	7439-92-1	1	mg/kg	230	52	54	196	43	
EG020: Nickel	7440-02-0	1	mg/kg	6	7	4	4	6	
EG020: Zinc	7440-66-6	1	mg/kg	136	106	104	164	90	
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	12	23	7	18	19	
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1	
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5	
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200	
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	
	106-42-3								
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50	
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5	
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
EP-074L: Methyl-tert-butyl Ether									





Compound	CAS Number	LOR	Unit	Client sample ID						
				Client sampling date / time	B-29-0.5M	B-29-1.5M	B-29-3.0M	B-28-3.0M	B-05-1.5M	
Sub-Matrix: SOIL										
EP-074L: Methyl-tert-butyl Ether - Continued										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls										
Total Polychlorinated biphenyls	--	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate										
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate										
Dibromofluoromethane	1868-53-7	0.1	%	105	105	101	101	111	118	118
Toluene-D8	2037-26-5	0.1	%	102	101	101	101	102	102	102
4-Bromofluorobenzene	460-00-4	0.1	%	95.5	94.2	93.4	93.4	95.6	98.5	98.5
EP-074S: VOC Surrogates										
Dibromofluoromethane	1868-53-7	0.1	%	105	105	101	101	111	118	118
Toluene-D8	2037-26-5	0.1	%	102	101	101	101	102	102	102
4-Bromofluorobenzene	460-00-4	0.1	%	95.5	94.2	93.4	93.4	95.6	98.5	98.5
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates										
2-Fluorobiphenyl	321-60-8	0.1	%	110	93.2	84.5	84.5	90.5	92.3	92.3
4-Terphenyl-d14	1718-51-0	0.1	%	108	91.7	84.5	84.5	87.4	92.0	92.0
EP-066S: PCB Surrogate										
Tetrachlorometaxylene	877-09-8	0.1	%	68.8	65.5	59.1	59.1	64.3	61.8	61.8
Dibutylchlorodate	1770-80-5	0.1	%	64.7	55.5	74.2	74.2	93.3	63.4	63.4



Compound	CAS Number	LOR	Client sample ID				Unit	Result	Reference
			B-29-4.5M	B-28-4.5M	B-05-3.0M	B-29-6.0M			
			29-MAR-2011 11:40	29-MAR-2011 11:50	29-MAR-2011 13:10	29-MAR-2011 13:20	29-MAR-2011 13:50		
			HK1107359-006	HK1107359-007	HK1107359-008	HK1107359-009	HK1107359-010		
Sub-Matrix: SOIL									
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)		0.1	15.5	17.9	15.2	23.0	19.1		
ED/EK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide		1	<1	<1	<1	<1	<1		
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
EG020: Copper	7440-50-8	1	16	28	15	22	12		
EG020: Lead	7439-92-1	1	53	68	88	346	74		
EG020: Nickel	7440-02-0	1	4	4	5	5	5		
EG020: Zinc	7440-66-6	1	90	134	111	70	96		
EG036: Mercury	7439-97-6	1	<1	<1	<1	<1	<1		
EG049: Trivalent Chromium	16065-83-1	1	5	15	26	5	7		
EG3060: Hexavalent Chromium	18540-29-9	1	<1	<1	<1	<1	<1		
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction		5	<5	<5	<5	<5	<5		
C9 - C16 Fraction		200	<200	<200	<200	<200	<200		
C17 - C35 Fraction		500	<500	<500	<500	<500	<500		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Toluene	108-88-3	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3	1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
	106-42-3								
Styrene	100-42-5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	<50	<50	<50	<50	<50		
2-Butanone (MEK)	78-93-3	5	<5	<5	<5	<5	<5		
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	<2.5	<2.5	<2.5	<2.5	<2.5		
Trichloroethene	79-01-6	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Tetrachloroethene	127-18-4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Bromodichloromethane	75-27-4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	<0.50	<0.50	<0.50	<0.50	<0.50		



Compound	CAS Number	LOR	Client sample ID							
			CAS Number	Unit	Client sampling date / time	B-29-4.5M	B-28-4.5M	B-05-3.0M	B-29-6.0M	B-28-6.0M
Sub-Matrix: SOIL										
EP-066: Polychlorinated Biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Polychlorinated biphenyls										
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate										
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatile)/BTX Surrogate										
Dibromofluoromethane	1868-53-7	0.1	%	108	108	107	108	113	111	111
Toluene-D8	2037-26-5	0.1	%	102	101	101	101	103	101	101
4-Bromofluorobenzene	460-00-4	0.1	%	95.7	96.7	96.1	96.7	97.5	97.3	97.3
EP-074S: VOC Surrogates										
Dibromofluoromethane	1868-53-7	0.1	%	108	108	107	108	113	111	111
Toluene-D8	2037-26-5	0.1	%	102	101	101	101	103	101	101
4-Bromofluorobenzene	460-00-4	0.1	%	95.7	96.7	96.1	96.7	97.5	97.3	97.3
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates										
2-Fluorobiphenyl	321-60-8	0.1	%	96.5	100	92.5	100	90.0	76.4	76.4
4-Terphenyl-d14	1718-51-0	0.1	%	93.8	98.5	87.0	98.5	86.1	73.0	73.0
EP-066S: PCB Surrogate										
Tetrachlorometaxylene	877-09-8	0.1	%	70.4	61.0	57.9	61.0	57.2	67.4	67.4
Dibutylchlorendate	1770-80-5	0.1	%	55.4	65.6	77.3	65.6	58.9	65.8	65.8





Compound	CAS Number	Client sampling date / time		Unit	LOR	mg/kg	Surrogate control limits listed at end of this report.
		B-05-4.5M	B-05-6.0M				
Sub-Matrix: SOIL							
Client sample ID							
Client sampling date / time							
B-05-4.5M							
B-05-6.0M							
HK1107359-011							
HK1107359-012							
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls							
		---	0.1	mg/kg		<0.1	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene	91-20-3	0.500		mg/kg		<0.500	
Acenaphthylene	208-96-8	0.500		mg/kg		<0.500	
Acenaphthene	83-32-9	0.500		mg/kg		<0.500	
Fluorene	86-73-7	0.500		mg/kg		<0.500	
Phenanthrene	85-01-8	0.500		mg/kg		<0.500	
Anthracene	120-12-7	0.500		mg/kg		<0.500	
Fluoranthene	206-44-0	0.500		mg/kg		<0.500	
Pyrene	129-00-0	0.500		mg/kg		<0.500	
Benz(a)anthracene	56-55-3	0.500		mg/kg		<0.500	
Chrysene	218-01-9	0.500		mg/kg		<0.500	
Benzo(b)fluoranthene	205-99-2	0.500		mg/kg		<0.500	
Benzo(k)fluoranthene	207-08-9	0.500		mg/kg		<0.500	
Benzo(a)pyrene	50-32-8	0.500		mg/kg		<0.500	
Indeno(1,2,3-cd)pyrene	193-39-5	0.500		mg/kg		<0.500	
Dibenz(a,h)anthracene	53-70-3	0.500		mg/kg		<0.500	
Benzo(g,h,i)perylene	191-24-2	0.500		mg/kg		<0.500	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate							
Phenol	108-95-2	0.50		mg/kg		<0.50	
Hexachlorobenzene (HCB)	118-74-1	0.200		mg/kg		<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	5.00		mg/kg		<5.00	
EP-080S: TPH(Volatile)/BTX Surrogate							
Dibromofluoromethane	1868-53-7	0.1		%		110	
Toluene-D8	2037-26-5	0.1		%		101	
4-Bromofluorobenzene	460-00-4	0.1		%		96.9	
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1		%		110	
Toluene-D8	2037-26-5	0.1		%		101	
4-Bromofluorobenzene	460-00-4	0.1		%		96.9	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates							
2-Fluorobiphenyl	321-60-8	0.1		%		88.9	
4-Terphenyl-d14	1718-51-0	0.1		%		82.5	
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1		%		66.4	
Dibutylchlorodate	1770-80-5	0.1		%		92.1	



Compound	CAS Number	LOR	Unit	Client sample ID				B-04-GW
				B-01-GW	B-02-GW	B-03-GW	B-40-GW	
				Client sampling date / time	Client sampling date / time	Client sampling date / time	Client sampling date / time	Client sampling date / time
Sub-Matrix: WATER								
EG: Metals and Major Cations - Filtered								
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5
C17 - C35 Fraction	---	0.5	mg/L	1.0	1.1	0.8	0.8	1.6
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
	106-42-3							
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	0.034	0.051	0.039	0.036	0.045
EP-075B: Polyaromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
	207-08-9							



Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sample ID				B-04-GW
			CAS Number	LOR	Client sampling date / time	Unit	
EP-075G: Chlorinated Hydrocarbons							
Hexachlorobenzene (HCB)	118-74-1	0.004					
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls	---	1.00					
EP-080S: TPH(Volatile)/BTEX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	111	109	117	117	116
Toluene-D8	2037-26-5	0.1	102	100	103	102	102
4-Bromofluorobenzene	460-00-4	0.1	95.0	94.2	94.0	94.5	95.0
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	111	109	117	117	116
Toluene-D8	2037-26-5	0.1	102	100	103	102	102
4-Bromofluorobenzene	460-00-4	0.1	95.0	94.2	94.0	94.5	95.0
EP-075S: Acid Extractable Surrogates							
2-Fluorophenol	367-12-4	0.1	53.0	40.1	47.8	57.0	46.8
Phenol-d6	13127-88-3	0.1	37.6	28.4	33.5	40.5	33.2
2,4,6-Tribromophenol	118-79-6	0.1	101	96.1	88.4	81.2	78.6
EP-075T: Base/Neutral Extractable Surrogates							
Nitrobenzene -d5	4165-60-0	0.1	74.0	55.6	67.6	70.2	75.0
2-Fluorobiphenyl	321-60-8	0.1	74.1	58.1	69.7	74.8	63.8
4-Terphenyl-d14	1718-51-0	0.1	95.0	89.4	82.0	87.0	79.4
EP-066S: PCB Surrogate							
Tetrachlorometylene	877-09-8	0.1	102	115	110	116	111
Dibutylchloroendate	1770-80-5	0.1	91.2	100	109	99.8	95.2



Compound	CAS Number	LOR	Unit	Client sample ID		Client sampling date / time		B-06-GW		B-07-GW		B-08-GW		B-09-GW		B-10-GW	
				7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EG: Metals and Major Cations - Filtered																	
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)																	
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
C17 - C35 Fraction	---	0.5	mg/L	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)																	
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	106-42-3																
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds																	
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics																	
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)																	
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether																	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
EP-075B: Polyaromatic Hydrocarbons (PAHs)																	
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
	207-08-9																





Sub-Matrix: WATER

Compound	CAS Number	LOR	Unit	Client sample ID					
				B-06-GW	B-07-GW	B-08-GW	B-09-GW	B-10-GW	
				29-MAR-2011 14:00	29-MAR-2011 14:45	29-MAR-2011 15:00	29-MAR-2011 15:15	29-MAR-2011 15:30	
				HK1107359-018	HK1107359-019	HK1107359-020	HK1107359-021	HK1107359-022	
EP-075G: Chlorinated Hydrocarbons									
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	
EP-066: Polychlorinated Biphenyls									
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	
EP-080S: TPH(Volatile)/BTEX Surrogate									
Dibromofluoromethane	1868-53-7	0.1	%	114	117	107	112	116	
Toluene-D8	2037-26-5	0.1	%	101	103	100	102	103	
4-Bromofluorobenzene	460-00-4	0.1	%	95.9	95.6	94.4	96.1	93.7	
EP-074S: VOC Surrogates									
Dibromofluoromethane	1868-53-7	0.1	%	114	117	107	112	116	
Toluene-D8	2037-26-5	0.1	%	101	103	100	102	103	
4-Bromofluorobenzene	460-00-4	0.1	%	95.9	95.6	94.4	96.1	93.7	
EP-075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	0.1	%	56.2	49.0	52.6	66.0	42.2	
Phenol-d6	13127-88-3	0.1	%	37.8	35.6	37.5	50.0	28.7	
2,4,6-Tribromophenol	118-79-6	0.1	%	74.3	76.5	89.3	90.9	68.4	
EP-075T: Base/Neutral Extractable Surrogates									
Nitrobenzene -d5	4165-60-0	0.1	%	76.2	55.7	69.1	75.6	52.0	
2-Fluorobiphenyl	321-60-8	0.1	%	76.1	62.8	70.7	71.4	49.3	
4-Terphenyl-d14	1718-51-0	0.1	%	88.4	90.8	83.6	85.1	90.4	
EP-066S: PCB Surrogate									
Tetrachlorometylene	877-09-8	0.1	%	90.8	103	98.4	104	108	
Dibutylchloroendate	1770-80-5	0.1	%	105	96.4	98.5	97.2	102	



Compound	CAS Number	LOR	Unit	Client sample ID		B-41-GW	B-11-GW	B-12-GW	B-15-GW	B-13-GW
				Client sampling date / time	Client sampling date / time					
Sub-Matrix: WATER										
EG: Metals and Major Cations - Filtered										
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)										
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	<0.5	<0.5	1.4	1.4	1.4
C17 - C35 Fraction	---	0.5	mg/L	<0.5	<0.5	1.3	1.3	3.3	3.3	3.9
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)										
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	106-42-3									
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds										
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics										
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)										
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)										
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
	207-08-9									



Compound	CAS Number	LOR	Client sample ID				B-13-GW
			Client sampling date / time	Unit	B-41-GW	B-11-GW	
Sub-Matrix: WATER							
EP-075G: Chlorinated Hydrocarbons							
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	<0.004	<0.004
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	<1.00	<1.00
Surrogate control limits listed at end of this report.							
EP-080S: TPH(Volatile)/BTEX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	%	118	116	117	114
Toluene-D8	2037-26-5	0.1	%	103	103	102	101
4-Bromofluorobenzene	460-00-4	0.1	%	91.7	92.1	92.4	94.4
Surrogate control limits listed at end of this report.							
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	%	118	116	117	114
Toluene-D8	2037-26-5	0.1	%	103	103	102	101
4-Bromofluorobenzene	460-00-4	0.1	%	91.7	92.1	92.4	94.4
Surrogate control limits listed at end of this report.							
EP-075S: Acid Extractable Surrogates							
2-Fluorophenol	367-12-4	0.1	%	47.3	48.8	47.0	52.2
Phenol-d6	13127-88-3	0.1	%	31.2	30.1	26.0	42.4
2,4,6-Tribromophenol	118-79-6	0.1	%	79.5	62.3	91.7	87.4
Surrogate control limits listed at end of this report.							
EP-075T: Base/Neutral Extractable Surrogates							
Nitrobenzene -d5	4165-60-0	0.1	%	56.9	60.4	83.0	78.6
2-Fluorobiphenyl	321-60-8	0.1	%	51.4	58.2	74.6	67.4
4-Terphenyl-d14	1718-51-0	0.1	%	86.2	83.2	86.6	80.0
Surrogate control limits listed at end of this report.							
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1	%	105	120	99.3	111
Dibutylchlorodate	1770-80-5	0.1	%	112	102	116	107
Surrogate control limits listed at end of this report.							
							88.4
							105



Compound	CAS Number	LOR	Unit	Client sample ID					B-21-GW
				Client sampling date / time	B-14-GW	B-17-GW	B-18-GW	B-19-GW	
Sub-Matrix: WATER									
EG: Metals and Major Cations - Filtered									
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	<0.5	<0.5	0.7	<0.5
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.6	0.6	3.8	1.3	0.9
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	106-42-3								
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	0.012	0.007
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
	207-08-9								



Compound	CAS Number	LOR	Unit	Client sample ID				
				B-14-GW	B-17-GW	B-18-GW	B-19-GW	B-21-GW
				29-MAR-2011 17:10	29-MAR-2011 17:20	29-MAR-2011 17:30	29-MAR-2011 17:40	29-MAR-2011 17:50
				HK1107359-029	HK1107359-030	HK1107359-031	HK1107359-032	HK1107359-033
Sub-Matrix: WATER								
EP-075G: Chlorinated Hydrocarbons								
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00
Surrogate control limits listed at end of this report.								
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	104	117	103	106	104
Toluene-D8	2037-26-5	0.1	%	98.2	103	98.1	99.0	98.2
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	95.2	93.4	92.9	94.2
Surrogate control limits listed at end of this report.								
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	104	117	103	106	104
Toluene-D8	2037-26-5	0.1	%	98.2	103	98.1	99.0	98.2
4-Bromofluorobenzene	460-00-4	0.1	%	95.2	95.2	93.4	92.9	94.2
Surrogate control limits listed at end of this report.								
EP-075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	35.0	34.9	45.6	46.1	42.0
Phenol-d6	13127-88-3	0.1	%	27.4	28.3	36.5	38.1	34.1
2,4,6-Tribromophenol	118-79-6	0.1	%	80.7	70.2	81.2	71.9	87.1
Surrogate control limits listed at end of this report.								
EP-075T: Base/Neutral Extractable Surrogates								
Nitrobenzene -d5	4165-50-0	0.1	%	48.7	52.9	76.2	72.5	68.4
2-Fluorobiphenyl	321-60-8	0.1	%	46.4	49.4	75.4	61.6	65.0
4-Terphenyl-d14	1718-51-0	0.1	%	79.6	77.3	75.9	75.5	80.2
Surrogate control limits listed at end of this report.								
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1	%	111	121	110	121	123
Dibutylchloroendate	1770-80-5	0.1	%	111	109	112	104	112



Compound	CAS Number	LOR	Unit	Client sample ID		B-25-GW	B-30-GW	TRIP BLANK-4
				Client sampling date / time	Client sampling date / time			
Sub-Matrix: WATER								
EG: Metals and Major Cations - Filtered								
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	29-MAR-2011 18:00	<0.0005	29-MAR-2011 18:10	HK1107359-036
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	---	0.02	mg/L	<0.02		<0.02		---
C9 - C16 Fraction	---	0.5	mg/L	<0.5		<0.5		---
C17 - C35 Fraction	---	0.5	mg/L	2.7		1.7		---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.005	mg/L	<0.005		<0.005		<0.005
Toluene	108-88-3	0.005	mg/L	<0.005		<0.005		<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005		<0.005		<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010		<0.010		<0.010
	106-42-3							
Styrene	100-42-5	0.005	mg/L	<0.005		<0.005		<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005		<0.005		<0.005
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50		<0.50		<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05		<0.05		<0.05
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	0.025	mg/L	<0.025		<0.025		<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005		<0.005		<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005		<0.005		<0.005
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.005	mg/L	<0.005		<0.005		<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005		<0.005		<0.005
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005		<0.005		<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)								
Naphthalene	91-20-3	0.002	mg/L	<0.002		<0.002		---
Acenaphthylene	208-96-8	0.002	mg/L	<0.002		<0.002		---
Acenaphthene	83-32-9	0.002	mg/L	<0.002		<0.002		---
Fluorene	86-73-7	0.002	mg/L	<0.002		<0.002		---
Phenanthrene	85-01-8	0.002	mg/L	<0.002		<0.002		---
Anthracene	120-12-7	0.002	mg/L	<0.002		<0.002		---
Fluoranthene	206-44-0	0.002	mg/L	<0.002		<0.002		---
Pyrene	129-00-0	0.002	mg/L	<0.002		<0.002		---
Chrysene	218-01-9	0.002	mg/L	<0.002		<0.002		---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.004		<0.004		---
	207-08-9							



Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sample ID		B-25-GW	B-30-GW	TRIP BLANK-4
			CAS Number	Unit			
EP-075G: Chlorinated Hydrocarbons							
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	---	[29-MAR-2011]
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	---	HK1107359-036
EP-080S: TPH(Volatile)/BTX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	%	106	99.1	---	Surrogate control limits listed at end of this report.
Toluene-D8	2037-26-5	0.1	%	97.8	97.1	---	
4-Bromofluorobenzene	460-00-4	0.1	%	94.9	90.7	---	
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	%	106	99.1	107	Surrogate control limits listed at end of this report.
Toluene-D8	2037-26-5	0.1	%	97.8	97.1	99.2	
4-Bromofluorobenzene	460-00-4	0.1	%	94.9	90.7	93.5	
EP-075S: Acid Extractable Surrogates							
2-Fluorophenol	367-112-4	0.1	%	46.2	48.5	---	Surrogate control limits listed at end of this report.
Phenol-d6	13127-88-3	0.1	%	34.8	36.8	---	
2,4,6-Tribromophenol	118-79-6	0.1	%	83.4	79.4	---	
EP-075T: Base/Neutral Extractable Surrogates							
Nitrobenzene -d5	4165-60-0	0.1	%	65.8	72.0	---	Surrogate control limits listed at end of this report.
2-Fluorobiphenyl	321-60-8	0.1	%	68.1	70.4	---	
4-Terphenyl-d14	1718-51-0	0.1	%	73.3	74.2	---	
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1	%	116	97.6	---	Surrogate control limits listed at end of this report.
Dibutylchloroendate	1770-80-5	0.1	%	103	108	---	



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>Matrix: SOIL</b>									
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1731829)</b>									
HK1107317-001	Anonymous		EA055: Moisture Content (dried @ 103°C)		0.1	%	53.1	53.4	0.6
HK1107359-009	B-29-6.0M		EA055: Moisture Content (dried @ 103°C)		0.1	%	23.0	23.4	1.8
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)</b>									
HK1107163-005	Anonymous		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103)</b>									
HK1107359-008	B-05-3.0M		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>									
HK1107359-012	B-05-6.0M		EK025MD: Free Cyanide		1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737295)</b>									
HK1107359-002	B-29-1.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1107359-011	B-05-4.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737297)</b>									
HK1107359-002	B-29-1.5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	16	17	0.0
			EG020: Lead	7439-92-1	1	mg/kg	52	50	2.2
			EG020: Nickel	7440-02-0	1	mg/kg	7	6	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	106	105	0.0
HK1107359-011	B-05-4.5M		EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
			EG020: Copper	7440-50-8	1	mg/kg	10	10	0.0
			EG020: Lead	7439-92-1	1	mg/kg	53	64	18.4
			EG020: Nickel	7440-02-0	1	mg/kg	2	2	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	35	35	0.0
<b>EG: Metals and Major Cations (QC Lot: 1737311)</b>									
HK1107359-002	B-29-1.5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1107359-011	B-05-4.5M		EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1729846)</b>									
HK1105111-010	Anonymous		C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction		500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1729852)</b>									
HK1105111-010	Anonymous		C6 - C8 Fraction		5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1724972)</b>									
HK1107163-006	Anonymous		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0





Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730088)</b>								
HK1107359-005	B-05-1.5M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
		106-42-3						
<b>EP-074B: Oxygenated Compounds (QC Lot: 1724972)</b>								
HK1107163-006	Anonymous	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730088)</b>								
HK1107359-005	B-05-1.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1724972)</b>								
HK1107163-006	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730088)</b>								
HK1107359-005	B-05-1.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1724972)</b>								
HK1107163-006	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730088)</b>								
HK1107359-005	B-05-1.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1724972)</b>								
HK1107163-006	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730088)</b>								
HK1107359-005	B-05-1.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1729847)</b>								
HK1105111-010	Anonymous	Total Polychlorinated biphenyls	—	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970)</b>								
HK1107163-006	Anonymous	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report				RPD (%)			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Duplicate Result	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970) - Continued</b>									
HK1107163-006	Anonymous	Fluoranthene	206-44-0	500	µg/kg	<500	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	<500	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730079)</b>									
HK1107359-005	B-05-1.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	<500	0.0
		Benzo(a)anthracene	56-55-3	500	µg/kg	<500	<500	<500	0.0
		Chrysene	218-01-9	500	µg/kg	<500	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	<500	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724970)</b>									
HK1107163-006	Anonymous	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	<5000	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730079)</b>									
HK1107359-005	B-05-1.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	<5000	0.0
<b>Matrix: WATER</b>									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Duplicate Result	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732727)</b>									
HK1107359-014	B-02-GW	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	0.0
HK1107359-022	B-10-GW	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	0.0



Matrix: WATER		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>								
HK1107359-034	B-25-GW	EG038: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)</b>								
HK1106930-006	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)</b>								
HK1107359-025	B-12-GW	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	meta- & para-Xylene	106-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)</b>								
HK1107359-025	B-12-GW	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730218)</b>								
HK1107359-025	B-12-GW	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-8	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730218)</b>								
HK1107359-025	B-12-GW	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-8	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)</b>								
HK1106930-006	Anonymous	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)</b>								
HK1107359-025	B-12-GW	Chloroform	67-66-3	5	µg/L	<5	<5	0.0



Matrix: WATER		Method: Compound		Laboratory Duplicate (DUP) Report			
Laboratory sample ID	Client sample ID	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730218) - Continued</b>							
HK1107359-025	B-12-GW	75-27-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1723404)</b>							
HK1106930-006	Anonymous	1634-04-4	5	µg/L	<5	<5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1730218)</b>							
HK1107359-025	B-12-GW	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)</b>									
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	97.6	115	---	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103)</b>									
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	102	115	---	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>									
EK025MD: Free Cyanide	---	1	mg/kg	<1	19 mg/kg	108	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737295)</b>									
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	94.2	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737297)</b>									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	96.6	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	95.3	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	96.5	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	90.2	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	104	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1737311)</b>									
EG036: Mercury	7439-97-6	0.02	mg/kg	<1	0.1 mg/kg	110	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1729846)</b>									
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	97.1	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	109	116	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1729852)</b>									
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	79.0	126	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1724972)</b>									
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	106	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	95.0	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	136	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	97.7	149	---	---



Method: Compound		CAS Number		LOR		Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
						Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Low	High	Value	RPD (%)	Control Limit
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730088)</b>												
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	112	---	69	141	---	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	106	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	97.4	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	95.3	---	62	160	---	---	---
	106-42-3											
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	91.9	---	79	136	---	---	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	98.8	---	71	149	---	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1724972)</b>												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	107	---	26	177	---	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1730088)</b>												
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	106	---	26	177	---	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1724972)</b>												
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	99.1	---	74	136	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	98.6	---	69	151	---	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1730088)</b>												
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	99.0	---	74	136	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	69	151	---	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1724972)</b>												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	109	---	69	139	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	71	137	---	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1730088)</b>												
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	112	---	69	139	---	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	71	137	---	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1729847)</b>												
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	73.6	---	28	138	---	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970)</b>												
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	85.7	---	41	120	---	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	75.2	---	42	98	---	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	85.5	---	46	117	---	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	84.8	---	50	119	---	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	85.1	---	49	118	---	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	83.1	---	49	107	---	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	89.7	---	58	120	---	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	87.9	---	57	118	---	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	82.2	---	59	116	---	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	99.2	---	60	127	---	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	76.8	---	63	120	---	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	95.4	---	56	126	---	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	66.3	---	53	101	---	---	---



Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method Blank (MB) Report	Result	LOR	Unit	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)
Method Blank (MB) Report	Result	LOR	Unit	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)
<b>Method: Compound</b>									
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1724970) - Continued</b>									
Indeno(1,2,3-cd)pyrene	<50	50	µg/kg	250 µg/kg	94.4	---	64	130	---
Dibenz(a,h)anthracene	<50	50	µg/kg	250 µg/kg	77.5	---	57	125	---
Benzo(g,h,i)perylene	<50	50	µg/kg	250 µg/kg	78.6	---	59	125	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1730079)</b>									
Naphthalene	<50	50	µg/kg	250 µg/kg	89.2	---	41	120	---
Acenaphthylene	<50	50	µg/kg	250 µg/kg	81.0	---	42	98	---
Acenaphthene	<50	50	µg/kg	250 µg/kg	83.6	---	46	117	---
Fluorene	<50	50	µg/kg	250 µg/kg	85.4	---	50	119	---
Phenanthrene	<50	50	µg/kg	250 µg/kg	85.3	---	49	118	---
Anthracene	<50	50	µg/kg	250 µg/kg	84.6	---	49	107	---
Fluoranthene	<50	50	µg/kg	250 µg/kg	84.3	---	58	120	---
Pyrene	<50	50	µg/kg	250 µg/kg	82.2	---	57	118	---
Benzo(a)anthracene	<50	50	µg/kg	250 µg/kg	81.2	---	59	116	---
Chrysene	<50	50	µg/kg	250 µg/kg	96.6	---	60	127	---
Benzo(b)fluoranthene	<50	50	µg/kg	250 µg/kg	70.7	---	63	120	---
Benzo(k)fluoranthene	<50	50	µg/kg	250 µg/kg	92.5	---	56	126	---
Benzo(a)pyrene	<50	50	µg/kg	250 µg/kg	64.2	---	53	101	---
Indeno(1,2,3-cd)pyrene	<50	50	µg/kg	250 µg/kg	88.0	---	64	130	---
Dibenz(a,h)anthracene	<50	50	µg/kg	250 µg/kg	61.4	---	57	125	---
Benzo(g,h,i)perylene	<50	50	µg/kg	250 µg/kg	70.3	---	59	125	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1724970)</b>									
Phenol	<500	500	µg/kg	250 µg/kg	97.8	---	29	129	---
Hexachlorobenzene (HCB)	<50	50	µg/kg	250 µg/kg	79.2	---	54	120	---
Bis(2-ethylhexyl)phthalate	<1000	1000	µg/kg	250 µg/kg	101	---	87	123	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1730079)</b>									
Phenol	<500	500	µg/kg	250 µg/kg	77.8	---	29	129	---
Hexachlorobenzene (HCB)	<50	50	µg/kg	250 µg/kg	88.4	---	54	120	---
Bis(2-ethylhexyl)phthalate	<1000	1000	µg/kg	250 µg/kg	104	---	87	123	---
<b>Method: WATER</b>									
<b>Method Blank (MB) Report</b>									
<b>Method: Compound</b>									
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732727)</b>									
EG036: Mercury	<0.00005	0.00005	mg/L	0.0002 mg/L	98.5	---	85	115	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>									
EG036: Mercury	<0.00005	0.00005	mg/L	0.0002 mg/L	96.5	---	85	115	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1721331)</b>									
C9 - C16 Fraction	<0.5	0.5	mg/L	0.25 mg/L	84.7	---	17	170	---
C17 - C35 Fraction	<0.5	0.5	mg/L	0.5 mg/L	95.0	---	32	143	---



Matrix: WATER

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1723405)												
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	94.6	---	---	68	127	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730082)												
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	90.8	---	---	17	170	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	91.6	---	---	32	143	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1730219)												
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	105	---	---	68	127	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1723404)												
Benzene	71-43-2	5	µg/L	<5	10 µg/L	77.0	---	---	56	117	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	79.0	---	---	55	125	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	79.0	---	---	68	114	---	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	79.0	---	---	64	114	---	---
	106-42-3											
Styrene	100-42-5	5	µg/L	<5	10 µg/L	71.5	---	---	68	108	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	78.0	---	---	77	111	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1730218)												
Benzene	71-43-2	5	µg/L	<5	10 µg/L	92.4	---	---	56	117	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	87.5	---	---	55	125	---	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	87.0	---	---	68	114	---	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	96.9	---	---	64	114	---	---
	106-42-3											
Styrene	100-42-5	5	µg/L	<5	10 µg/L	86.6	---	---	68	108	---	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	84.8	---	---	77	111	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1723404)												
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	69.8	---	---	52	130	---	---
EP-074B: Oxygenated Compounds (QC Lot: 1730218)												
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	87.9	---	---	52	130	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1723404)												
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	76.0	---	---	64	122	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	77.0	---	---	62	117	---	---
EP-074E: Halogenated Aliphatics (QC Lot: 1730218)												
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	92.8	---	---	64	122	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	71.9	---	---	62	117	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1723404)												
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	87.0	---	---	65	124	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	84.5	---	---	67	116	---	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1730218)												
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	92.2	---	---	65	124	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	85.5	---	---	67	116	---	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	
						Low	High			Control Limit	
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1721330)</b>											
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	61.4	---	48	102	---	
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	60.5	---	43	110	---	
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	62.3	---	45	107	---	
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	65.5	---	51	104	---	
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	71.5	---	60	107	---	
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	73.4	---	58	105	---	
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	84.3	---	67	105	---	
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	85.7	---	65	105	---	
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	86.5	---	68	114	---	
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	87.4	---	53	104	---	
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1730080)</b>											
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	77.8	---	48	102	---	
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	75.9	---	43	110	---	
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	73.5	---	45	107	---	
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	81.5	---	51	104	---	
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	78.7	---	60	107	---	
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	84.1	---	58	105	---	
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	86.4	---	67	105	---	
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	87.9	---	65	105	---	
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	99.8	---	68	114	---	
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	94.7	---	53	104	---	
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1721330)</b>											
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	72.7	---	52	110	---	
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1730080)</b>											
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	77.7	---	52	110	---	
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1721329)</b>											
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	121	---	49	147	---	
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1730081)</b>											
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	117	---	49	147	---	

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report																					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number																		
EDIEK: Inorganic Nonmetallic Parameters (QC Lot: 1740102)	Anonymous	EK025MD: Free Cyanide	---																		
HK1107163-004	19 mg/kg	105	---																		
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Spike Concentration</th> <th colspan="2">Recovery Limits (%)</th> <th colspan="2">RPD (%)</th> </tr> <tr> <th>MS</th> <th>MSD</th> <th>Low</th> <th>High</th> <th>Value</th> <th>Control Limit</th> </tr> </thead> <tbody> <tr> <td>---</td> <td>---</td> <td>75</td> <td>125</td> <td>---</td> <td>---</td> </tr> </tbody> </table>				Spike Concentration		Recovery Limits (%)		RPD (%)		MS	MSD	Low	High	Value	Control Limit	---	---	75	125	---	---
Spike Concentration		Recovery Limits (%)		RPD (%)																	
MS	MSD	Low	High	Value	Control Limit																
---	---	75	125	---	---																





Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				
				Spike Concentration	MS	Spike Recovery (%)	MSD	Recovery Limits (%)
				Value	Low	High	Value	Control Limit
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1740103)</b>								
HK1107359-007	B-28-4.5M	EG025MD: Free Cyanide	---	19 mg/kg	94.7	75	125	---
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1743951)</b>								
HK1107359-011	B-05-4.5M	EG025MD: Free Cyanide	---	2 mg/kg	93.3	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1737295)</b>								
HK1107359-001	B-29-0.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	98.1	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1737297)</b>								
HK1107359-001	B-29-0.5M	EG020: Cadmium	7440-43-9	5 mg/kg	97.3	75	125	---
		EG020: Copper	7440-50-8	5 mg/kg	86.6	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	75	125	---
		EG020: Nickel	7440-02-0	5 mg/kg	96.8	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	75	125	---
<b>EG: Metals and Major Cations (QC Lot: 1737311)</b>								
HK1107359-001	B-29-0.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	110	75	125	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1729846)</b>								
HK1105111-012	Anonymous	C9 - C16 Fraction	---	31 mg/kg	55.8	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	92.8	50	130	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1729852)</b>								
HK1105111-012	Anonymous	C6 - C8 Fraction	---	3 mg/kg	78.4	50	130	---
<b>Matrix: WATER</b>								
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				
				Spike Concentration	MS	Spike Recovery (%)	MSD	Recovery Limits (%)
				Value	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732727)</b>								
HK1107359-013	B-01-GW	EG036: Mercury	7439-97-6	0.0002 mg/L	102	75	125	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1732728)</b>								
HK1107359-033	B-21-GW	EG036: Mercury	7439-97-6	0.0002 mg/L	99.0	75	125	---

**Surrogate Control Limits**

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130
Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchlorendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

**Client** : TEEMWAY ENGINEERING LTD  
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**Telephone** : +852 2796 2268  
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**Project** : EXPRESS RAIL LINK CONTRACT 823B  
**Order number** : ----  
**C-O-C number** : ----  
**Site** : ----

**Laboratory** : ALS Technichem HK Pty Ltd  
**Contact** : Chan Kwok Fai, Godfrey  
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**Quote number** : ----  
**Date received** : 04-APR-2011  
**Date of issue** : 18-APR-2011  
**No. of samples** : -  
**Received** : 27  
**Analysed** : 27

**Page** : 1 of 4

**Work Order** : HK1107679

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**Signatory**

Fung Lim Chee, Richard

**Position**

General Manager

**Authorised results for:-**

Sampling



Page Number : 2 of 4  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107679

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1107679 supersedes any previous reports with this reference. The completion date of analysis is 07-APR-2011. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1107679 : Project Name: Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were collected by ALS Technichem (HK) staff on 2 April, 2011.

Water sample(s) analysed and reported on an as received basis.

pH, Conductivity and Temperature were measured on-site by ALS Technichem (HK) staff.

LNAPL of groundwater samples are not observable in the aqueous layer during site investigation and monitoring.



**Analytical Results**

Sub-Matrix: WATER

Client sample ID	Client sampling date / time	Compound Laboratory sample ID	EA005-SAMP: pH		EA010-SAMP:		EA012-SAMP:	
			Value	0.1 pH Unit	Electrical Conductivity @ 25°C	1 µS/cm	Temperature	0.1 °C
			OS: On-Site Measurement	OS: On-Site Measurement	OS: On-Site Measurement	OS: On-Site Measurement	OS: On-Site Measurement	OS: On-Site Measurement
B-05	02-APR-2011 12:23	HK1107679-001	6.8		355		22.3	
B-05	02-APR-2011 12:23	HK1107679-002	6.7		354		22.3	
B-05	02-APR-2011 12:23	HK1107679-003	6.7		354		22.2	
B-28	02-APR-2011 12:28	HK1107679-004	6.8		377		23.4	
B-28	02-APR-2011 12:28	HK1107679-005	6.8		377		23.3	
B-28	02-APR-2011 12:28	HK1107679-006	6.8		376		23.3	
B-29	02-APR-2011 12:31	HK1107679-007	6.9		368		21.5	
B-29	02-APR-2011 12:31	HK1107679-008	6.8		370		21.5	
B-29	02-APR-2011 12:31	HK1107679-009	6.8		370		21.5	
B-24	02-APR-2011 12:37	HK1107679-010	7.4		334		20.7	
B-24	02-APR-2011 12:37	HK1107679-011	7.4		335		20.8	
B-24	02-APR-2011 12:37	HK1107679-012	7.4		335		20.9	
B-20	02-APR-2011 12:41	HK1107679-013	6.9		246		19.4	
B-20	02-APR-2011 12:41	HK1107679-014	6.9		246		19.4	
B-20	02-APR-2011 12:41	HK1107679-015	6.8		246		19.4	
B-23	02-APR-2011 12:46	HK1107679-016	7.1		487		21.5	
B-23	02-APR-2011 12:46	HK1107679-017	7.1		488		21.5	
B-23	02-APR-2011 12:46	HK1107679-018	7.1		487		21.5	
B-26	02-APR-2011 12:51	HK1107679-019	7.3		451		22.0	
B-26	02-APR-2011 12:51	HK1107679-020	7.3		452		22.0	
B-26	02-APR-2011 12:51	HK1107679-021	7.3		452		22.0	
B-27	02-APR-2011 12:54	HK1107679-022	6.6		272		22.2	
B-27	02-APR-2011 12:54	HK1107679-023	6.5		272		22.1	
B-27	02-APR-2011 12:54	HK1107679-024	6.5		271		22.1	
B-22	02-APR-2011 13:01	HK1107679-025	7.2		553		23.1	
B-22	02-APR-2011 13:01	HK1107679-026	7.2		552		23.1	
B-22	02-APR-2011 13:01	HK1107679-027	7.2		552		23.1	



Page Number : 4 of 4  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107679

**Laboratory Duplicate (DUP) Report**

- No Laboratory Duplicate (DUP) Results are required to be reported.

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

- No Method Blank (MB), Laboratory Control Spike (SCS) or Duplicate Control Spike (DCS) Results are required to be reported.

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

**Client** : TEEMWAY ENGINEERING LTD  
**Contact** : MR THOMAS YEUNG  
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**Project** : EXPRESS RAIL LINK CONTRACT 823B  
**Order number** : ----  
**C-O-C number** : ----  
**Site** : ----

**Laboratory** : ALS Technichem HK Pty Ltd  
**Contact** : Chan Kwok Fai, Godfrey  
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**Telephone** : +852 2610 1044  
**Facsimile** : +852 2610 2021  
**Quote number** : ----

**Page** : 1 of 5  
**Work Order** : HK1107285  
**Amendment No.** : 1  
**Date received** : 29-MAR-2011  
**Date of issue** : 28-APR-2011  
**No. of samples** : -  
**Received** : 63  
**Analysed** : 60

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**Signatory**

Fung Lim Chee, Richard

**Position**

General Manager

**Authorised results for:-**

Sampling



Page Number : 2 of 5  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107285, Amendment 1

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1107285\_1.00 supersedes any previous reports with this reference. The completion date of analysis is 31-MAR-2011. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1107285 : Project Name: Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were collected by ALS Technichem (HK) staff on 29 March, 2011.

Water sample(s) analysed and reported on an as received basis.

pH, Conductivity and Temperature were measured on-site by ALS Technichem (HK) staff.

LNAPL of groundwater samples are not observable in the aqueous layer during site investigation and monitoring.





**Analytical Results**

Sub-Matrix: WATER

Client sample ID	Client sampling date / time	Compound Laboratory sample ID	EA005-SAMP: pH		EA010-SAMP: Electrical Conductivity		EA012-SAMP: Temperature	
			Value	OS: On-Site Measurement	@ 25°C 1 µS/cm	OS: On-Site Measurement	Temperature	OS: On-Site Measurement
		LOR Unit	0.1 pH Unit		1 µS/cm		0.1 °C	
B-01	29-MAR-2011 10:34	HK1107285-001	6.9		268		22.4	
B-01	29-MAR-2011 10:34	HK1107285-002	6.9		268		22.4	
B-01	29-MAR-2011 10:34	HK1107285-003	6.9		268		22.4	
B-02	29-MAR-2011 10:36	HK1107285-004	7.3		428		22.1	
B-02	29-MAR-2011 10:36	HK1107285-005	7.3		429		22.1	
B-02	29-MAR-2011 10:36	HK1107285-006	7.3		429		22.1	
B-03	29-MAR-2011 10:44	HK1107285-007	7.1		329		21.8	
B-03	29-MAR-2011 10:44	HK1107285-008	7.1		329		21.8	
B-03	29-MAR-2011 10:44	HK1107285-009	7.1		329		21.7	
B-04	29-MAR-2011 10:49	HK1107285-010	7.0		456		23.0	
B-04	29-MAR-2011 10:49	HK1107285-011	7.0		457		23.0	
B-04	29-MAR-2011 10:49	HK1107285-012	7.0		457		23.0	
B-06	29-MAR-2011 10:53	HK1107285-013	6.8		345		22.6	
B-06	29-MAR-2011 10:53	HK1107285-014	6.9		346		22.6	
B-06	29-MAR-2011 10:53	HK1107285-015	6.9		346		22.6	
B-07	29-MAR-2011 10:55	HK1107285-016	7.9		262		19.4	
B-07	29-MAR-2011 10:55	HK1107285-017	7.9		263		19.3	
B-07	29-MAR-2011 10:55	HK1107285-018	7.9		263		19.4	
B-08	29-MAR-2011 10:58	HK1107285-019	6.6		387		20.8	
B-08	29-MAR-2011 10:58	HK1107285-020	6.6		387		21.0	
B-08	29-MAR-2011 10:58	HK1107285-021	6.6		387		20.9	
B-09	29-MAR-2011 11:01	HK1107285-022	6.6		298		22.7	
B-09	29-MAR-2011 11:01	HK1107285-023	6.6		298		22.7	
B-09	29-MAR-2011 11:01	HK1107285-024	6.6		298		22.7	
B-10	29-MAR-2011 11:05	HK1107285-025	7.1		342		20.2	
B-10	29-MAR-2011 11:05	HK1107285-026	7.1		342		20.2	
B-10	29-MAR-2011 11:05	HK1107285-027	7.1		342		20.1	
B-11	29-MAR-2011 11:07	HK1107285-028	6.8		375		22.5	
B-11	29-MAR-2011 11:07	HK1107285-029	6.8		375		22.5	
B-11	29-MAR-2011 11:07	HK1107285-030	6.8		375		22.5	
B-12	29-MAR-2011 11:10	HK1107285-031	7.1		717		23.4	
B-12	29-MAR-2011 11:10	HK1107285-032	7.1		717		23.3	
B-12	29-MAR-2011 11:10	HK1107285-033	7.1		718		23.4	
B-13	29-MAR-2011 11:14	HK1107285-034	7.3		467		22.9	



Sub-Matrix: WATER

Client sample ID	Client sampling date / time	Compound Laboratory sample ID	EA005-SAMP: pH Value			EA010-SAMP: Electrical Conductivity @ 25°C			EA012-SAMP: Temperature		
			0.1 pH Unit	OS: On-Site Measurement	Value	1 µS/cm	OS: On-Site Measurement	OS: On-Site Measurement	0.1 °C	OS: On-Site Measurement	OS: On-Site Measurement
B-13	29-MAR-2011 11:14	HK1107285-035	7.3		467		22.9				
B-13	29-MAR-2011 11:14	HK1107285-036	7.3		467		23.0				
B-15	29-MAR-2011 11:20	HK1107285-040	6.6		429		22.5				
B-15	29-MAR-2011 11:20	HK1107285-041	6.6		429		22.5				
B-15	29-MAR-2011 11:20	HK1107285-042	6.6		428		22.5				
B-18	29-MAR-2011 11:23	HK1107285-043	6.4		267		25.2				
B-18	29-MAR-2011 11:23	HK1107285-044	6.4		266		25.2				
B-18	29-MAR-2011 11:23	HK1107285-045	6.4		266		25.2				
B-17	29-MAR-2011 11:26	HK1107285-046	7.2		500		23.6				
B-17	29-MAR-2011 11:26	HK1107285-047	7.2		500		23.5				
B-17	29-MAR-2011 11:26	HK1107285-048	7.2		500		23.5				
B-14	29-MAR-2011 11:29	HK1107285-049	7.4		298		21.0				
B-14	29-MAR-2011 11:29	HK1107285-050	7.4		299		21.0				
B-14	29-MAR-2011 11:29	HK1107285-051	7.4		299		21.1				
B-21	29-MAR-2011 11:31	HK1107285-052	8.5		177		19.8				
B-21	29-MAR-2011 11:31	HK1107285-053	8.5		177		19.8				
B-21	29-MAR-2011 11:31	HK1107285-054	8.5		178		19.8				
B-19	29-MAR-2011 11:34	HK1107285-055	7.5		280		22.2				
B-19	29-MAR-2011 11:34	HK1107285-056	7.5		281		22.1				
B-19	29-MAR-2011 11:34	HK1107285-057	7.5		282		22.1				
B-25	29-MAR-2011 11:38	HK1107285-058	6.7		306		23.6				
B-25	29-MAR-2011 11:38	HK1107285-059	6.6		307		23.6				
B-25	29-MAR-2011 11:38	HK1107285-060	6.6		306		23.6				
B-30	29-MAR-2011 11:40	HK1107285-061	7.2		415		22.5				
B-30	29-MAR-2011 11:40	HK1107285-062	7.2		414		22.5				
B-30	29-MAR-2011 11:40	HK1107285-063	7.2		415		22.5				



Page Number : 5 of 5  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1107285, Amendment 1

**Laboratory Duplicate (DUP) Report**

- No Laboratory Duplicate (DUP) Results are required to be reported.

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

- No Method Blank (MB), Laboratory Control Spike (LCS) or Duplicate Control Spike (DCS) Results are required to be reported.

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

**Appendix E-2**  
**Laboratory Analytical Results for Soil and**  
**Groundwater Samples**  
**(Sites F & G)**

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEAMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 6
Contact	: MR JAMES CHAN	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1103294
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E-mail	: works@teamway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 12-FEB-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 24-FEB-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 3
Order number	: ----			No. of samples analysed	: 3
C-O-C number	: H009178				
Site	: XRL823B - SITE F				

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#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

#### ALS Laboratory Group ALS Technichem (HK) Pty Ltd

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A Campbell Brothers Limited Company



Page Number : 2 of 6  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103294

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

21-FEB-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: HK1103294

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID	
			Client sampling date / time	Unit
EA/ED: Physical and Aggregate Properties				
EA055: Moisture Content (dried @ 103°C)	---	0.1	11.9	10.0
EG: Metals and Major Cations				
EG020: Copper	7440-50-8	1	9	10
EG020: Lead	7439-92-1	1	52	54
EG020: Zinc	7440-66-6	1	71	107
EG049: Trivalent Chromium	16065-89-1	1	9	11
EG3060: Hexavalent Chromium	18540-29-9	1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)				
C6 - C8 Fraction	---	5	<5	<5
C9 - C16 Fraction	---	200	<200	<200
C17 - C35 Fraction	---	500	<500	602
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)				
Benzene	71-43-2	0.5	<0.5	<0.5
Toluene	108-88-3	0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	<1.0	<1.0
	106-42-3			
ortho-Xylene	95-47-6	0.5	<0.5	<0.5
EP-080S: TPH(Volatile)/BTEX Surrogate				
Dibromofluoromethane	1868-53-7	0.1	98.9	86.5
Toluene-D8	2037-26-5	0.1	100	99.3
4-Bromofluorobenzene	460-00-4	0.1	95.9	92.9
EP-074S: VOC Surrogates				
Dibromofluoromethane	1868-53-7	0.1	98.9	86.5
Toluene-D8	2037-26-5	0.1	100	99.3
4-Bromofluorobenzene	460-00-4	0.1	95.9	92.9



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1669451)</b>									
HK1103275-003	Anonymous		EA055: Moisture Content (dried @ 103°C)	---	0.1	%	42.4	42.4	0.0
HK1103294-003	F-05-0.5M		EA055: Moisture Content (dried @ 103°C)	---	0.1	%	10.0	9.0	10.5
<b>EG: Metals and Major Cations (QC Lot: 1671172)</b>									
HK1102925-002	Anonymous		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1103294-002	F-06-0.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1671182)</b>									
HK1103072-002	Anonymous		EG020: Copper	7440-50-8	1	mg/kg	26	28	7.4
			EG020: Lead	7439-92-1	1	mg/kg	43	42	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	98	99	0.0
HK1103359-001	Anonymous		EG020: Copper	7440-50-8	1	mg/kg	19	23	17.8
			EG020: Lead	7439-92-1	1	mg/kg	38	42	10.1
			EG020: Zinc	7440-66-6	1	mg/kg	87	98	11.5
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663023)</b>									
HK1102925-001	Anonymous		C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663027)</b>									
HK1102925-001	Anonymous		C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>									
HK1103294-001	F-07-0.5M		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
				106-42-3					

**Method Blank (MB), Laboratory Control Spike Duplicate (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	Control Limit
						Low	High			
<b>EG: Metals and Major Cations (QC Lot: 1671172)</b>										
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	101	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1671182)</b>										
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	96.5	---	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	97.0	---	85	115	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	111	---	85	115	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663023)</b>										
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	80.1	---	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	82.6	---	56	116	---





Method: Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				RPD (%)		
	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)		Value	Control Limit
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663027)											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	109	---	74	138	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.9	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	101	---	62	160	---	---
ortho-Xylene	106-42-3										
	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	96.3	---	71	149	---	---

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				RPD (%)	
					MS	Spike Recovery (%)	MSD	Recovery Limits (%)		Value
EG: Metals and Major Cations (QC Lot: 1671172)										
HK1102925-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	101	---	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1671182)										
HK1103072-001	Anonymous	EG020: Copper	7440-50-8	5 mg/kg	84.0	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663023)										
HK1102925-002	Anonymous	C9 - C16 Fraction	---	31 mg/kg	57.8	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	80.4	---	50	130	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663027)										
HK1102925-002	Anonymous	C6 - C8 Fraction	---	3 mg/kg	81.6	---	50	130	---	---

### Surrogate Control Limits

Compound	CAS Number	Recovery Limits (%)	
		Low	High
Sub-Matrix: SOIL			
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117

Page Number : 6 of 6  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103294



Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-074S: VOC Surrogates - Continued			
4-Bromofluorobenzene	460-00-4	74	121

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client : TEEMWAY ENGINEERING LTD  
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Project : EXPRESS RAIL LINK CONTRACT 823B  
Order number : ----  
C-O-C number : H002240  
Site : XRL823B

Laboratory : ALS Technichem HK Pty Ltd  
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Telephone : +852 2610 1044  
Facsimile : +852 2610 2021  
Quote number : ----  
Date Samples Received : 15-FEB-2011  
Issue Date : 01-MAR-2011  
No. of samples received : 4  
No. of samples analysed : 4

Page : 1 of 6  
Work Order : HK1103570

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Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

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Page Number : 2 of 6  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103570

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

24-FEB-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: HK1103570

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by in-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID			
				Client sampling date / time	Client sampling date / time	Client sampling date / time	Client sampling date / time
				F-05-1.5M 15-FEB-2011 11:50 HK1103570-001	F-05-3.0M 15-FEB-2011 15:15 HK1103570-002	F-05-4.5M 15-FEB-2011 15:50 HK1103570-003	F-05-6.5M 15-FEB-2011 17:00 HK1103570-004
EA/ED: Physical and Aggregate Properties							
EA055: Moisture Content (dried @ 103°C)		---	%	14.5	16.1	22.9	23.1
EG: Metals and Major Cations							
EG020: Copper	7440-50-8	1	mg/kg	18	12	10	6
EG020: Lead	7439-92-1	1	mg/kg	78	56	61	14
EG020: Zinc	7440-66-6	1	mg/kg	98	75	49	133
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	14	7	3	9
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)							
C6 - C8 Fraction		5	mg/kg	<5	<5	<5	<5
C9 - C16 Fraction		200	mg/kg	<200	<200	<200	<200
C17 - C35 Fraction		500	mg/kg	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)							
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0
	106-42-3	3					
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5
EP-080S: TPH(Volatiles)/BTEX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	%	104	104	106	105
Toluene-D8	2037-26-5	0.1	%	99.4	100	99.7	101
4-Bromofluorobenzene	460-00-4	0.1	%	95.4	95.7	95.6	95.8
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	%	104	104	106	105
Toluene-D8	2037-26-5	0.1	%	99.4	100	99.7	101
4-Bromofluorobenzene	460-00-4	0.1	%	95.4	95.7	95.6	95.8



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report			RPD (%)
						Original Result	Duplicate Result	Duplicate Result	
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1672139)</b>									
HK1103540-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	23.6	22.9	22.9	3.0
HK1103541-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	35.8	35.1	35.1	2.1
<b>EG: Metals and Major Cations (QC Lot: 1677052)</b>									
HK1103440-002	Anonymous	EG020: Copper	7440-50-8	1	mg/kg	12	12	12	0.0
		EG020: Lead	7439-92-1	1	mg/kg	54	54	54	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	84	84	84	0.0
HK1103444-001	Anonymous	EG020: Copper	7440-50-8	1	mg/kg	19	18	18	0.0
		EG020: Lead	7439-92-1	1	mg/kg	78	79	79	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	153	147	147	3.9
<b>EG: Metals and Major Cations (QC Lot: 1677092)</b>									
HK1103440-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	0.0
HK1103444-006	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>									
HK1103570-001	F-05-1.5M	C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>									
HK1103570-001	F-05-1.5M	C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>									
HK1103294-001	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Method: Compound	CAS Number	LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)		
Method Blank (MB) Report					Spike Concentration	LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations (QC Lot: 1677052)</b>											
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	94.5	---	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	98.4	---	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	102	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1677092)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	91.6	---	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	97.2	---	74	138	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>											



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	RPD (%)	
					LCS	DCS	Low	High	
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705) - Continued									
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	87.4	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	87.0	56	116	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)									
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.9	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	101	62	160	---
ortho-Xylene	106-42-3								
	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	96.3	71	149	---

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)		
					MS	MSD	Recovery Limits (%)			
				MS	MSD	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 1677052)										
HK1103440-001	Anonymous	EG020: Copper	7440-50-8	5 mg/kg	79.4	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---
EG: Metals and Major Cations (QC Lot: 1677092)										
HK1103440-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	78.3	---	75	125	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)										
HK1103570-002	F-05-3.0M	C6 - C8 Fraction	---	3 mg/kg	100	---	50	130	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)										
HK1103570-002	F-05-3.0M	C9 - C16 Fraction	---	31 mg/kg	82.0	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	81.5	---	50	130	---	---

### Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120



Page Number : 6 of 6  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103570

Sub-Matrix: SOIL Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-074S: VOC Surrogates - Continued			
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121



# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

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Project : EXPRESS RAIL LINK CONTRACT 823B  
Order number : ----  
C-O-C number : H002239  
Site : XRL823B

Page : 1 of 6  
Work Order : HK1103440

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Quote number : ----

Date Samples Received : 14-FEB-2011  
Issue Date : 28-FEB-2011  
No. of samples received : 5  
No. of samples analysed : 5

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Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

### ALS Laboratory Group ALS Technichem (HK) Pty Ltd

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Page Number : 2 of 6  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103440

### General Comments

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24-FEB-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: HK1103440

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID										
				Client sampling date / time	F-06-1.5M 14-FEB-2011 13:40 HK1103440-001	F-07-1.5M 14-FEB-2011 14:00 HK1103440-002	F-07-3.0M 14-FEB-2011 14:35 HK1103440-003	F-07-4.5M 14-FEB-2011 16:00 HK1103440-004	F-07-6.0M 14-FEB-2011 16:30 HK1103440-005					
EA/ED: Physical and Aggregate Properties														
EA055: Moisture Content (dried @ 103°C)							---	0.1	%	11.9	22.1	25.5	27.1	17.1
EG: Metals and Major Cations														
EG020: Copper	7440-50-8	1	mg/kg	11	12	13	22	25	25	22	22	25	25	
EG020: Lead	7439-92-1	1	mg/kg	56	54	70	62	62	62	62	62	62	33	
EG020: Zinc	7440-66-6	1	mg/kg	72	84	80	189	189	189	189	189	189	179	
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	13	10	6	7	7	7	7	7	7	7	
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
EP-071HK: Total Petroleum Hydrocarbons (TPH)														
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)														
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
meta- & para-Xylene	106-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
EP-080S: TPH(Volatile)/BTX Surrogate														
Dibromofluoromethane	1868-53-7	0.1	%	96.0	95.8	94.8	97.0	98.3	98.3	97.0	97.0	98.3	98.3	
Toluene-D8	2037-26-5	0.1	%	99.7	100	100	101	100	100	101	101	100	100	
4-Bromofluorobenzene	460-00-4	0.1	%	97.1	96.4	96.6	96.6	96.6	96.6	96.6	96.6	97.4	97.4	
EP-074S: VOC Surrogates														
Dibromofluoromethane	1868-53-7	0.1	%	96.0	95.8	94.8	97.0	98.3	98.3	97.0	97.0	98.3	98.3	
Toluene-D8	2037-26-5	0.1	%	99.7	100	100	101	100	100	101	101	100	100	
4-Bromofluorobenzene	460-00-4	0.1	%	97.1	96.4	96.6	96.6	96.6	96.6	96.6	96.6	97.4	97.4	



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1671209)</b>								
HK1103440-001	F-06-1.5M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	11.9	11.2	6.3
HK1103444-006	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	35.5	36.0	1.5
<b>EG: Metals and Major Cations (QC Lot: 1677052)</b>								
HK1103440-002	F-07-1.5M	EG020: Copper	7440-50-8	1	mg/kg	12	12	0.0
		EG020: Lead	7439-92-1	1	mg/kg	54	54	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	84	84	0.0
HK1103444-001	Anonymous	EG020: Copper	7440-50-8	1	mg/kg	19	18	0.0
		EG020: Lead	7439-92-1	1	mg/kg	78	79	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	153	147	3.9
<b>EG: Metals and Major Cations (QC Lot: 1677092)</b>								
HK1103440-002	F-07-1.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1103444-006	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663023)</b>								
HK1102925-001	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663027)</b>								
HK1102925-001	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>								
HK1103294-001	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report													
Method: Compound		Method Blank (MB) Report					Spike Recovery (%)					Recovery Limits (%)		Control Limit	
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Low	High	Value	RPD (%)	Control Limit			
<b>EG: Metals and Major Cations (QC Lot: 1677052)</b>															
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	94.5	---	85	115	---	---	---			
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	98.4	---	85	115	---	---	---			
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	102	---	85	115	---	---	---			
<b>EG: Metals and Major Cations (QC Lot: 1677092)</b>															
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	91.6	---	85	115	---	---	---			
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663023)</b>															
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	80.1	---	56	116	---	---	---			
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	82.6	---	56	116	---	---	---			



Matrix: SOIL

Method: Compound	CAS Number	LOR	Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				RPD (%)	
			Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)		Value
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663027)										
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	109	---	74	138	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	---	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	---	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.9	---	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	101	---	62	160	---
ortho-Xylene	108-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.3	---	71	149	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			RPD (%)	
					MS	MSD	Recovery Limits (%)		
EG: Metals and Major Cations (QC Lot: 1677052)									
HK1103440-001	F-08-1.5M	EG020: Copper	7440-50-8	5 mg/kg	79.4	---	75	125	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---
EG: Metals and Major Cations (QC Lot: 1677092)									
HK1103440-001	F-08-1.5M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	78.3	---	75	125	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663023)									
HK1102925-002	Anonymous	C9 - C16 Fraction	---	31 mg/kg	57.8	---	50	130	---
		C17 - C35 Fraction	---	75 mg/kg	80.4	---	50	130	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1663027)									
HK1102925-002	Anonymous	C6 - C8 Fraction	---	3 mg/kg	81.6	---	50	130	---

**Surrogate Control Limits**

Sub-Matrix: SOIL

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-080S: TPH(Volatile)/BTX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117



Page Number : 6 of 6  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103440

Compound	CAS Number	Recovery Limits (%)	
		Low	High
EP-074S: VOC Surrogates - Continued			
4-Bromofluorobenzene	460-00-4	74	121

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client : TEEMWAY ENGINEERING LTD  
Contact : MR JAMES CHAN  
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Project : EXPRESS RAIL LINK CONTRACT 823B  
Order number : ----  
C-O-C number : 117293  
Site : XRL823B

Laboratory : ALS Technichem HK Pty Ltd  
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Facsimile : +852 2610 2021  
Quote number : ----

Page : 1 of 5  
Work Order : HK1103657

Date Samples Received : 16-FEB-2011  
Issue Date : 03-MAR-2011  
No. of samples received : 3  
No. of samples analysed : 3

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Signatories	Position	Authorised results for
Ann Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

ALS Laboratory Group  
ALS Technichem (HK) Pty Ltd

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Page Number : 2 of 5  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103657

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 21-FEB-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: **HK1103657**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.





**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sample ID					
			Client sampling date / time	Unit				
EA/IED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	21.6	15.7	21.9	F-06-3.0M 16-FEB-2011 11:10 HK1103657-001	F-06-4.5M 16-FEB-2011 11:50 HK1103657-002	F-06-6.4M 16-FEB-2011 13:45 HK1103657-003
EG: Metals and Major Cations								
EG020: Copper	7440-50-8	1	21	9	12			
EG020: Lead	7439-92-1	1	71	35	72			
EG020: Zinc	7440-66-6	1	86	184	122			
EG049: Trivalent Chromium	16065-83-1	1	8	6	7			
EG3060: Hexavalent Chromium	18540-29-9	1	<1	<1	<1			
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	---	5	<5	<5	<5			
C9 - C16 Fraction	---	200	<200	<200	<200			
C17 - C35 Fraction	---	500	<500	<500	<500			
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.5	<0.5	<0.5	<0.5			
Toluene	108-88-3	0.5	<0.5	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	<0.5	<0.5	<0.5			
meta- & para-Xylene	108-38-3	1.0	<1.0	<1.0	<1.0			
	106-42-3							
ortho-Xylene	95-47-6	0.5	<0.5	<0.5	<0.5			
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	106	104	106			
Toluene-D8	2037-26-5	0.1	101	101	101			
4-Bromofluorobenzene	460-00-4	0.1	95.7	95.4	95.8			
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	106	104	106			
Toluene-D8	2037-26-5	0.1	101	101	101			
4-Bromofluorobenzene	460-00-4	0.1	95.7	95.4	95.8			

Surrogate control limits listed at end of this report.

Surrogate control limits listed at end of this report.



### Laboratory Duplicate (DUP) Report

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1674163)</b>									
HK1103657-001	F-06-3.0M		EA055: Moisture Content (dried @ 103°C)	---	0.1	%	21.6	21.2	2.0
HK1103656-003	Anonymous		EA055: Moisture Content (dried @ 103°C)	---	0.1	%	44.6	46.0	3.0
<b>EG: Metals and Major Cations (QC Lot: 1682910)</b>									
HK1103657-002	F-06-4.5M		EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687161)</b>									
HK1104101-001	Anonymous		EG020: Copper	7440-50-8	1	mg/kg	43	41	5.8
			EG020: Lead	7439-92-1	1	mg/kg	2	1	0.0
			EG020: Zinc	7440-66-6	1	mg/kg	99	105	5.6
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>									
HK1103570-001	Anonymous		C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>									
HK1103570-001	Anonymous		C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
			C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>									
HK1103294-001	Anonymous		Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
			Toluene	106-88-3	0.5	mg/kg	<0.5	<0.5	0.0
			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
				106-42-3					

### Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Value	Control Limit
<b>EG: Metals and Major Cations (QC Lot: 1682910)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	104	---	---	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1687161)</b>											
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	88.6	---	---	85	115	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	86.0	---	---	85	115	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	93.6	---	---	85	115	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	97.2	---	---	74	138	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	87.4	---	---	56	116	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	87.0	---	---	56	116	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	---	---	69	141	---



Method Blank (MB) Report

Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method: Compound

Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration		Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					Concentration	Result	LCS	DCS	Low	High	Value	Control Limit
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664) - Continued</b>												
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.6	---	68	149	---	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.9	---	77	137	---	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	101	---	62	160	---	---	---
ortho-Xylene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.3	---	71	149	---	---	---

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		MSD	Recovery Limits (%)		Value	Control Limit
					MS	MSD		Low	High		
<b>EG: Metals and Major Cations (QC Lot: 1682910)</b>											
HK1103657-001	F-06-3.0M	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	102	---	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687161)</b>											
HK1103657-001	F-06-3.0M	EG020: Copper	7440-50-8	5 mg/kg	90.0	---	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	---	75	125	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>											
HK1103570-002	Anonymous	C6 - C8 Fraction	---	3 mg/kg	100	---	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>											
HK1103570-002	Anonymous	C9 - C16 Fraction	---	31 mg/kg	82.0	---	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	81.5	---	---	50	130	---	---

Surrogate Control Limits

Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>Sub-Matrix: SOIL</b>			
EP-080S: TPH(Volatile)/BTX Surrogate	---	---	---
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 12
Contact	: MR JAMES CHAN	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1103906
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E-mail	: works@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 18-FEB-2011
Order number	: ----			Issue Date	: 04-MAR-2011
C-O-C number	: 117295			No. of samples received	: 6
Site	: XRL823B			No. of samples analysed	: 6

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Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

**ALS Laboratory Group**  
Trading Name: **ALS Technichem (HK) Pty Ltd**

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Page Number : 2 of 12  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1103906

### General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1103906

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



**Analytical Results**

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID					
				Client sampling date / time	G-06-0.5M	G-06-1.5M	G-06-3.0M	G-06-4.5M	G-06-6.0M
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	15.0	14.3	15.2	19.8	27.6	
ED/EK: Inorganic Nonmetallic Parameters									
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1	<1	<1	<1
EG: Metals and Major Cations									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	10	12	14	15	12	12
EG020: Lead	7439-92-1	1	mg/kg	37	84	45	109	50	50
EG020: Nickel	7440-02-0	1	mg/kg	9	6	4	3	2	2
EG020: Zinc	7440-66-6	1	mg/kg	94	71	62	108	50	50
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	19	27	9	5	2	2
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1	<1	<1	<1
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500	<500	<500	<500
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	106-42-3	3							
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5	<5	<5	<5
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-074L: Methyl-tert-butyl Ether									



Sub-Matrix: SOIL		Client sample ID				
Compound	CAS Number	LOR	Unit	Client sampling date / time	Client sample ID	Client sample ID
EP-074L: Methyl-tert-butyl Ether - Continued						
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	18-FEB-2011 13:00	HK1103906-001	18-FEB-2011 16:45
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1		<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	91-20-3	0.500	mg/kg	<0.500		<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500		<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500		<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500		<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500		<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500		<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500		<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500		<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500		<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500		<0.500
Benz(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500		<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500		<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500		<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500		<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500		<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500		<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate						
Phenol	108-95-2	0.50	mg/kg	<0.50		<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200		<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00		<5.00
EP-080S: TPH(Volatile)/BTX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	%	92.2		92.5
Toluene-D8	2037-26-5	0.1	%	99.4		98.5
4-Bromofluorobenzene	460-00-4	0.1	%	104		102
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	%	92.2		92.5
Toluene-D8	2037-26-5	0.1	%	99.4		98.5
4-Bromofluorobenzene	460-00-4	0.1	%	104		102
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	%	87.0		83.6
4-Terphenyl-d14	1718-51-0	0.1	%	91.9		93.1
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	%	93.9		77.9
Dibutylchlorodenate	1770-80-5	0.1	%	103		85.2



Compound	CAS Number		LOR		Client sample ID		Client sampling date / time	
Sub-Matrix: SOIL								
EATED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)			0.1	%			12.0	
EDIEK: Inorganic Nonmetallic Parameters								
EK025MD: Free Cyanide			1	mg/kg			<1	
EG: Metals and Major Cations								
EG020: Cadmium	7440-43-9		0.2	mg/kg			<0.2	
EG020: Copper	7440-50-8		1	mg/kg			6	
EG020: Lead	7439-92-1		1	mg/kg			22	
EG020: Nickel	7440-02-0		1	mg/kg			5	
EG020: Zinc	7440-66-6		1	mg/kg			50	
EG036: Mercury	7439-97-6		1	mg/kg			<1	
EG049: Trivalent Chromium	16065-83-1		1	mg/kg			10	
EG3060: Hexavalent Chromium	18540-29-9		1	mg/kg			<1	
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction			5	mg/kg			<5	
C9 - C16 Fraction			200	mg/kg			<200	
C17 - C35 Fraction			500	mg/kg			<500	
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2		0.5	mg/kg			<0.5	
Toluene	108-88-3		0.5	mg/kg			<0.5	
Ethylbenzene	100-41-4		0.5	mg/kg			<0.5	
meta- & para-Xylene	108-38-3		1.0	mg/kg			<1.0	
	106-42-3							
Styrene	100-42-5		0.5	mg/kg			<0.5	
ortho-Xylene	95-47-6		0.5	mg/kg			<0.5	
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1		50	mg/kg			<50	
2-Butanone (MEK)	78-93-3		5	mg/kg			<5	
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2		2.5	mg/kg			<2.5	
Trichloroethene	79-01-6		0.5	mg/kg			<0.5	
Tetrachloroethene	127-18-4		0.5	mg/kg			<0.5	
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3		0.5	mg/kg			<0.5	
Bromodichloromethane	75-27-4		0.5	mg/kg			<0.5	
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4		0.50	mg/kg			<0.50	





Compound	CAS Number	Client sample ID		Unit	Value
		CAS Number	Client sampling date / time		
Sub-Matrix: SOIL					
EP-066: Polychlorinated Biphenyls			G-05-0.5M		
Total Polychlorinated biphenyls			18-FEB-2011 17:00		
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)			HK1103906-006		
Naphthalene	91-20-3	0.1	mg/kg		<0.1
Acenaphthylene	208-96-8	0.500	mg/kg		<0.500
Acenaphthene	83-32-9	0.500	mg/kg		<0.500
Fluorene	86-73-7	0.500	mg/kg		<0.500
Phenanthrene	85-01-8	0.500	mg/kg		<0.500
Anthracene	120-12-7	0.500	mg/kg		<0.500
Fluoranthene	206-44-0	0.500	mg/kg		<0.500
Pyrene	129-00-0	0.500	mg/kg		<0.500
Benzo(a)anthracene	56-55-3	0.500	mg/kg		<0.500
Chrysene	218-01-9	0.500	mg/kg		<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg		<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg		<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg		<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg		<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg		<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg		<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate					
Phenol	108-95-2	0.50	mg/kg		<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg		<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg		<5.00
EP-080S: TPH(Volatile)/BTX Surrogate					
Dibromofluoromethane	1868-53-7	0.1	%		98.1
Toluene-D8	2037-26-5	0.1	%		98.7
4-Bromofluorobenzene	460-00-4	0.1	%		102
EP-074S: VOC Surrogates					
Dibromofluoromethane	1868-53-7	0.1	%		98.1
Toluene-D8	2037-26-5	0.1	%		98.7
4-Bromofluorobenzene	460-00-4	0.1	%		102
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates					
2-Fluorobiphenyl	321-60-8	0.1	%		74.7
4-Terphenyl-d14	1718-51-0	0.1	%		88.4
EP-066S: PCB Surrogate					
Tetrachlorometaxylene	877-09-8	0.1	%		76.3
Dibutylchlorodate	1770-80-5	0.1	%		60.4



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1676325)</b>								
HK1103822-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	20.8	20.0	4.0
HK1103906-006	G-05-0.5M	EA055: Moisture Content (dried @ 103°C)	---	0.1	%	12.0	11.6	2.8
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1681362)</b>								
HK1103906-002	G-06-1.5M	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687837)</b>								
HK1103906-002	G-06-1.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	12	13	12.2
		EG020: Lead	7439-92-1	1	mg/kg	84	86	3.1
		EG020: Nickel	7440-02-0	1	mg/kg	6	6	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	71	74	3.3
HK1104164-004	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	18	16	16.1
		EG020: Lead	7439-92-1	1	mg/kg	176	182	3.2
		EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	77	76	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687838)</b>								
HK1103906-002	G-06-1.5M	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1104164-004	Anonymous	EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687839)</b>								
HK1103906-002	G-06-1.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1104164-004	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>								
HK1103570-001	Anonymous	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>								
HK1103570-001	Anonymous	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>								
HK1103294-001	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1677487)</b>								
HK1103906-006	G-05-0.5M	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1677487) - Continued</b>								
HK1103906-006	G-05-0.5M	Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
<b>EP-074B: Oxygenated Compounds (QC Lot: 1668664)</b>								
HK1103294-001	Anonymous	2-Propanone (Acetone)	67-64-1	25	mg/kg	<25	<25	0.0
		2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
<b>EP-074C: Oxygenated Compounds (QC Lot: 1677487)</b>								
HK1103906-006	G-05-0.5M	2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
		2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1668664)</b>								
HK1103294-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1677487)</b>								
HK1103906-006	G-05-0.5M	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1668664)</b>								
HK1103294-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1677487)</b>								
HK1103906-006	G-05-0.5M	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1668664)</b>								
HK1103294-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.25	mg/kg	<0.25	<0.25	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1677487)</b>								
HK1103906-006	G-05-0.5M	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1673706)</b>								
HK1103577-001	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1677489)</b>								
HK1103906-006	G-05-0.5M	Naphthalene	91-20-3	500	µg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	500	µg/kg	<500	<500	0.0
		Fluorene	86-73-7	500	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	500	µg/kg	<500	<500	0.0
		Anthracene	120-12-7	500	µg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	500	µg/kg	<500	<500	0.0
		Pyrene	129-00-0	500	µg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	500	µg/kg	<500	<500	0.0



Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1677489) - Continued</b>								
HK1103906-006	G-05-0.5M	Chrysene	218-01-9	500	µg/kg	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	500	µg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	500	µg/kg	<500	<500	0.0
		Benzo(a)pyrene	50-32-8	500	µg/kg	<500	<500	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	500	µg/kg	<500	<500	0.0
		Dibenz(a,h)anthracene	53-70-3	500	µg/kg	<500	<500	0.0
		Benzo(g,h,i)perylene	191-24-2	500	µg/kg	<500	<500	0.0
<b>EP-076B: PhenoI, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1677489)</b>								
HK1103906-006	G-05-0.5M	Hexachlorobenzene (HCB)	118-74-1	200	µg/kg	<200	<200	0.0
		Phenol	108-95-2	500	µg/kg	<500	<500	0.0
		Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
						Low	High	Value	Control Limit
<b>EDIEK: Inorganic Nonmetallic Parameters (QC Lot: 1681362)</b>									
EG025MD: Free Cyanide	---	1	mg/kg	<1	2 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687837)</b>									
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687838)</b>									
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687839)</b>									
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>									
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	74	138	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>									
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	56	116	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664)</b>									
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	79	136	---	---



Method: Compound	CAS Number	LOR	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
			Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1668664) - Continued										
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	96.3	---	71	149	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1677487)										
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	104	---	69	141	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	---	68	149	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	99.9	---	77	137	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	101	---	62	160	---
	106-42-3									
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	97.8	---	79	136	---
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	98.7	---	71	149	---
EP-074B: Oxygenated Compounds (QC Lot: 1668664)										
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	91.3	---	26	177	---
EP-074B: Oxygenated Compounds (QC Lot: 1677487)										
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	83.2	---	26	177	---
EP-074E: Halogenated Aliphatics (QC Lot: 1668664)										
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	97.4	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	85.6	---	69	151	---
EP-074E: Halogenated Aliphatics (QC Lot: 1677487)										
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	74	136	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	105	---	69	151	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1668664)										
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	---	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	96.8	---	71	137	---
EP-074G: Trihalomethanes (THM) (QC Lot: 1677487)										
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	100	---	69	139	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	90.8	---	71	137	---
EP-066: Polychlorinated Biphenyls (QC Lot: 1673706)										
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	70.8	---	35	141	---
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1677489)										
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	90.9	---	50	118	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	83.8	---	46	113	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	90.5	---	49	118	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	92.2	---	49	118	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	91.9	---	53	117	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	91.9	---	47	118	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	96.0	---	59	122	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	94.7	---	58	122	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	93.4	---	53	119	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	97.5	---	66	120	---



Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>Method: Compound</b>										
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1677489) - Continued</b>										
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	99.4	50	125	---	---
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	99.6	66	125	---	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	77.5	60	109	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	96.7	50	124	---	---
Dibenzo(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	106	53	120	---	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	110	57	123	---	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1677489)</b>										
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	101	24	116	---	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	91.2	45	125	---	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	92.9	68	128	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			Recovery Limits (%)	Value	RPD (%)	Control Limit
					MS	MSD	MSD				
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1681362)</b>											
HK1103906-001	G-06-0.5M	EK025MD: Free Cyanide	---	20 mg/kg	85.6	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687837)</b>											
HK1103906-001	G-06-0.5M	EG020: Cadmium	7440-43-9	5 mg/kg	96.3	---	75	125	---	---	---
		EG020: Copper	7440-50-8	5 mg/kg	77.9	---	75	125	---	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	75	125	---	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	90.6	---	75	125	---	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687838)</b>											
HK1103906-001	G-06-0.5M	EG036: Mercury	7439-97-6	0.1 mg/kg	85.0	---	75	125	---	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687839)</b>											
HK1103906-001	G-06-0.5M	EG060: Hexavalent Chromium	18540-29-9	40 mg/kg	98.1	---	75	125	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673683)</b>											
HK1103570-002	Anonymous	C6 - C8 Fraction	---	3 mg/kg	100	---	50	130	---	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1673705)</b>											
HK1103570-002	Anonymous	C9 - C16 Fraction	---	31 mg/kg	82.0	---	50	130	---	---	---
		C17 - C35 Fraction	---	75 mg/kg	81.5	---	50	130	---	---	---

**Surrogate Control Limits**

Sub-Matrix: SOIL

Recovery Limits (%)



Compound	CAS Number	Recovery Limits (%)	
		Low	High
<b>Sub-Matrix: SOIL</b>			
<b>EP-080S: TPH(Volatiles)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

**ALS Laboratory Group**  
ANALYTICAL CHEMISTRY & TESTING SERVICES



## CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 15
Contact	: MR JAMES CHAN	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1104164
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: works@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044		
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021		
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	Date Samples Received	: 21-FEB-2011
Order number	: ----			Issue Date	: 07-MAR-2011
C-O-C number	: 117294			No. of samples received	: 8
Site	: XRL823B			No. of samples analysed	: 8

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories	Position	Authorised results for
Anh Ngoc Huynh	Senior Chemist	Organics
Fung Lim Chee, Richard	General Manager	Inorganics

**ALS Laboratory Group**  
**ALS Technichem (HK) Pty Ltd**

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A Campbell Brothers Limited Company





Page Number : 2 of 15  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1104164

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 28-FEB-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: **HK1104164**

Project Name : Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Water sample(s) were filtered prior to dissolved metal analysis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.



### Analytical Results

Sub-Matrix: SOIL

Compound	CAS Number	LOR	Client sampling date / time		Client sample ID	
			Unit	Value	Unit	Value
<b>EA/ED: Physical and Aggregate Properties</b>						
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	15.1	22.2	29.5
<b>ED/EK: Inorganic Nonmetallic Parameters</b>						
EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	<1
<b>EG: Metals and Major Cations</b>						
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2
EG020: Copper	7440-50-8	1	mg/kg	12	15	18
EG020: Lead	7439-92-1	1	mg/kg	49	48	176
EG020: Nickel	7440-02-0	1	mg/kg	5	5	5
EG020: Zinc	7440-66-6	1	mg/kg	78	92	77
EG036: Mercury	7439-97-6	1	mg/kg	<1	<1	<1
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	12	7	5
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>						
C6 - C8 Fraction	---	5	mg/kg	<5	<5	<5
C9 - C16 Fraction	---	200	mg/kg	<200	<200	<200
C17 - C35 Fraction	---	500	mg/kg	<500	<500	<500
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>						
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0
	106-42-3	3				
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5
<b>EP-074B: Oxygenated Compounds</b>						
2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	<50
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5
<b>EP-074E: Halogenated Aliphatics</b>						
Methylene chloride	75-09-2	2.5	mg/kg	<2.5	<2.5	<2.5
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5
<b>EP-074G: Trihalomethanes (THM)</b>						
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5
<b>EP-074L: Methyl-tert-butyl Ether</b>						



Compound	CAS Number	LOR	Client sample ID				G-05-6.0M
			Client sampling date / time	Unit	G-05-1.5M	G-05-3.0M	
Sub-Matrix: SOIL							
EP-074L: Methyl-tert-butyl Ether - Continued							
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50
EP-066: Polychlorinated Biphenyls							
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(a)pyrene	50-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Indeno(1,2,3-cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Dibenz(a,h)anthracene	53-70-3	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
Benzo(g,h,i)perylene	191-24-2	0.500	mg/kg	<0.500	<0.500	<0.500	<0.500
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate							
Phenol	108-95-2	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.200	mg/kg	<0.200	<0.200	<0.200	<0.200
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	<5.00	<5.00	<5.00	<5.00
EP-080S: TPH(Volatiles)/BTEX Surrogate							
Dibromofluoromethane	1868-53-7	0.1	%	87.2	83.9	85.2	99.0
Toluene-D8	2037-26-5	0.1	%	98.0	97.3	97.8	98.3
4-Bromofluorobenzene	460-00-4	0.1	%	102	103	103	103
EP-074S: VOC Surrogates							
Dibromofluoromethane	1868-53-7	0.1	%	87.2	83.9	85.2	99.0
Toluene-D8	2037-26-5	0.1	%	98.0	97.3	97.8	98.3
4-Bromofluorobenzene	460-00-4	0.1	%	102	103	103	103
EP-076S: Polycyclic Aromatic Hydrocarbons (PAHs) Surrogates							
2-Fluorobiphenyl	321-60-8	0.1	%	84.9	81.4	69.0	78.4
4-Terphenyl-d14	1718-51-0	0.1	%	95.8	83.8	75.1	80.5
EP-066S: PCB Surrogate							
Tetrachlorometaxylene	877-09-8	0.1	%	68.7	69.6	66.2	73.6
Dibutylchlorobenzene	1770-80-5	0.1	%	66.0	70.8	75.6	73.0



Sub-Matrix: WATER

Compound	Client sampling date / time		CAS Number	LOR	Unit	TRIP BLANK [21-FEB-2011] HK1104164-006	EQUIPMENT BLANK [21-FEB-2011] HK1104164-007	FIELD BLANK [21-FEB-2011] HK1104164-008
	Client sample ID	Client sampling date / time						
<b>EDIEK: Inorganic Nonmetallic Parameters</b>								
EK025MD: Free Cyanide	---	0.01		mg/L	---		<0.01	<0.01
<b>EG: Metals and Major Cations</b>								
EG049: Trivalent Chromium	16065-83-1	0.02		mg/L	---		<0.02	<0.02
EG050: Hexavalent Chromium	18540-29-9	0.02		mg/L	---		<0.02	<0.02
<b>EG: Metals and Major Cations - Filtered</b>								
EG020: Cadmium	7440-43-9	0.0002		mg/L	---		<0.0002	<0.0002
EG020: Copper	7440-50-8	0.001		mg/L	---		<0.001	0.003
EG020: Lead	7439-92-1	0.001		mg/L	---		<0.001	<0.001
EG020: Nickel	7440-02-0	0.001		mg/L	---		<0.001	<0.001
EG020: Zinc	7440-66-6	0.01		mg/L	---		<0.01	<0.01
EG036: Mercury	7439-97-6	0.0005		mg/L	---		<0.0005	<0.0005
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH)</b>								
C6 - C8 Fraction	---	0.02		mg/L	---		<0.02	<0.02
C9 - C16 Fraction	---	0.5		mg/L	---		<0.5	<0.5
C17 - C35 Fraction	---	0.5		mg/L	---		<0.5	<0.5
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)</b>								
Benzene	71-43-2	0.005		mg/L	<0.005		<0.005	<0.005
Toluene	108-88-3	0.005		mg/L	<0.005		<0.005	<0.005
Ethylbenzene	100-41-4	0.005		mg/L	<0.005		<0.005	<0.005
meta- & para-Xylene	106-38-3	0.010		mg/L	<0.010		<0.010	<0.010
	106-42-3			mg/L				
	3			mg/L				
Styrene	100-42-5	0.005		mg/L	<0.005		<0.005	<0.005
ortho-Xylene	95-47-6	0.005		mg/L	<0.005		<0.005	<0.005
<b>EP-074B: Oxygenated Compounds</b>								
2-Propanone (Acetone)	67-64-1	0.50		mg/L	<0.50		<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05		mg/L	<0.05		<0.05	<0.05
<b>EP-074E: Halogenated Aliphatics</b>								
Methylene chloride	75-09-2	0.025		mg/L	<0.025		<0.025	<0.025
Trichloroethene	79-01-6	0.005		mg/L	<0.005		<0.005	<0.005
Tetrachloroethene	127-18-4	0.005		mg/L	<0.005		<0.005	<0.005
<b>EP-074G: Trihalomethanes (THM)</b>								
Chloroform	67-66-3	0.005		mg/L	<0.005		<0.005	<0.005
Bromodichloromethane	75-27-4	0.005		mg/L	<0.005		<0.005	<0.005
<b>EP-074L: Methyl-tert-butyl Ether</b>								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005		mg/L	<0.005		<0.005	<0.005
<b>EP-075A: Phenols</b>								
Phenol	108-95-2	0.002		mg/L	---		<0.002	<0.002



Sub-Matrix: WATER

Compound	Client sample ID		TRIP BLANK [21-FEB-2011]	EQUIPMENT BLANK [21-FEB-2011]	FIELD BLANK [21-FEB-2011]
	CAS Number	Unit			
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs)</b>					
Naphthalene	91-20-3	0.002	---	<0.002	<0.002
Acenaphthylene	208-96-6	0.002	---	<0.002	<0.002
Acenaphthene	83-32-9	0.002	---	<0.002	<0.002
Fluorene	86-73-7	0.002	---	<0.002	<0.002
Phenanthrene	85-01-8	0.002	---	<0.002	<0.002
Anthracene	120-12-7	0.002	---	<0.002	<0.002
Fluoranthene	206-44-0	0.002	---	<0.002	<0.002
Pyrene	129-00-0	0.002	---	<0.002	<0.002
Benzo(a)anthracene	56-55-3	0.002	---	<0.002	<0.002
Chrysene	218-01-9	0.002	---	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	---	<0.004	<0.004
	207-08-9				
Benzo(a)pyrene	50-32-8	0.002	---	<0.002	<0.002
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	---	<0.002	<0.002
Dibenz(a,h)anthracene	53-70-3	0.002	---	<0.002	<0.002
Benzo(g,h,i)perylene	191-24-2	0.002	---	<0.002	<0.002
<b>EP-075C: Phthalate Esters</b>					
Bis(2-ethylhexyl)phthalate	117-81-7	0.020	---	<0.020	<0.020
<b>EP-075G: Chlorinated Hydrocarbons</b>					
Hexachlorobenzene (HCB)	118-74-1	0.004	---	<0.004	<0.004
<b>EP-066: Polychlorinated Biphenyls</b>					
Total Polychlorinated biphenyls	---	1.00	---	<1.00	<1.00
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>					
Dibromofluoromethane	1868-53-7	0.1	---	103	107
Toluene-D8	2037-26-5	0.1	---	98.4	98.7
4-Bromofluorobenzene	460-00-4	0.1	---	95.0	96.7
<b>EP-074S: VOC Surrogates</b>					
Dibromofluoromethane	1868-53-7	0.1	103	103	107
Toluene-D8	2037-26-5	0.1	98.6	98.4	98.7
4-Bromofluorobenzene	460-00-4	0.1	98.0	95.0	96.7
<b>EP-075S: Acid Extractable Surrogates</b>					
2-Fluorophenol	367-12-4	0.1	---	29.6	26.2
Phenol-d6	13127-88-3	0.1	---	26.7	20.8
2,4,6-Tribromophenol	118-79-6	0.1	---	31.6	39.2
<b>EP-075T: Base/Neutral Extractable Surrogates</b>					
Nitrobenzene -d5	4165-60-0	0.1	---	56.6	39.3
2-Fluorobiphenyl	321-60-8	0.1	---	48.1	47.0
4-Terphenyl-d14	1718-51-0	0.1	---	77.0	73.1



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 Client : TEEMWAY ENGINEERING LTD  
 Work Order : HK1104164

Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sampling date / time		TRIP BLANK [21-FEB-2011] HK1104164-006	EQUIPMENT BLANK [21-FEB-2011] HK1104164-007	FIELD BLANK [21-FEB-2011] HK1104164-008	Surrogate control limits listed at end of this report.
			Client sample ID	Unit				
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1		%	---	61.1	52.0	
Dibutylchlorendate	1770-80-5	0.1		%	---	53.2	81.6	



**Laboratory Duplicate (DUP) Report**

Matrix: SOIL		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1682908)</b>								
HK1104164-001	G-05-1.5M	EA065: Moisture Content (dried @ 103°C)	---	0.1	%	15.1	13.5	11.5
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1687548)</b>								
HK1104164-002	G-05-3.0M	EK025MD: Free Cyanide	---	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687837)</b>								
HK1103906-002	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	12	13	12.2
		EG020: Lead	7439-92-1	1	mg/kg	84	86	3.1
		EG020: Nickel	7440-02-0	1	mg/kg	6	6	0.0
		EG020: Zinc	7440-86-6	1	mg/kg	71	74	3.3
HK1104164-004	G-09-4.5M	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	18	16	16.1
		EG020: Lead	7439-92-1	1	mg/kg	176	182	3.2
		EG020: Nickel	7440-02-0	1	mg/kg	5	5	0.0
		EG020: Zinc	7440-86-6	1	mg/kg	77	76	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687838)</b>								
HK1103906-002	Anonymous	EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
HK1104164-004	G-09-4.5M	EG038: Mercury	7439-97-6	1	mg/kg	<1	<1	0.0
<b>EG: Metals and Major Cations (QC Lot: 1687839)</b>								
HK1103906-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
HK1104164-004	G-09-4.5M	EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1683509)</b>								
HK1104164-001	G-05-1.5M	C6 - C8 Fraction	---	5	mg/kg	<5	<5	0.0
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1683510)</b>								
HK1104164-001	G-05-1.5M	C9 - C16 Fraction	---	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	---	500	mg/kg	<500	<500	0.0
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1681704)</b>								
HK1100044-021	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
			106-42-3					
<b>EP-074B: Oxygenated Compounds (QC Lot: 1681704)</b>								
HK1100044-021	Anonymous	2-Propanone (Acetone)	67-64-1	25	mg/kg	<25	<25	0.0
		2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1681704)</b>								
HK1100044-021	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	RPD (%)
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1681704) - Continued</b>						
HK1100044-021	Anonymous	Tetrachloroethene	127-18-4	0.5	mg/kg	0.0
		Methylene chloride	75-09-2	2.5	mg/kg	0.0
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1681704)</b>						
HK1100044-021	Anonymous	Chloroform	67-66-3	0.5	mg/kg	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	0.0
<b>EP-074L: Methyl-tert-butyl Ether (QC Lot: 1681704)</b>						
HK1100044-021	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.25	mg/kg	0.0
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1673706)</b>						
HK1103577-001	Anonymous	Total Polychlorinated biphenyls	---	0.1	mg/kg	0.0
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1679196)</b>						
HK1104055-005	Anonymous	Fluoranthene	206-44-0	150	µg/kg	0.0
		Pyrene	129-00-0	150	µg/kg	0.0
		Benz(a)anthracene	56-55-3	150	µg/kg	0.0
		Chrysene	218-01-9	150	µg/kg	0.0
		Benzo(b)fluoranthene	205-99-2	150	µg/kg	0.0
		Benzo(k)fluoranthene	207-08-9	150	µg/kg	0.0
		Benzo(a)pyrene	50-32-8	150	µg/kg	0.0
		Indeno(1,2,3-cd)pyrene	193-39-5	150	µg/kg	0.0
		Dibenz(a,h)anthracene	53-70-3	150	µg/kg	0.0
		Benzo(g,h,i)perylene	191-24-2	150	µg/kg	0.0
		Naphthalene	91-20-3	50	µg/kg	0.0
		Acenaphthylene	208-96-8	50	µg/kg	0.0
		Acenaphthene	83-32-9	50	µg/kg	0.0
		Fluorene	86-73-7	50	µg/kg	0.0
		Phenanthrene	85-01-8	50	µg/kg	0.0
		Anthracene	120-12-7	50	µg/kg	0.0
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1679196)</b>						
HK1104055-005	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	0.0
		Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	0.0
		Phenol	108-95-2	500	µg/kg	0.0
Matrix: WATER						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	RPD (%)
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1682966)</b>						
HK1104164-008	FIELD BLANK	EK025MD: Free Cyanide	---	0.01	mg/L	0.0
<b>EG: Metals and Major Cations (QC Lot: 1690533)</b>						
HK1104164-007	EQUIPMENT BLANK	EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	0.0
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1686235)</b>						
HK1104164-008	FIELD BLANK	EG020: Cadmium	7440-43-9	0.0002	mg/L	0.0
		EG020: Copper	7440-50-8	0.001	mg/L	0.0





Matrix: WATER		Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations - Filtered (QC Lot: 1686235) - Continued								
HK1104164-008	FIELD BLANK	EG020: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0
		EG020: Zinc	7440-86-6	0.01	mg/L	<0.01	<0.01	0.0
EG: Metals and Major Cations - Filtered (QC Lot: 1686236)								
HK1104164-008	FIELD BLANK	EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1679035)								
HK1104093-002	Anonymous	C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1683252)								
HK1104164-006	TRIP BLANK	meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
			106-42-3					
		Benzene	71-43-2	5	µg/L	<5	<5	0.0
		Toluene	108-88-3	5	µg/L	<5	<5	0.0
		Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
		Styrene	100-42-5	5	µg/L	<5	<5	0.0
		ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1683252)								
HK1104164-006	TRIP BLANK	2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
		2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1683252)								
HK1104164-006	TRIP BLANK	Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
		Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
		Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1683252)								
HK1104164-006	TRIP BLANK	Chloroform	67-66-3	5	µg/L	<5	<5	0.0
		Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1683252)								
HK1104164-006	TRIP BLANK	Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: SOIL				Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1687548)													
EK025MD: Free Cyanide	---	1	mg/kg	<1	0.19 mg/kg	91.6	---	---	85	85	115	---	---
EG: Metals and Major Cations (QC Lot: 1687837)													
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	97.5	---	---	85	85	115	---	---
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	94.3	---	---	85	85	115	---	---
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.4	---	---	85	85	115	---	---
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	90.3	---	---	85	85	115	---	---
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	98.9	---	---	85	85	115	---	---



Method/Compound	Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	RPD (%)	Control Limit
<b>Matrix: SOIL</b>											
<b>Method: Compound</b>											
<b>EG: Metals and Major Cations (QC Lot: 1687838)</b>											
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.0	---	85	115	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687839)</b>											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<1	40 mg/kg	103	---	85	115	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1683509)</b>											
C6 - C8 Fraction	---	5	mg/kg	<5	3 mg/kg	89.4	---	74	138	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1683510)</b>											
C9 - C16 Fraction	---	200	mg/kg	<200	31 mg/kg	89.9	---	56	116	---	---
C17 - C35 Fraction	---	500	mg/kg	<500	75 mg/kg	92.0	---	56	116	---	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1681704)</b>											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	88.8	---	69	141	---	---
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	94.2	---	68	149	---	---
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	---	77	137	---	---
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	1.0 mg/kg	102	---	62	160	---	---
Styrene	106-42-3	0.5	mg/kg	<0.5	0.5 mg/kg	91.9	---	79	136	---	---
ortho-Xylene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	96.2	---	71	149	---	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1681704)</b>											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	<5	5.0 mg/kg	56.0	---	26	177	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1681704)</b>											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	99.7	---	74	136	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	103	---	69	151	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1681704)</b>											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	81.1	---	69	139	---	---
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	78.1	---	71	137	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1673706)</b>											
Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.1	0.5 mg/kg	70.8	---	35	141	---	---
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1679196)</b>											
Naphthalene	91-20-3	50	µg/kg	<50	250 µg/kg	73.8	---	50	118	---	---
Acenaphthylene	208-96-8	50	µg/kg	<50	250 µg/kg	65.8	---	46	113	---	---
Acenaphthene	83-32-9	50	µg/kg	<50	250 µg/kg	71.7	---	49	118	---	---
Fluorene	86-73-7	50	µg/kg	<50	250 µg/kg	72.9	---	49	118	---	---
Phenanthrene	85-01-8	50	µg/kg	<50	250 µg/kg	73.4	---	53	117	---	---
Anthracene	120-12-7	50	µg/kg	<50	250 µg/kg	72.5	---	47	118	---	---
Fluoranthene	206-44-0	50	µg/kg	<50	250 µg/kg	78.7	---	59	122	---	---
Pyrene	129-00-0	50	µg/kg	<50	250 µg/kg	78.0	---	58	122	---	---
Benz(a)anthracene	56-55-3	50	µg/kg	<50	250 µg/kg	84.2	---	53	119	---	---
Chrysene	218-01-9	50	µg/kg	<50	250 µg/kg	90.2	---	66	120	---	---
Benzo(b)fluoranthene	205-99-2	50	µg/kg	<50	250 µg/kg	95.1	---	50	125	---	---



Matrix: SOIL

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	RPD (%)		
				Recovery Limits (%)	Low	High	Control Limit		
<b>EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 1679196) - Continued</b>									
Benzo(k)fluoranthene	207-08-9	50	µg/kg	<50	250 µg/kg	89.1	66	125	---
Benzo(a)pyrene	50-32-8	50	µg/kg	<50	250 µg/kg	70.7	60	109	---
Indeno(1,2,3-cd)pyrene	193-39-5	50	µg/kg	<50	250 µg/kg	86.8	50	124	---
Dibenz(a,h)anthracene	53-70-3	50	µg/kg	<50	250 µg/kg	89.5	53	120	---
Benzo(g,h,i)perylene	191-24-2	50	µg/kg	<50	250 µg/kg	97.5	57	123	---
<b>EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1679196)</b>									
Phenol	108-95-2	500	µg/kg	<500	250 µg/kg	56.6	24	116	---
Hexachlorobenzene (HCB)	118-74-1	50	µg/kg	<50	250 µg/kg	74.8	45	125	---
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	77.1	68	128	---
Matrix: WATER									
Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	RPD (%)		
				Recovery Limits (%)	Low	High	Control Limit		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1682966)</b>									
EK026MD: Free Cyanide	---	0.01	mg/L	<0.01	0.2 mg/L	92.6	85	115	---
<b>EG: Metals and Major Cations (QC Lot: 1690533)</b>									
EG050: Hexavalent Chromium	18540-29-9	0.02	mg/L	<0.02	0.5 mg/L	101	85	115	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1686235)</b>									
EG020: Cadmium	7440-43-9	0.0002	mg/L	<0.0002	0.1 mg/L	92.5	85	115	---
EG020: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	85	115	---
EG020: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.7	85	115	---
EG020: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	105	85	115	---
EG020: Zinc	7440-66-6	0.01	mg/L	<0.01	0.1 mg/L	106	85	115	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1686236)</b>									
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.0005	0.0002 mg/L	91.0	85	115	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1675556)</b>									
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	87.4	17	170	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	103	32	143	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1679035)</b>									
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	95.0	68	127	---
<b>EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1683252)</b>									
Benzene	71-43-2	5	µg/L	<5	10 µg/L	90.0	56	117	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	89.4	55	125	---
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	86.8	68	114	---
meta- & para-Xylene	108-38-3	10	µg/L	<10	20 µg/L	87.0	64	114	---
Styrene	106-42-3	5	µg/L	<5	10 µg/L	78.8	68	108	---
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	86.3	77	111	---
<b>EP-074B: Oxygenated Compounds (QC Lot: 1683252)</b>									



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report										
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	Low	High	Value	RPD (%)	Control Limit
<b>EP-074B: Oxygenated Compounds (QC Lot: 1683252) - Continued</b>														
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	80.3	---	---	52	130	---	---	---	---
<b>EP-074E: Halogenated Aliphatics (QC Lot: 1683252)</b>														
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	91.1	---	---	64	122	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	88.6	---	---	62	117	---	---	---	---
<b>EP-074G: Trihalomethanes (THM) (QC Lot: 1683252)</b>														
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	90.9	---	---	65	124	---	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	87.6	---	---	67	116	---	---	---	---
<b>EP-075A: Phenols (QC Lot: 1679370)</b>														
Phenol	108-95-2	2	µg/L	<2	5 µg/L	58.4	---	---	10	100	---	---	---	---
<b>EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1679370)</b>														
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	73.0	---	---	48	102	---	---	---	---
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	72.1	---	---	43	110	---	---	---	---
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	68.9	---	---	45	107	---	---	---	---
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	69.1	---	---	51	104	---	---	---	---
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	65.2	---	---	60	107	---	---	---	---
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	68.3	---	---	58	105	---	---	---	---
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	70.2	---	---	67	105	---	---	---	---
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	71.6	---	---	65	105	---	---	---	---
Benz(a)anthracene	56-55-3	2	µg/L	<2	5 µg/L	69.1	---	---	64	106	---	---	---	---
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	69.7	---	---	68	114	---	---	---	---
Benzo(b) & Benzo(k)fluoranthene	205-99-2	4	µg/L	<4	10 µg/L	84.5	---	---	53	104	---	---	---	---
Benzo(a)pyrene	50-32-8	2	µg/L	<2	5 µg/L	66.7	---	---	52	103	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	5 µg/L	72.6	---	---	45	107	---	---	---	---
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	5 µg/L	71.2	---	---	43	92	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	5 µg/L	81.2	---	---	42	102	---	---	---	---
<b>EP-075C: Phthalate Esters (QC Lot: 1679370)</b>														
Bis(2-ethylhexyl)phthalate	117-81-7	20	µg/L	<20	5 µg/L	71.0	---	---	0	226	---	---	---	---
<b>EP-075G: Chlorinated Hydrocarbons (QC Lot: 1679370)</b>														
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	71.8	---	---	52	110	---	---	---	---
<b>EP-066: Polychlorinated Biphenyls (QC Lot: 1683523)</b>														
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	78.0	---	---	49	147	---	---	---	---

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report				
					Spike Recovery (%)	MSD	Recovery Limits (%)	RPD (%)	
				IMS	MSD	Low	High	Value	Control Limit



Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	MS	Spike Recovery (%)	MSD	Recovery Limits (%)	RPD (%)		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1687548)</b>											
HK1104164-001	G-05-1.5M	EK025MD: Free Cyanide	---	19 mg/kg	93.5	---	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687837)</b>											
HK1103906-001	Anonymous	EG020: Cadmium	7440-43-9	5 mg/kg	96.3	---	---	75	125	---	---
		EG020: Copper	7440-50-8	5 mg/kg	77.9	---	---	75	125	---	---
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	---	---	75	125	---	---
		EG020: Nickel	7440-02-0	5 mg/kg	90.6	---	---	75	125	---	---
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	---	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687838)</b>											
HK1103906-001	Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	85.0	---	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1687839)</b>											
HK1103906-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	98.1	---	---	75	125	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1683509)</b>											
HK1104164-002	G-05-3.0M	C6 - C8 Fraction	---	3 mg/kg	91.7	---	---	50	130	---	---
<b>EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1683510)</b>											
HK1104164-002	G-05-3.0M	C9 - C16 Fraction	---	31 mg/kg	69.6	---	---	50	130	---	---
		C17 - C35 Fraction	---	75 mg/kg	70.5	---	---	50	130	---	---

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	MS	Spike Recovery (%)	MSD	Recovery Limits (%)	RPD (%)		
<b>ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 1682966)</b>											
HK1104164-007	EQUIPMENT BLANK	EK025MD: Free Cyanide	---	0.2 mg/L	88.4	---	---	75	125	---	---
<b>EG: Metals and Major Cations (QC Lot: 1690533)</b>											
HK1104093-002	Anonymous	EG050: Hexavalent Chromium	18540-29-9	0.5 mg/L	102	---	---	75	125	---	---
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1686235)</b>											
HK1104164-007	EQUIPMENT BLANK	EG020: Cadmium	7440-43-9	0.1 mg/L	93.0	90.0	---	75	125	125	3.2
		EG020: Copper	7440-50-8	0.1 mg/L	102	104	---	75	125	125	2.1
		EG020: Lead	7439-92-1	0.1 mg/L	93.0	94.7	---	75	125	125	1.8
		EG020: Nickel	7440-02-0	0.1 mg/L	103	99.9	---	75	125	125	3.3
		EG020: Zinc	7440-66-6	0.1 mg/L	98.2	99.0	---	75	125	125	0.8
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1686236)</b>											
HK1104164-007	EQUIPMENT BLANK	EG036: Mercury	7439-97-6	0.0002 mg/L	95.5	---	---	75	125	125	---

Surrogate Control Limits



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
<b>EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates</b>			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130
Sub-Matrix: WATER			
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTEX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	967-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4165-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

Client	: TEEMWAY ENGINEERING LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 9
Contact	: MR THOMAS YEUNG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1104564
Address	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas@teemway.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2796 2268	Telephone	: +852 2610 1044	Date Samples Received	: 24-FEB-2011
Facsimile	: +852 2796 2217	Facsimile	: +852 2610 2021	Issue Date	: 10-MAR-2011
Project	: EXPRESS RAIL LINK CONTRACT 823B	Quote number	: ----	No. of samples received	: 7
Order number	: ----			No. of samples analysed	: 7
C-O-C number	: 117296				
Site	: XRL823B				

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

#### Signatories

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics

#### ALS Laboratory Group ALS Technichem (HK) Pty Ltd

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A Campbell Brothers Limited Company



Page Number : 2 of 9  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1104564

### General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

28-FEB-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
Specific comments for Work Order: **HK1104564**

Project Name: Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were received in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

Water sample(s) were filtered prior to dissolved metal analysis.





**Analytical Results**

Compound	CAS Number	LOR	Client sample ID		G-06-GW	G-09-GW	F-06-GW	F-07-GW	F-05-GW
			Client sampling date / time	Unit					
Sub-Matrix: WATER									
EG: Metals and Major Cations - Filtered									
EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP-071HK: Total Petroleum Hydrocarbons (TPH)									
C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C9 - C16 Fraction	---	0.5	mg/L	<0.5	<0.5	<0.5	0.8	<0.5	<0.5
C17 - C35 Fraction	---	0.5	mg/L	1.2	1.0	0.6	4.0	<0.5	<0.5
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)									
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
meta- & para-Xylene	108-38-3 106-42-3	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074B: Oxygenated Compounds									
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EP-074E: Halogenated Aliphatics									
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074G: Trihalomethanes (THM)									
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002



Compound	CAS Number	LOR	Unit	Client sample ID				
				G-06-GW	G-09-GW	F-06-GW	F-07-GW	F-05-GW
				24-FEB-2011 13:45	24-FEB-2011 14:00	24-FEB-2011 15:20	24-FEB-2011 15:30	24-FEB-2011 15:45
				HK1104564-001	HK1104564-002	HK1104564-003	HK1104564-004	HK1104564-005
Sub-Matrix: WATER								
EP-075B: Polycyclic Aromatic Hydrocarbons (PAHs) - Continued								
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.004	mg/L	<0.004	<0.004	---	---	---
EP-075G: Chlorinated Hydrocarbons								
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L	<0.004	<0.004	---	---	---
EP-066: Polychlorinated Biphenyls								
Total Polychlorinated biphenyls	---	1.00	mg/L	<1.00	<1.00	---	---	---
EP-080S: TPH(Volatile)/BTEX Surrogate								
Dibromofluoromethane	1868-53-7	0.1	%	109	110	100	112	100
Toluene-D8	2037-26-5	0.1	%	97.3	98.3	97.8	98.2	97.3
4-Bromofluorobenzene	460-00-4	0.1	%	97.0	97.2	93.7	96.3	96.8
EP-074S: VOC Surrogates								
Dibromofluoromethane	1868-53-7	0.1	%	109	110	100	112	100
Toluene-D8	2037-26-5	0.1	%	97.3	98.3	97.8	98.2	97.3
4-Bromofluorobenzene	460-00-4	0.1	%	97.0	97.2	93.7	96.3	96.8
EP-075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	0.1	%	39.6	24.5	---	---	---
Phenol-d6	13127-88-3	0.1	%	34.3	23.8	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	65.2	49.3	---	---	---
EP-075T: Base/Neutral Extractable Surrogates								
Nitrobenzene -d5	4165-60-0	0.1	%	55.7	40.5	---	---	---
2-Fluorobiphenyl	321-60-8	0.1	%	57.2	53.5	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	71.0	76.5	---	---	---
EP-066S: PCB Surrogate								
Tetrachlorometaxylene	877-09-8	0.1	%	63.5	52.4	---	---	---
Dibutylchlorodate	1770-80-5	0.1	%	94.8	102	---	---	---



Sub-Matrix: WATER		Client sample ID		EQUIPMENT BLANK - 2	
Compound	CAS Number	LOR	Unit	Client sampling date / time	24-FEB-2011 16:15
EG: Metals and Major Cations - Filtered					
EG036: Mercury	7439-97-6	0.0005	mg/L	G-05-GW 24-FEB-2011 16:00	HK1104564-006 HK1104564-007
EP-071HK: Total Petroleum Hydrocarbons (TPH)					
C6 - C8 Fraction	---	0.02	mg/L	<0.005	<0.005
C9 - C16 Fraction	---	0.5	mg/L	<0.02	<0.02
C17 - C35 Fraction	---	0.5	mg/L	<0.5	<0.5
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)					
Benzene	71-43-2	0.005	mg/L	<0.005	<0.005
Toluene	108-88-3	0.005	mg/L	<0.005	<0.005
Ethylbenzene	100-41-4	0.005	mg/L	<0.005	<0.005
meta- & para-Xylene	108-38-3	0.010	mg/L	<0.010	<0.010
	106-42-3				
Styrene	100-42-5	0.005	mg/L	<0.005	<0.005
ortho-Xylene	95-47-6	0.005	mg/L	<0.005	<0.005
EP-074B: Oxygenated Compounds					
2-Propanone (Acetone)	67-64-1	0.50	mg/L	<0.50	<0.50
2-Butanone (MEK)	78-93-3	0.05	mg/L	<0.05	<0.05
EP-074E: Halogenated Aliphatics					
Methylene chloride	75-09-2	0.025	mg/L	<0.025	<0.025
Trichloroethene	79-01-6	0.005	mg/L	<0.005	<0.005
Tetrachloroethene	127-18-4	0.005	mg/L	<0.005	<0.005
EP-074G: Trihalomethanes (THM)					
Chloroform	67-66-3	0.005	mg/L	<0.005	<0.005
Bromodichloromethane	75-27-4	0.005	mg/L	<0.005	<0.005
EP-074L: Methyl-tert-butyl Ether (MTBE)					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.005	mg/L	0.007	<0.005
EP-075B: Polyaromatic Hydrocarbons (PAHs)					
Naphthalene	91-20-3	0.002	mg/L	<0.002	<0.002
Acenaphthylene	208-96-8	0.002	mg/L	<0.002	<0.002
Acenaphthene	83-32-9	0.002	mg/L	<0.002	<0.002
Fluorene	86-73-7	0.002	mg/L	<0.002	<0.002
Phenanthrene	85-01-8	0.002	mg/L	<0.002	<0.002
Anthracene	120-12-7	0.002	mg/L	<0.002	<0.002
Fluoranthene	206-44-0	0.002	mg/L	<0.002	<0.002
Pyrene	129-00-0	0.002	mg/L	<0.002	<0.002
Chrysene	218-01-9	0.002	mg/L	<0.002	<0.002
Benzo(b) & Benzo(k)fluoranthene	205-99-2	0.004	mg/L	<0.002	<0.004
	207-08-9			<0.004	<0.004



Sub-Matrix: WATER

Compound	CAS Number	LOR	Client sample ID		G-05-GW	EQUIPMENT BLANK - 2
			Client sampling date / time	Unit		
EP-075G: Chlorinated Hydrocarbons						
Hexachlorobenzene (HCB)	118-74-1	0.004	mg/L		<0.004	
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	—	1.00	mg/L		<1.00	Surrogate control limits listed at end of this report.
EP-080S: TPH(Volatiles)/BTEX Surrogate						
Dibromofluoromethane	1868-53-7	0.1	%		104	
Toluene-D8	2037-26-5	0.1	%		97.1	
4-Bromofluorobenzene	460-00-4	0.1	%		98.5	
EP-074S: VOC Surrogates						
Dibromofluoromethane	1868-53-7	0.1	%		104	
Toluene-D8	2037-26-5	0.1	%		97.1	
4-Bromofluorobenzene	460-00-4	0.1	%		98.5	
EP-075S: Acid Extractable Surrogates						
2-Fluorophenol	367-12-4	0.1	%		31.6	Surrogate control limits listed at end of this report.
Phenol-d6	13127-88-3	0.1	%		28.7	
2,4,6-Tribromophenol	118-79-6	0.1	%		33.6	
EP-075T: Base/Neutral Extractable Surrogates						
Nitrobenzene -d5	4165-60-0	0.1	%		55.5	
2-Fluorobiphenyl	321-60-8	0.1	%		55.6	
4-Terphenyl-d14	1718-51-0	0.1	%		71.6	
EP-066S: PCB Surrogate						
Tetrachlorometaxylene	877-09-8	0.1	%		79.6	Surrogate control limits listed at end of this report.
Dibutylchlorodate	1770-80-5	0.1	%		109	



**Laboratory Duplicate (DUP) Report**

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
Matrix: WATER									
EG: Metals and Major Cations - Filtered (QC Lot: 1692237)									
HK1104564-002	G-09-GW		EG036: Mercury	7439-97-6	0.0005	mg/L	<0.0005	<0.0005	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1679035)									
HK1104093-002	Anonymous		C6 - C8 Fraction	---	0.02	mg/L	<0.02	<0.02	0.0
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1683252)									
HK1104164-006	Anonymous		meta- & para-Xylene	108-38-3	10	µg/L	<10	<10	0.0
				106-42-3					
			Benzene	71-43-2	5	µg/L	<5	<5	0.0
			Toluene	108-88-3	5	µg/L	<5	<5	0.0
			Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0
			Styrene	100-42-5	5	µg/L	<5	<5	0.0
			ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0
EP-074B: Oxygenated Compounds (QC Lot: 1683252)									
HK1104164-006	Anonymous		2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0
			2-Propanone (Acetone)	67-64-1	500	µg/L	<500	<500	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 1683252)									
HK1104164-006	Anonymous		Methylene chloride	75-09-2	25	µg/L	<25	<25	0.0
			Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0
			Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 1683252)									
HK1104164-006	Anonymous		Chloroform	67-66-3	5	µg/L	<5	<5	0.0
			Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 1683252)									
HK1104164-006	Anonymous		Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	µg/L	<5	<5	0.0

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

Matrix: WATER										
Method Blank (MB) Report					Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	Spike Recovery (%)	DCS	Recovery Limits (%)	RPD (%)
							Low	High	Value	Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 1692237)										
EG036: Mercury	7439-97-6	0.00005	mg/L	<0.0005	0.0002 mg/L	103	85	115	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1679035)										
C6 - C8 Fraction	---	0.02	mg/L	<0.02	0.15 mg/L	95.0	68	127	---	---
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 1686120)										
C9 - C16 Fraction	---	0.5	mg/L	<0.5	0.25 mg/L	110	17	170	---	---
C17 - C35 Fraction	---	0.5	mg/L	<0.5	0.5 mg/L	122	32	143	---	---
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1683252)										
Benzene	71-43-2	5	µg/L	<5	10 µg/L	90.0	56	117	---	---
Toluene	108-88-3	5	µg/L	<5	10 µg/L	89.4	55	125	---	---



Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 1683252) - Continued									
Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	86.8	---	68	114
meta- & para-Xylene	108-38-3 106-42-3	10	µg/L	<10	20 µg/L	87.0	---	64	114
Styrene	100-42-5	5	µg/L	<5	10 µg/L	78.8	---	68	108
ortho-Xylene	95-47-6	5	µg/L	<5	10 µg/L	86.3	---	77	111
EP-074B: Oxygenated Compounds (QC Lot: 1683252)									
2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	80.3	---	52	130
EP-074E: Halogenated Aliphatics (QC Lot: 1683252)									
Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	91.1	---	64	122
Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	88.6	---	62	117
EP-074G: Trihalomethanes (THM) (QC Lot: 1683252)									
Chloroform	67-66-3	5	µg/L	<5	10 µg/L	90.9	---	65	124
Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	87.6	---	67	116
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 1679370)									
Naphthalene	91-20-3	2	µg/L	<2	5 µg/L	73.0	---	48	102
Acenaphthylene	208-96-8	2	µg/L	<2	5 µg/L	72.1	---	43	110
Acenaphthene	83-32-9	2	µg/L	<2	5 µg/L	68.9	---	45	107
Fluorene	86-73-7	2	µg/L	<2	5 µg/L	69.1	---	51	104
Phenanthrene	85-01-8	2	µg/L	<2	5 µg/L	65.2	---	60	107
Anthracene	120-12-7	2	µg/L	<2	5 µg/L	68.3	---	58	105
Fluoranthene	206-44-0	2	µg/L	<2	5 µg/L	70.2	---	67	105
Pyrene	129-00-0	2	µg/L	<2	5 µg/L	71.6	---	65	105
Chrysene	218-01-9	2	µg/L	<2	5 µg/L	69.7	---	68	114
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	10 µg/L	84.5	---	53	104
EP-075G: Chlorinated Hydrocarbons (QC Lot: 1679370)									
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	5 µg/L	71.8	---	52	110
EP-066: Polychlorinated Biphenyls (QC Lot: 1683523)									
Total Polychlorinated biphenyls	---	1	µg/L	<1	10 µg/L	78.0	---	49	147

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

Matrix: WATER		Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)
					MS	MSD	Low	High	
EG: Metals and Major Cations - Filtered (QC Lot: 1692237)	G-06-GW	EG036: Mercury	7439-97-6	0.0002 mg/L	98.5	---	75	125	---
HK1104564-001									



**Surrogate Control Limits**

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP-080S: TPH(Volatile)/BTX Surrogate</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-074S: VOC Surrogates</b>			
Dibromofluoromethane	1868-53-7	86	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
<b>EP-075S: Acid Extractable Surrogates</b>			
2-Fluorophenol	367-12-4	21	100
Phenol-d6	13127-88-3	20	94
2,4,6-Tribromophenol	118-79-6	20	123
<b>EP-075T: Base/Neutral Extractable Surrogates</b>			
Nitrobenzene -d5	4166-60-0	35	114
2-Fluorobiphenyl	321-60-8	43	116
4-Terphenyl-d14	1718-51-0	33	141
<b>EP-066S: PCB Surrogate</b>			
Tetrachlorometaxylene	877-09-8	50	130
Dibutylchloroendate	1770-80-5	50	130

# ALS Technichem (HK) Pty Ltd

## ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



### CERTIFICATE OF ANALYSIS

<b>Client</b>	: TEEMWAY ENGINEERING LTD	<b>Laboratory</b>	: ALS Technichem HK Pty Ltd	<b>Page</b>	: 1 of 4
<b>Contact</b>	: MR THOMAS YEUNG	<b>Contact</b>	: Chan Kwok Fai, Godfrey	<b>Work Order</b>	: HK1104560
<b>Address</b>	: RM 1008, 10/F, CHEVALIER COMMERCIAL CENTRE, 8 WANG HOI RD, KOWLOON BAY, KOWLOON, HONG KONG	<b>Address</b>	: 11/F., Chung Shun Knitting Centre, 1 -3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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<b>Telephone</b>	: +852 2796 2268	<b>Telephone</b>	: +852 2610 1044		
<b>Facsimile</b>	: +852 2796 2217	<b>Facsimile</b>	: +852 2610 2021		
<b>Project</b>	: EXPRESS RAIL LINK CONTRACT 823B	<b>Quote number</b>	: ----		
<b>Order number</b>	: ----			<b>Date received</b>	: 24-FEB-2011
<b>C-O-C number</b>	: 117296			<b>Date of issue</b>	: 07-MAR-2011
<b>Site</b>	: ----			<b>No. of samples</b>	: - Received : 15
					- Analysed : 15

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordinance' of Hong Kong, Chapter 553, Section 6.

**Signatory**  
Fung Lim Chee, Richard

**Position**  
General Manager

**Authorised results for:-**  
Sampling





Page Number : 2 of 4  
Client : TEEMWAY ENGINEERING LTD  
Work Order : HK1104560

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1104560 supersedes any previous reports with this reference. The completion date of analysis is 25-FEB-2011. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1104560 :  
Project Name: Express Rail Link Contract 823B Shek Kong Stabling Sidings & Emergency Rescue Siding Sub-Contract for Land Contamination Survey.

Sample(s) were collected by ALS Technichem (HK) staff on 24 February, 2011.

Water sample(s) analysed and reported on an as received basis.

pH, Conductivity, Temperature and Water Depth were measured on-site by ALS Technichem (HK) staff.

LNAPL of groundwater samples are not observable in the aqueous layer during site investigation and monitoring.



**Analytical Results**

Sub-Matrix: WATER

Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	EA005-SAMP: pH Value 0.1 pH Unit OS: On-Site Measurement	EA010-SAMP: Electrical Conductivity @ 25°C 1 µS/cm OS: On-Site Measurement	EA012-SAMP: Temperature 0.1 °C OS: On-Site Measurement	EA130-SAMP: Water Depth 1 m OS: On-Site Measurement
G-06-GW	24-FEB-2011 13:52	HK1104560-001	LOR Unit	7.4	825	23.5	2
G-06-GW	24-FEB-2011 13:52	HK1104560-002		7.4	825	23.5	---
G-06-GW	24-FEB-2011 13:52	HK1104560-003		7.4	823	23.5	---
G-05-GW	24-FEB-2011 15:58	HK1104560-004		7.4	414	21.3	2
G-05-GW	24-FEB-2011 15:58	HK1104560-005		7.4	414	21.3	---
G-05-GW	24-FEB-2011 15:58	HK1104560-006		7.3	415	21.3	---
F-05-GW	24-FEB-2011 15:37	HK1104560-007		7.6	184	23.3	3
F-05-GW	24-FEB-2011 15:37	HK1104560-008		7.5	184	23.4	---
F-05-GW	24-FEB-2011 15:37	HK1104560-009		7.5	187	23.4	---
F-06-GW	24-FEB-2011 15:35	HK1104560-010		9.2	150	18.9	2
F-06-GW	24-FEB-2011 15:35	HK1104560-011		9.2	150	18.9	---
F-06-GW	24-FEB-2011 15:35	HK1104560-012		9.2	150	18.8	---
F-07-GW	24-FEB-2011 15:32	HK1104560-013		7.9	293	25.1	3
F-07-GW	24-FEB-2011 15:32	HK1104560-014		7.8	292	25.1	---
F-07-GW	24-FEB-2011 15:32	HK1104560-015		7.8	291	25.1	---



**Laboratory Duplicate (DUP) Report**

- No Laboratory Duplicate (DUP) Results are required to be reported.

**Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report**

- No Method Blank (MB), Laboratory Control Spike (SCS) or Duplicate Control Spike (DCS) Results are required to be reported.

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report**

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

**Appendix F**  
**Photo Log**

**Appendix F-1**  
**Photo Log**  
**(Site F)**



Photo 1 - Site F Equipment Decontamination



Photo 2 - Site F Drilling at F-05



Photo 3 - Site F Drilling at F-06

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited	
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F Photo No.: 1 to 3
		Prepared By:	JL Rev.: 1.0
		Checked By:	ZC Date: May-11



Photo 4 - Site F Soil Sampling at F-05



Photo 5 - Site F Soil Sampling at F-06



Photo 6 - Site F Soil Samples Collected at F-05

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited	
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F Photo No.: 4 to 6
		Prepared By:	JL Rev.: 1.0
		Checked By:	ZC Date: May-11



Photo 7 - Site F Temporary Groundwater Well Installation at F-06



Photo 8 - Site F Temporary Groundwater Well Installation at F-07



Photo 9 - Site F Purging at F-07

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited	
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F
		Photo No.:	7 to 9
		Prepared By:	JL
		Rev.:	1.0
		Checked By:	ZC
		Date:	May-11





Photo 19 - Site F Groundwater Sampling at F-07

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited		
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.: 19
		Prepared By:	JL	Rev.: 1.0
		Checked By:	ZC	Date: May-11

**Appendix F-2**  
**Photo Log**  
**(Site G)**



Photo 10 - Site G Equipment Decontamination



Photo 11 - Site G Drilling at G-05



Photo 12 - Site G Drilling at G-06

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited			
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.:	10 to 12
		Prepared By:	JL	Rev.:	1.0
		Checked By:	ZC	Date:	May-11



Photo 13 - Site G Equipment Blank Collection at G-05



Photo 14 - Site G Soil Sampling at G-05



Photo 15 - Site G Temporary Groundwater Well Installation at G-06

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited		
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.: 13 to 15
		Prepared By:	JL	Rev.: 1.0
		Checked By:	ZC	Date: May-11



Photo 16 - Site G Temporary Groundwater Well Installation at G-05



Photo 17 - Site G Soil Samples and Equipment Blank Samples Collected at G-05



Photo 18 - Site G Soil Samples collected at G-06

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited	
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F Photo No.: 16 to 18
		Prepared By:	JL Rev.: 1.0
		Checked By:	ZC Date: May-11



Photo 20 - Site G Groundwater Sampling at G-06



Photo 21 - Site G Groundwater Samples collected at G-06

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited		
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.: 20 to 21
		Prepared By:	JL	Rev.: 1.0
		Checked By:	ZC	Date: May-11

**Appendix F-3**  
**Photo Log**  
**(Site B2)**



Photo 22 - Site B2 Equipment Decontamination



Photo 23 - Site B2 Drilling at B-17



Photo 24 - Site B2 Drilling at B-30

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited			
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.:	22 to 24
		Prepared By:	JL	Rev.:	1.0
		Checked By:	ZC	Date:	May-11





Photo 25 - Site B2 Soil Sampling at B-11



Photo 26 - Site B2 Soil Sampling at B-13



Photo 27 - Site B2 Temporary Groundwater Well Installation at B-24

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited	
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F Photo No.: 25 to 27
		Prepared By:	JL Rev.: 1.0
		Checked By:	ZC Date: May-11



Photo 28 - Site B2 Temporary Groundwater Well Installation at B-26



Photo 29 - Site B2 Soil Sample and Duplicate Sample Collected at B-23



Photo 30 - Site B2 Soil Samples collected at B-08 & B-16

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited			
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.:	28 to 30
		Prepared By:	JL	Rev.:	1.0
		Checked By:	ZC	Date:	May-11



Photo 31 - Site B2 Temperature, Electrical Conductivity and pH Value Measurement at B-27



Photo 32 - Site B2 Groundwater Sampling at B-05



Photo 33 - Site B2 Groundwater Samples collected at B-20

Title:	Photolog	<b>ENVIRON</b> ENVIRON Hong Kong Limited			
Project:	Supplementary Contamination Assessment Report for Shek Kong Stabling Sidings (SSS) Works Area III (Sites B, F, G, U, V & W)	Appendix:	F	Photo No.:	31 to 33
		Prepared By:	JL	Rev.:	1.0
		Checked By:	ZC	Date:	May-11

**Appendix G**  
**Groundwater Monitoring Well Diagram**

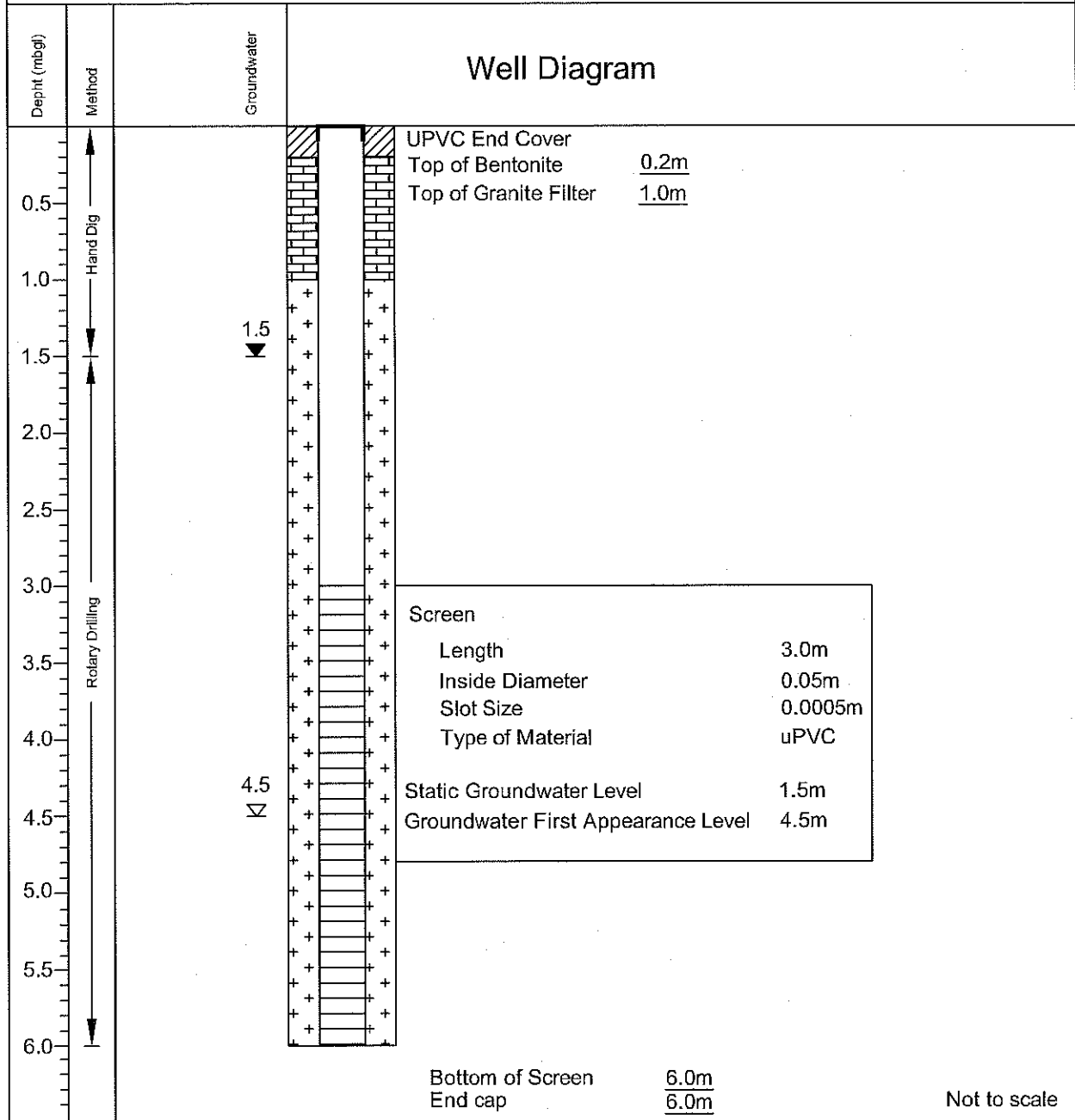
**Appendix G-1**  
**Groundwater Monitoring Well Diagram**  
**(Site B2)**

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong  
Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827262, N832984  
 Ground Level Elevation: +21.28 mPD  
 Driller: Teemway Engineering Ltd.

Hole No.: B-01  
 Installation Date: 26-Mar-11



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level (2) No LNAPL identified during SI works	Soil Bore Diameter: <u>0.11m</u> Inside Well Diameter: <u>0.05m</u> Total Depth of Well: <u>6.0m</u> Screen: <u>3.0 to 6.0m</u> Granite Pack: <u>1.0 to 6.0m</u> Bentonite: <u>0.2 to 1.0m</u> Cement Grout: <u>0.0 to 0.2m</u> Groundwater First Appearance Level: <u>4.5m</u>	Cement Grout Bentonite Granite Filter Screen Groundwater First Appearance Level Static Groundwater Level

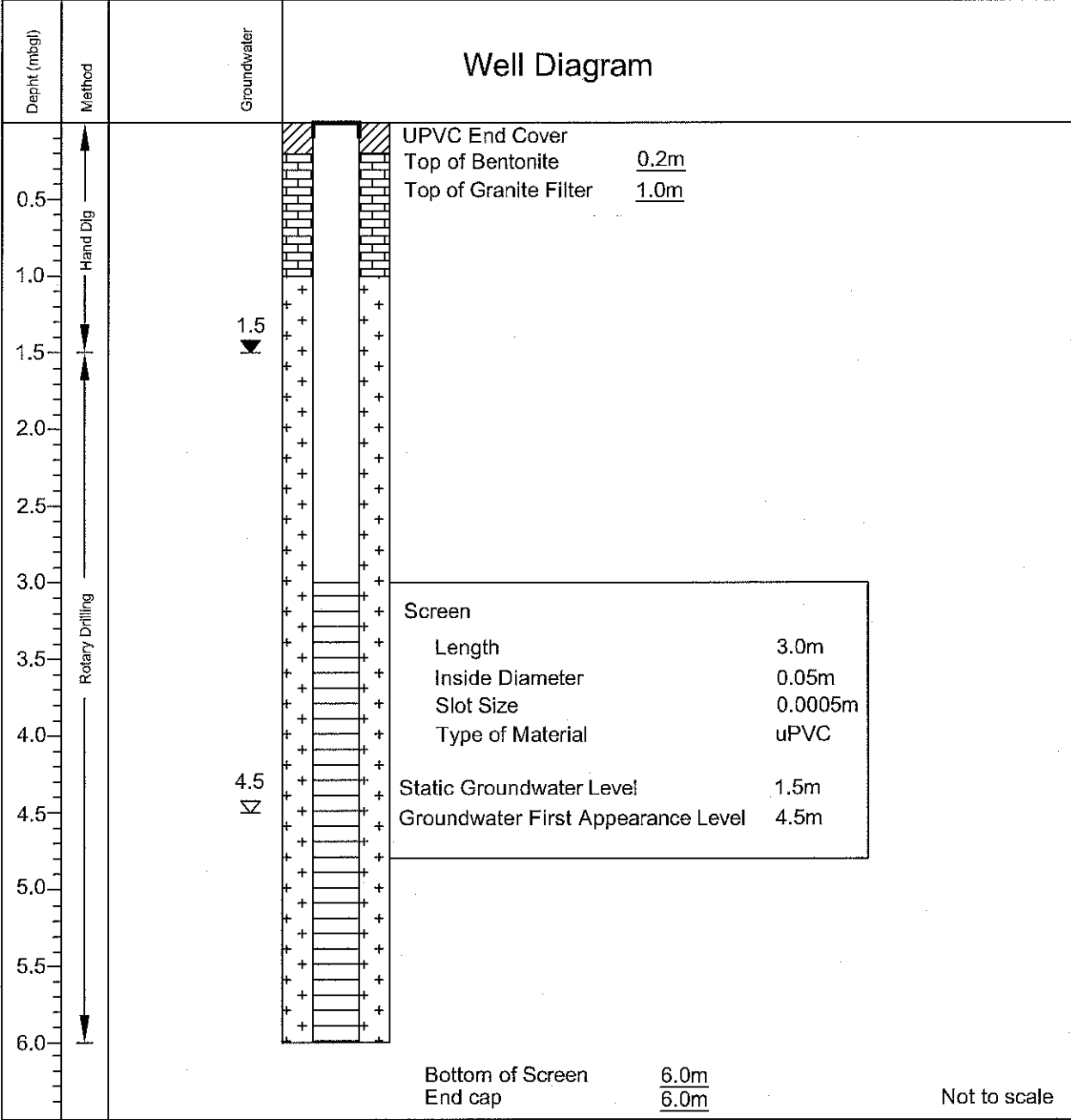
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827248, N833003 Hole No.: B-02

Ground Level Elevation: +20.88 mPD Installation Date: 28-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

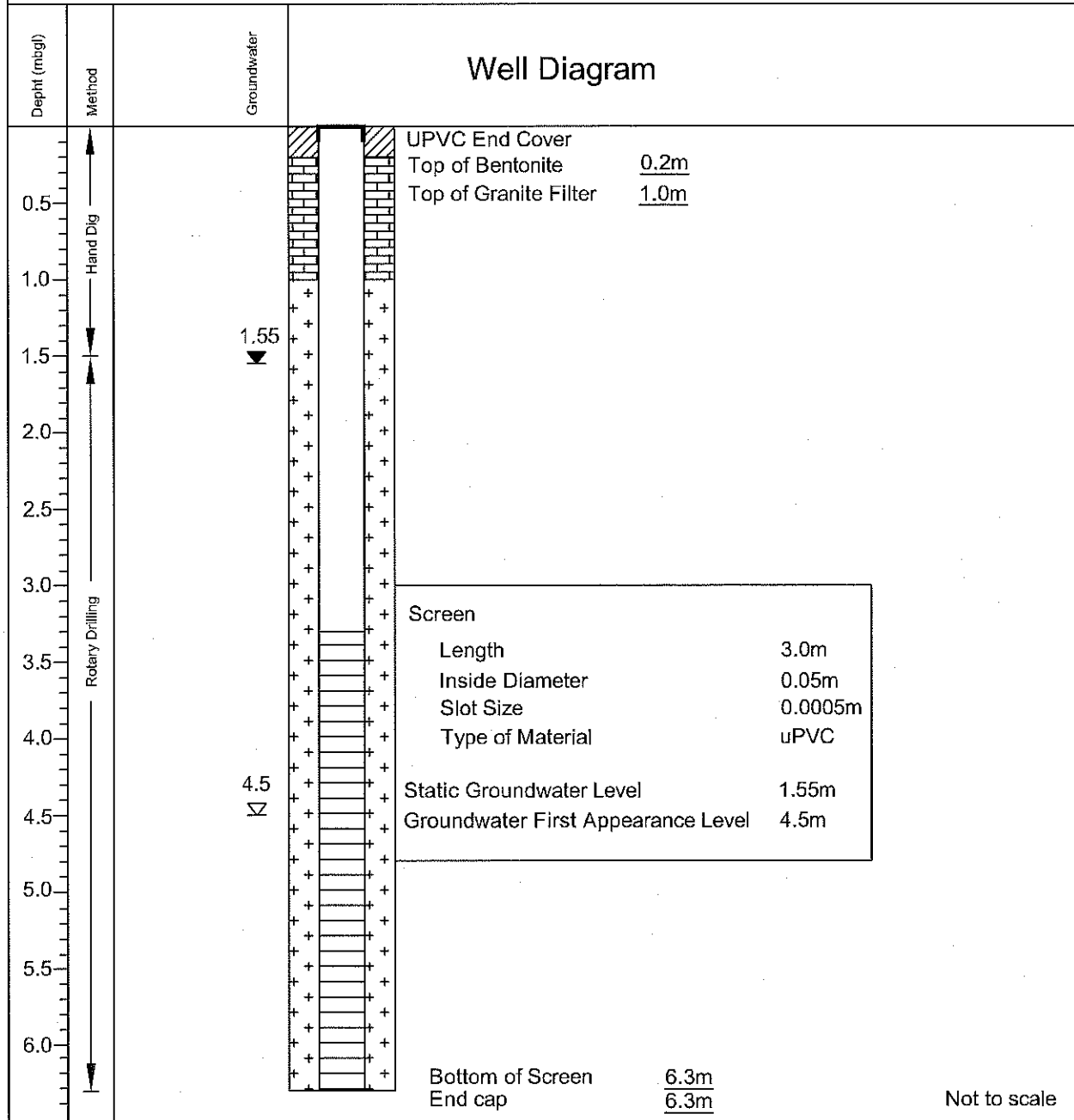
Remarks	Well Installation Details	Legend
<p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong  
Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827246, N832985  
 Ground Level Elevation: +20.96 mPD  
 Driller: Teemway Engineering Ltd.

Hole No.: B-03  
 Installation Date: 28-Mar-11



**End of soil bore = 6.3m**

<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.3m</u></p> <p>Screen: <u>3.3 to 6.3m</u></p> <p>Granite Pack: <u>1.0 to 6.3m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

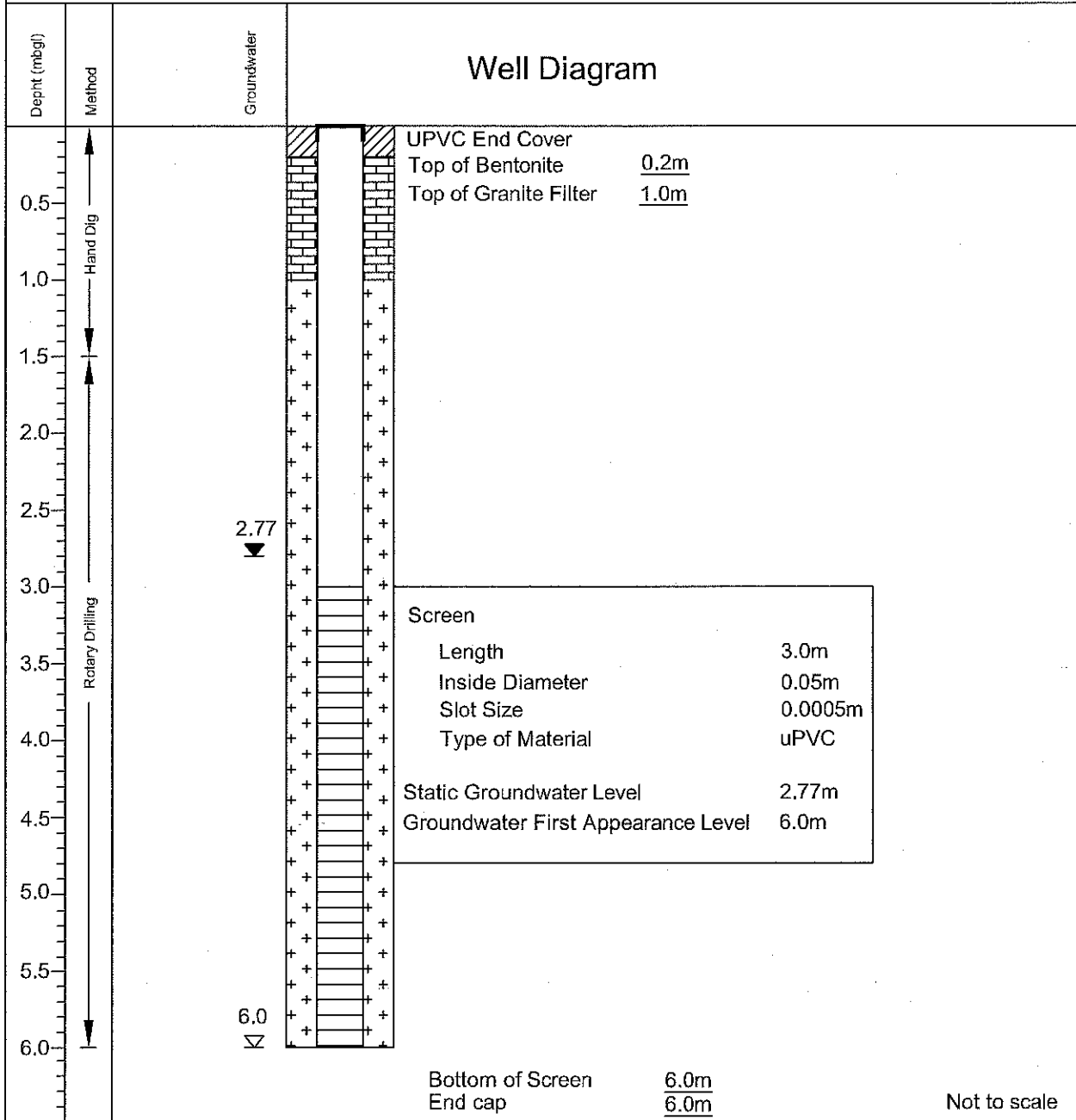
Coordinates E827233, N832998

Hole No.: B-04

Ground Level Elevation: +20.86 mPD

Installation Date: 25-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>6.0m</u>	



# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

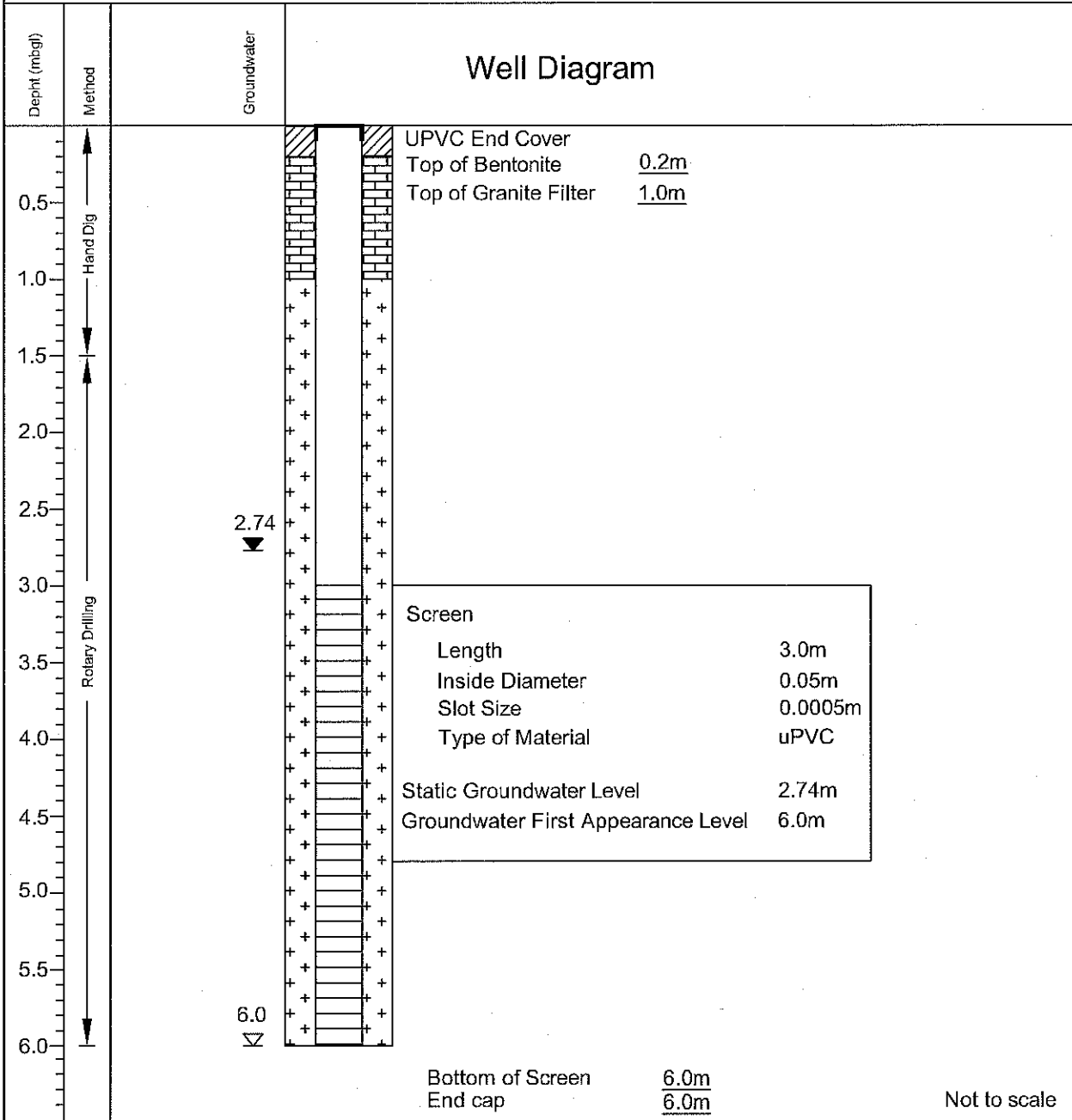
Coordinates E827224, N832981

Hole No.: B-06

Ground Level Elevation: +20.92 mPD

Installation Date: 24-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>6.0m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

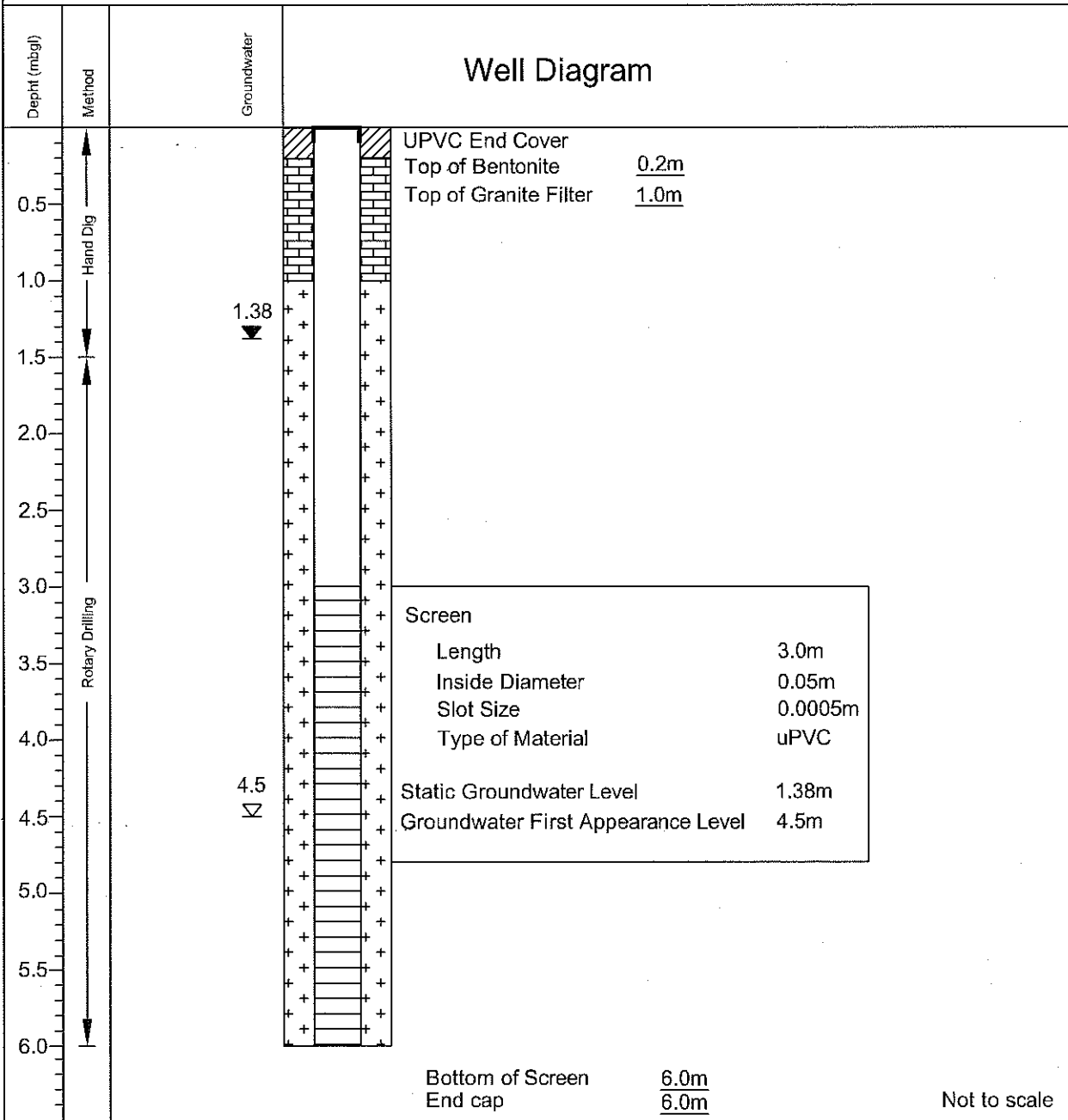
Coordinates E827216, N832998

Hole No.: B-07

Ground Level Elevation: +20.73 mPD

Installation Date: 25-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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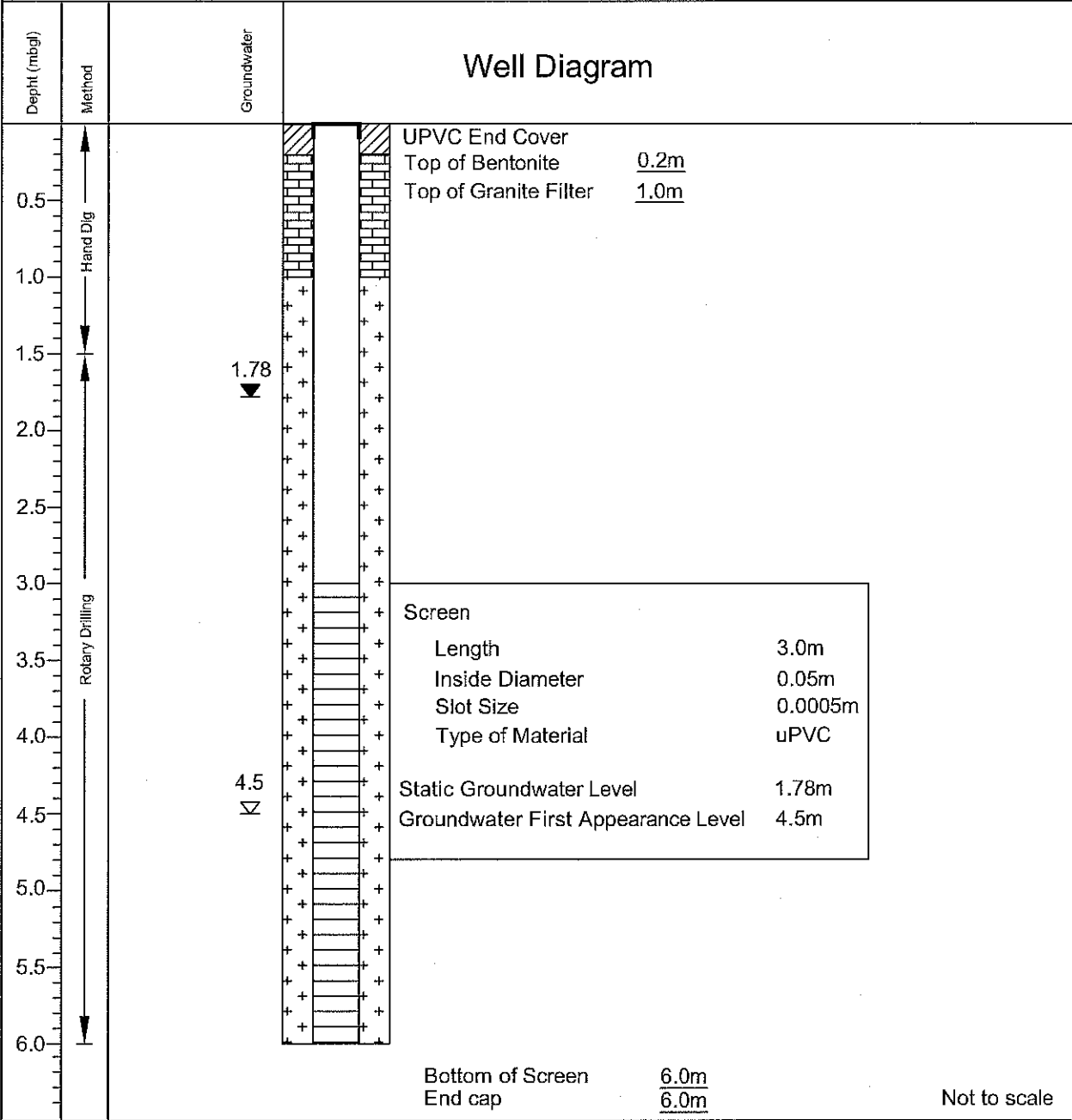
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827205, N832983 Hole No.: B-08

Ground Level Elevation: +20.86 mPD Installation Date: 23-Mar-11

Driller: Teemway Engineering Ltd.

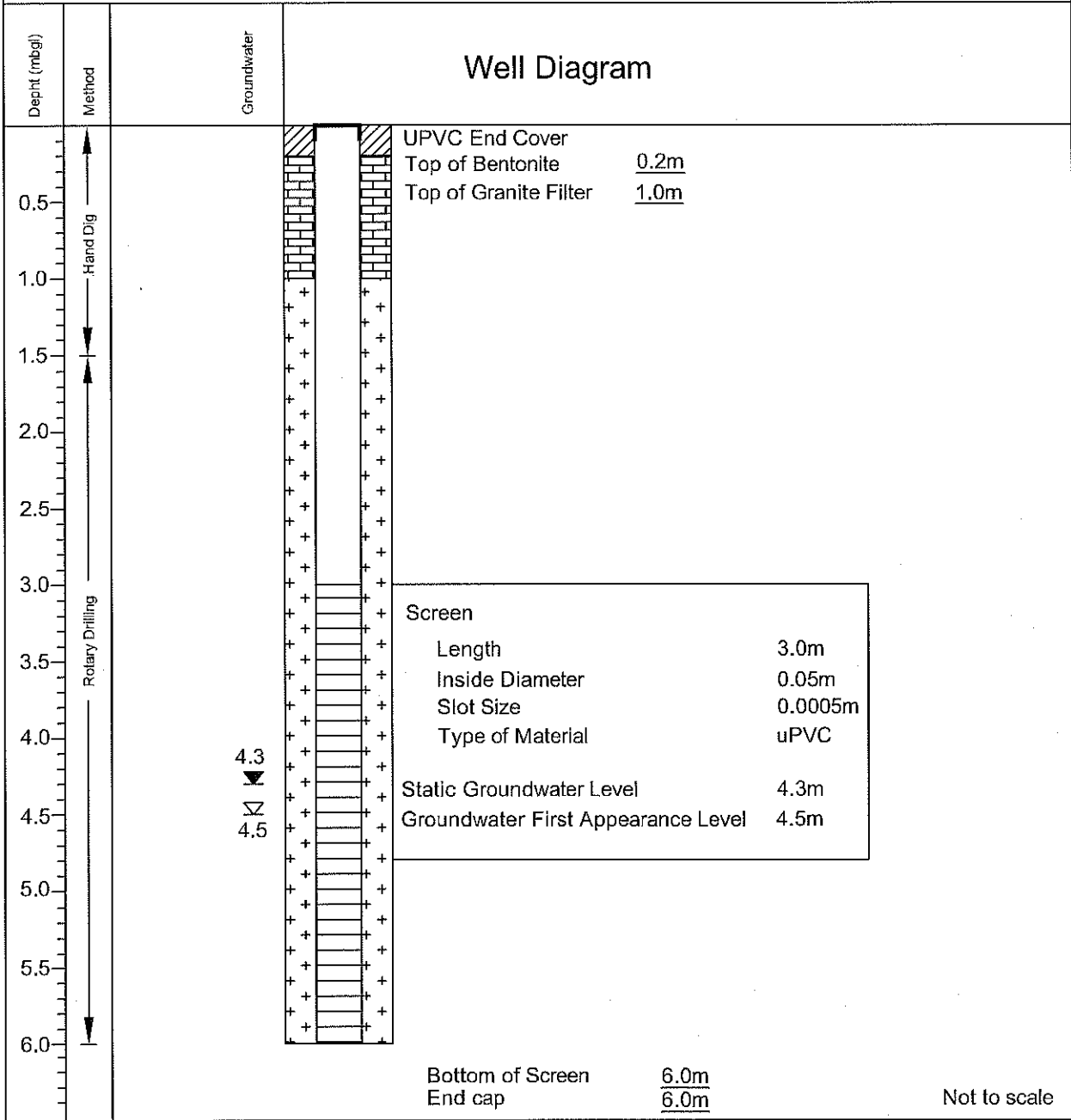


**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>4.5m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)  
 Coordinates E827216, N832964 Hole No.: B-09  
 Ground Level Elevation: +21.01 mPD Installation Date: 23-Mar-11  
 Driller: Teemway Engineering Ltd.



<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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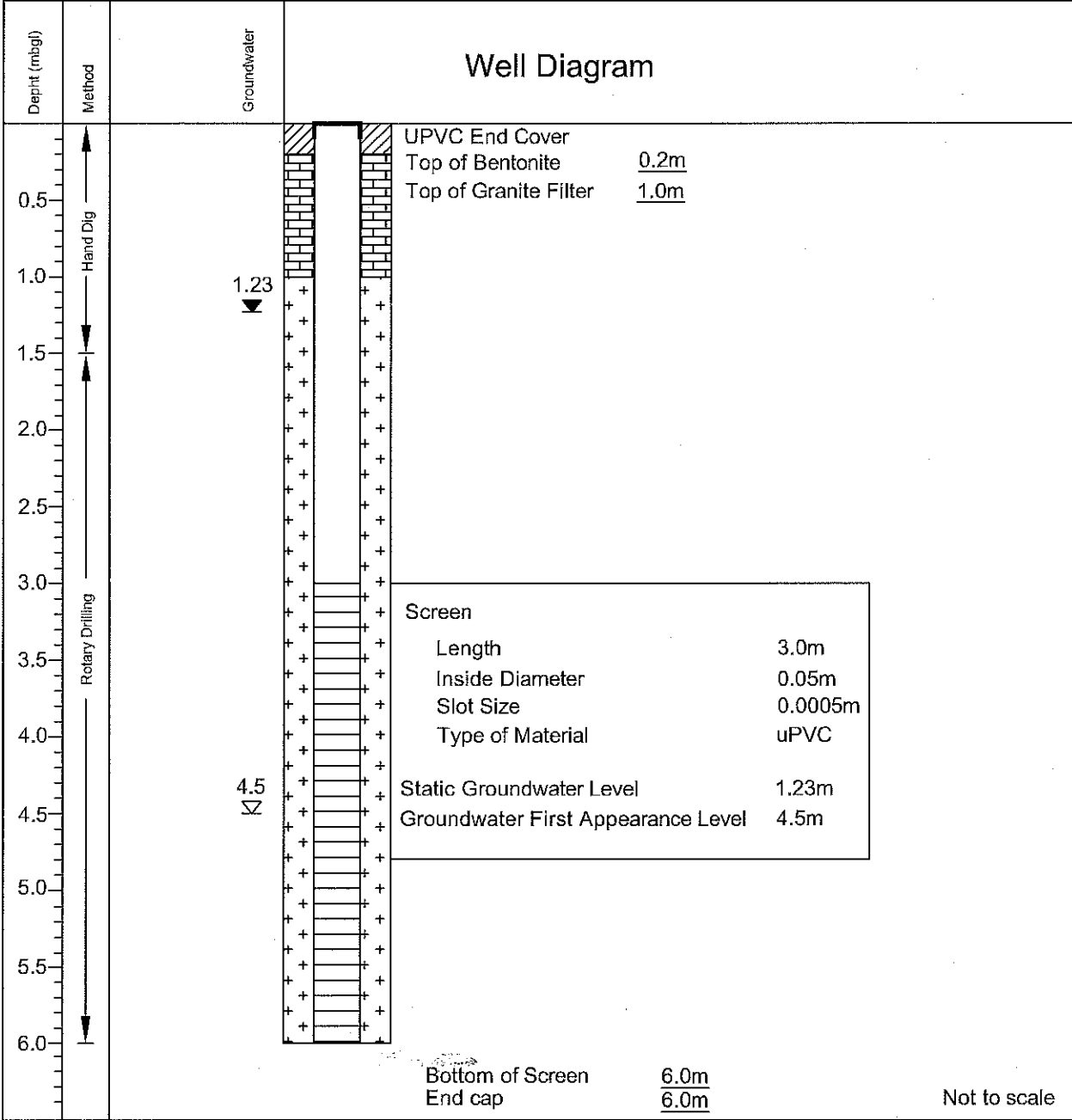
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827205, N833009 Hole No.: B-10

Ground Level Elevation: +20.47 mPD Installation Date: 25-Mar-11

Driller: Teemway Engineering Ltd.



<b>End of soil bore = 6.0m</b>		
<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: 3.0 to 6.0m</p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>





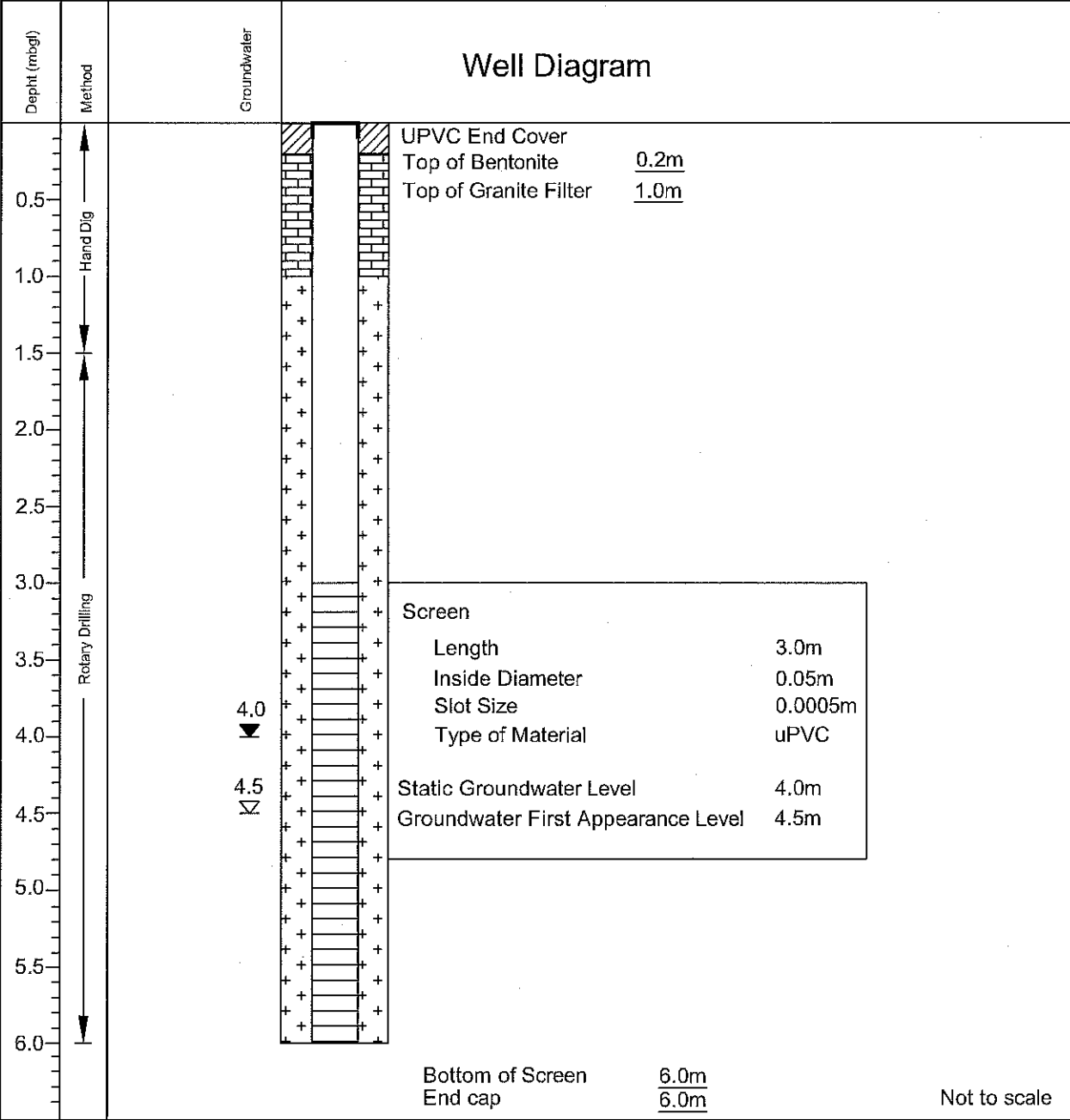
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827186, N832989 Hole No.: B-12

Ground Level Elevation: +20.30 mPD Installation Date: 18-Mar-11

Driller: Teemway Engineering Ltd.



<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

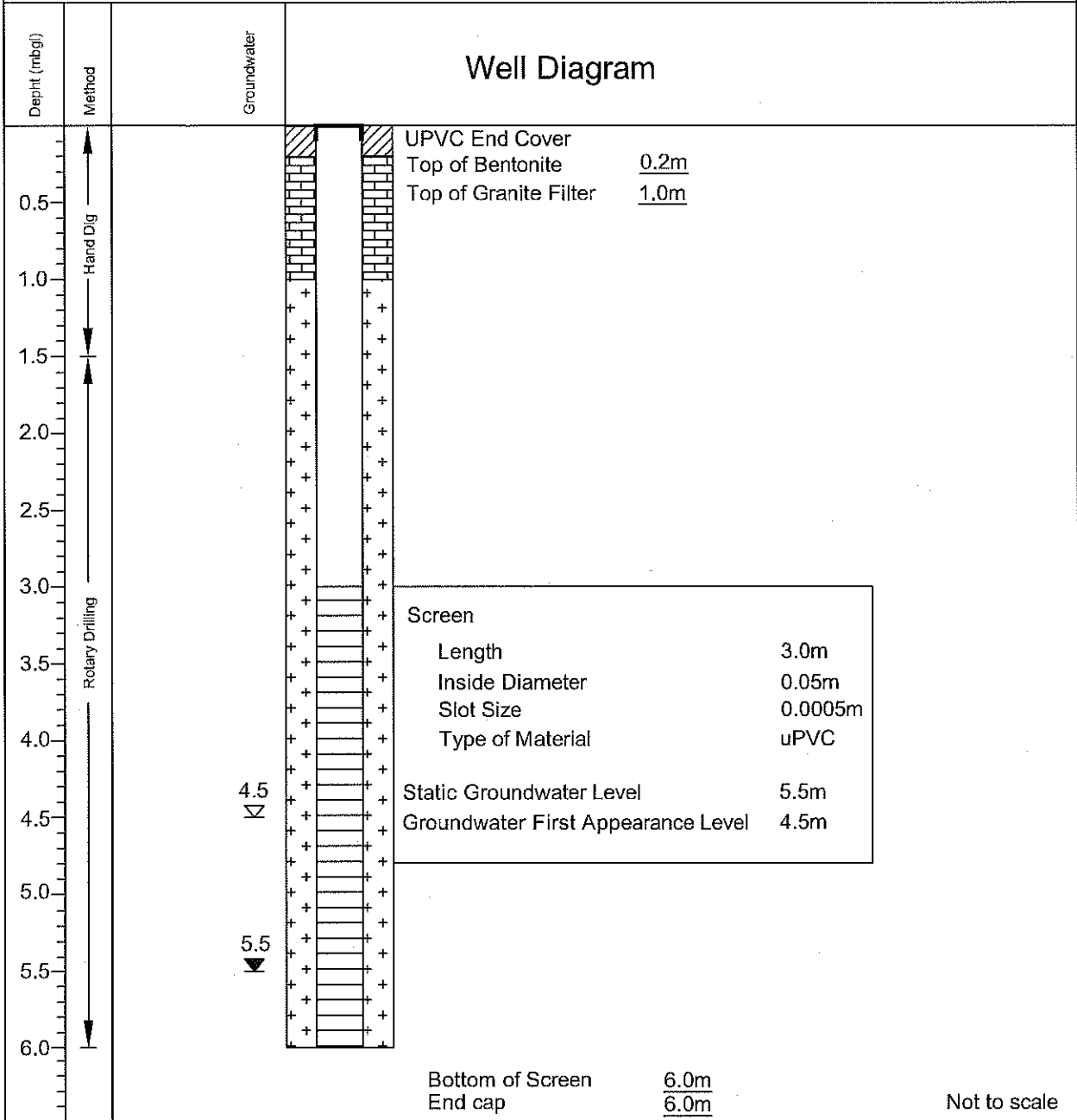
Coordinates E827187, N832974

Hole No.: B-13

Ground Level Elevation: +20.43 mPD

Installation Date: 23-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>4.5m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

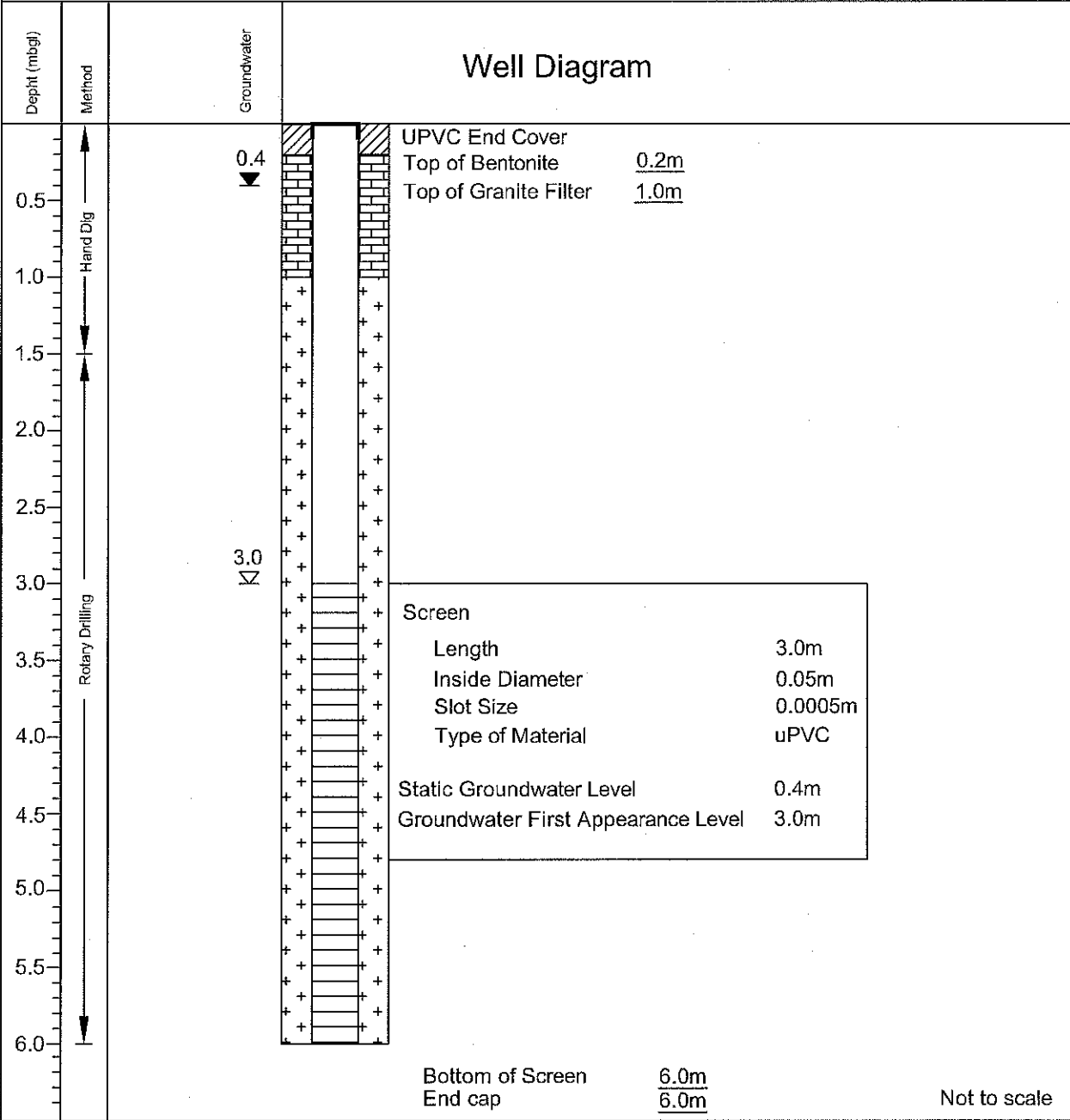
Coordinates E827167, N833015

Ground Level Elevation: +19.82 mPD

Driller: Teemway Engineering Ltd.

Hole No.: B-14

Installation Date: 17-Mar-11



**End of soil bore = 6.0m**

<u>Remarks</u>	<u>Well Installation Details</u>	<u>Legend</u>												
(1) "mbgl" denotes meter below ground level (2) No LNAPL identified during SI works	Soil Bore Diameter: <u>0.11m</u> Inside Well Diameter: <u>0.05m</u> Total Depth of Well: <u>6.0m</u> Screen: <u>3.0 to 6.0m</u> Granite Pack: <u>1.0 to 6.0m</u> Bentonite: <u>0.2 to 1.0m</u> Cement Grout: <u>0.0 to 0.2m</u> Groundwater First Appearance Level: <u>3.0m</u>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>Cement Grout</td> </tr> <tr> <td style="text-align: center;"></td> <td>Bentonite</td> </tr> <tr> <td style="text-align: center;"></td> <td>Granite Filter</td> </tr> <tr> <td style="text-align: center;"></td> <td>Screen</td> </tr> <tr> <td style="text-align: center;"></td> <td>Groundwater First Appearance Level</td> </tr> <tr> <td style="text-align: center;"></td> <td>Static Groundwater Level</td> </tr> </table>		Cement Grout		Bentonite		Granite Filter		Screen		Groundwater First Appearance Level		Static Groundwater Level
	Cement Grout													
	Bentonite													
	Granite Filter													
	Screen													
	Groundwater First Appearance Level													
	Static Groundwater Level													

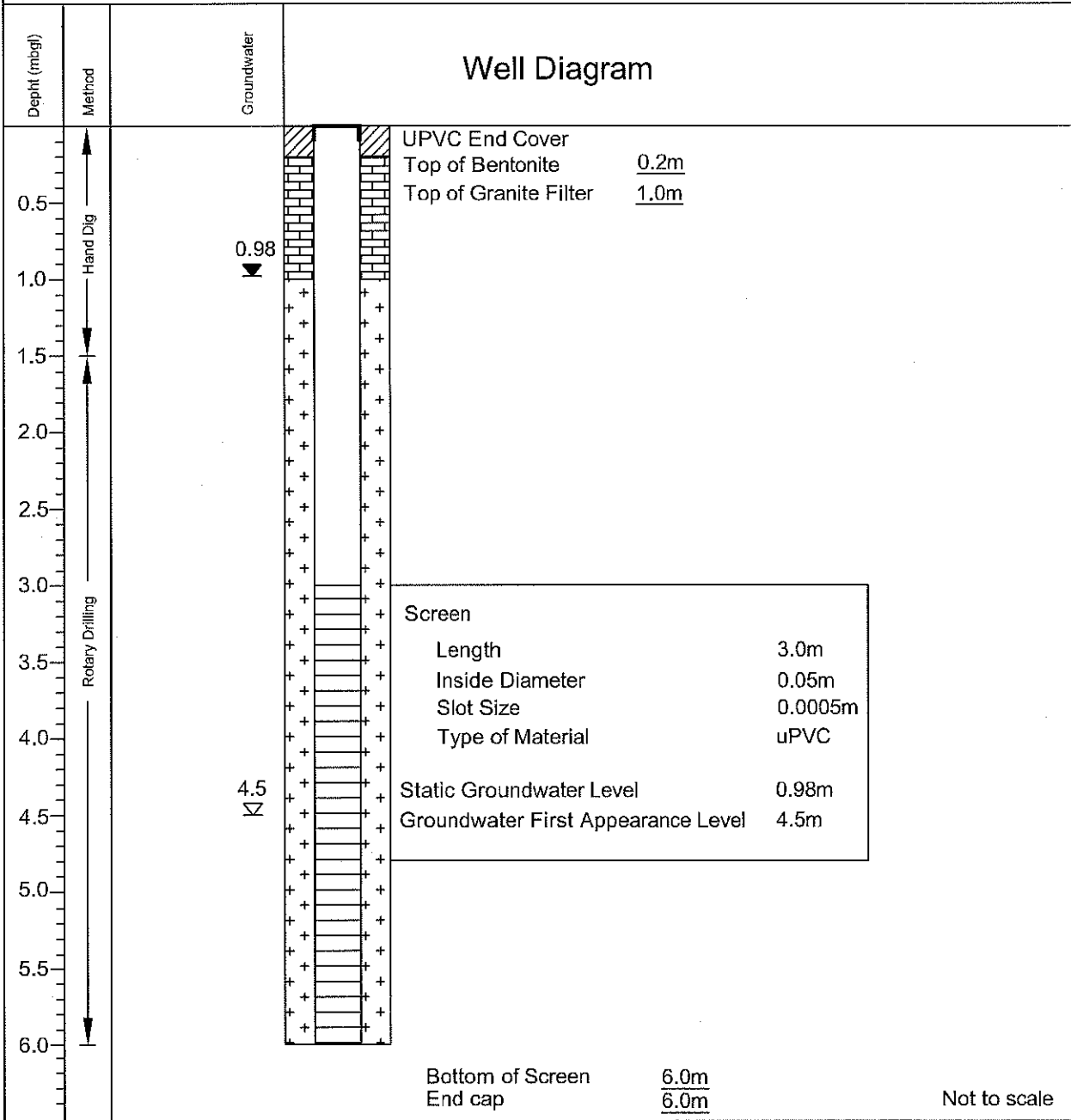
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827173, N832997 Hole No.: B-15

Ground Level Elevation: +20.08 mPD Installation Date: 17-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

<u>Remarks</u>	<u>Well Installation Details</u>	<u>Legend</u>
<p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>

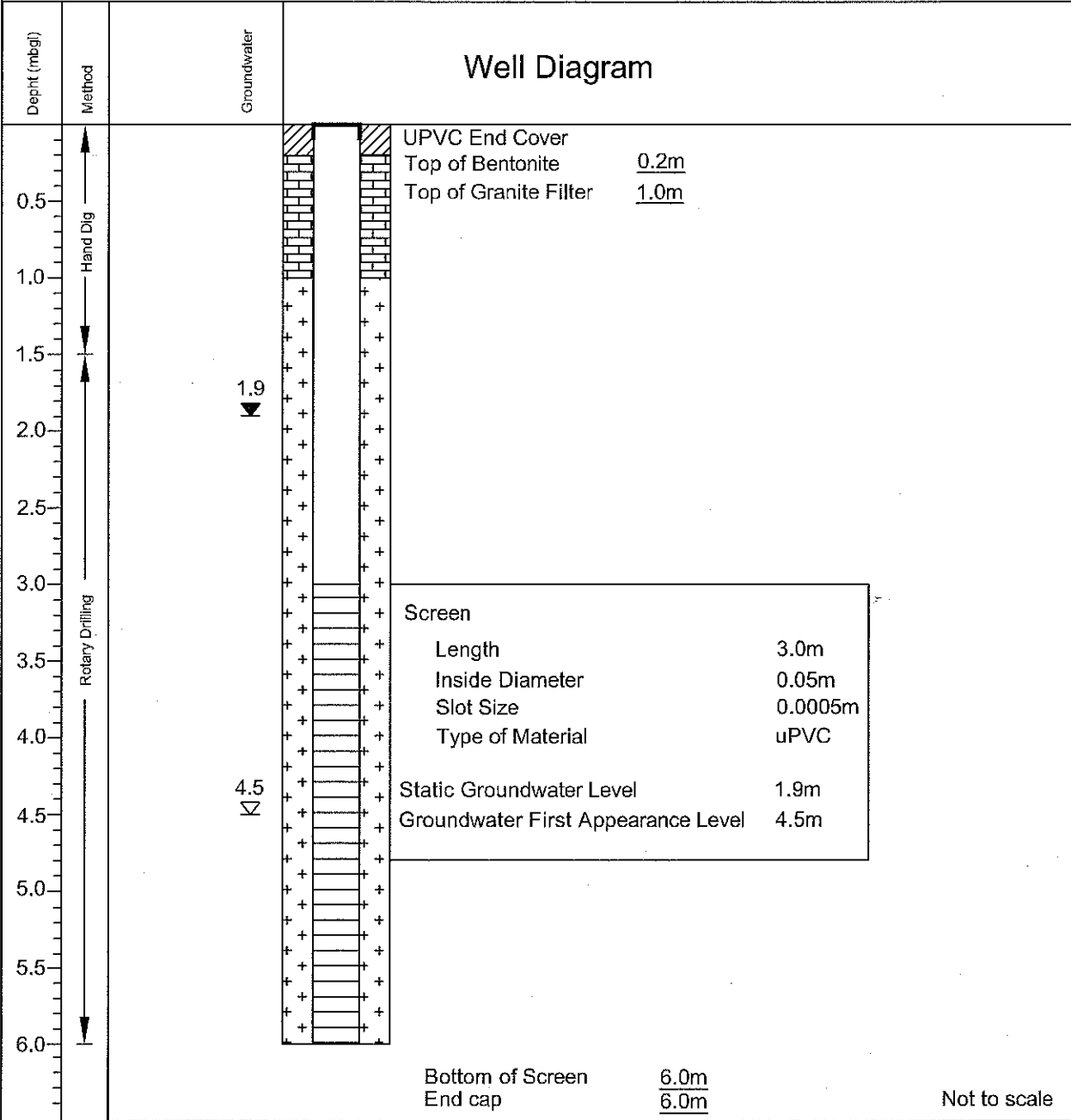
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827163, N833006 Hole No.: B-17

Ground Level Elevation: +19.80 mPD Installation Date: 17-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>4.5m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

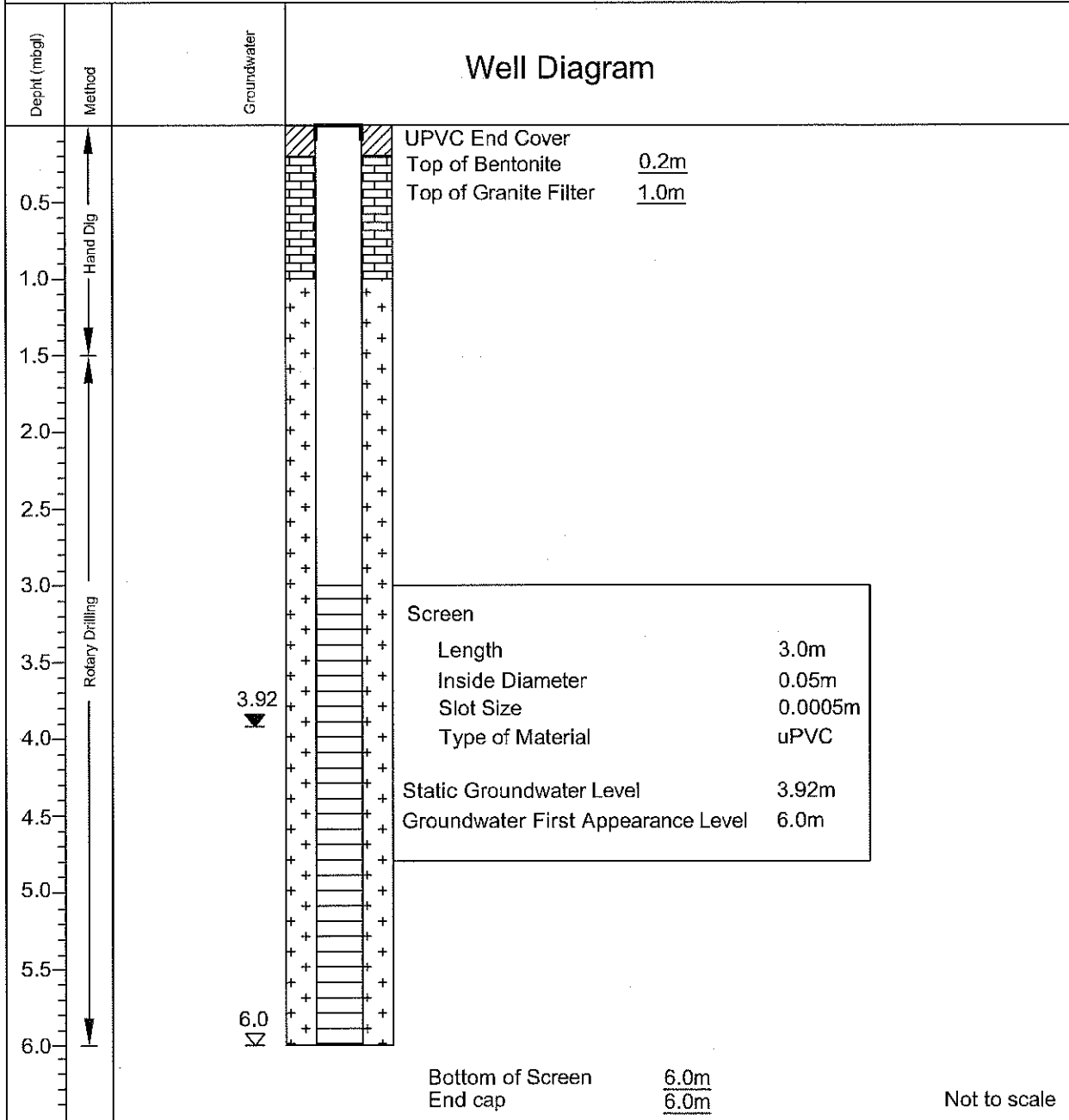
Coordinates E827161, N832990

Hole No.: B-18

Ground Level Elevation: +19.66 mPD

Installation Date: 18-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
<p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>6.0m</u></p>	<p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

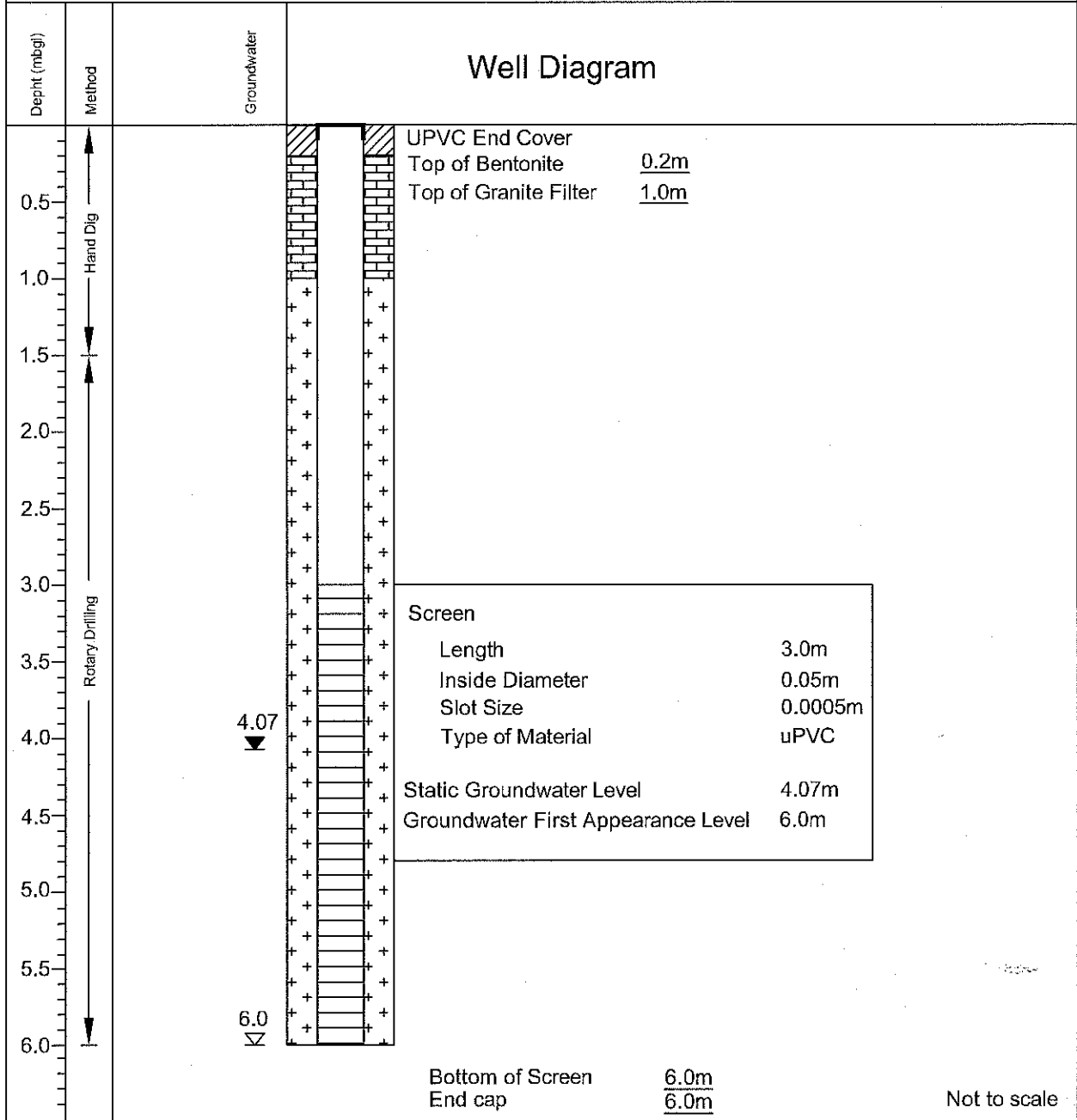
Coordinates E827149, N832988

Hole No.: B-19

Ground Level Elevation: +19.51 mPD

Installation Date: 21-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

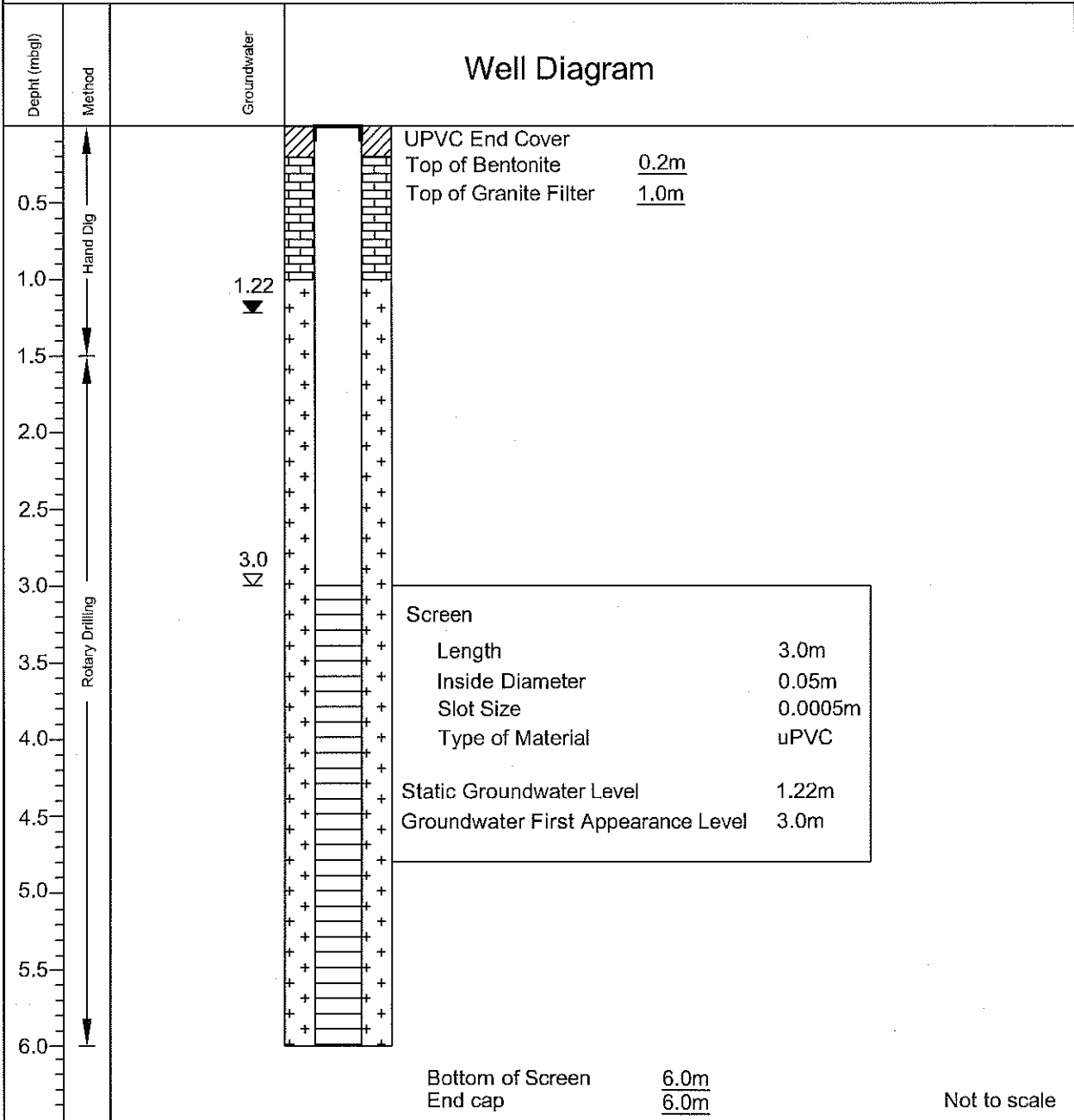
Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>6.0m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827143, N833023  
 Ground Level Elevation: +19.52 mPD  
 Driller: Teemway Engineering Ltd.

Hole No.: B-20  
 Installation Date: 30-Mar-11



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend												
(1) "mbgl" denotes meter below ground level (2) No LNAPL identified during SI works	Soil Bore Diameter: <u>0.11m</u> Inside Well Diameter: <u>0.05m</u> Total Depth of Well: <u>6.0m</u> Screen: <u>3.0 to 6.0m</u> Granite Pack: <u>1.0 to 6.0m</u> Bentonite: <u>0.2 to 1.0m</u> Cement Grout: <u>0.0 to 0.2m</u> Groundwater First Appearance Level: <u>3.0m</u>	<table border="0"> <tr> <td style="text-align: center;">▨</td> <td>Cement Grout</td> </tr> <tr> <td style="text-align: center;">▤</td> <td>Bentonite</td> </tr> <tr> <td style="text-align: center;">⊠</td> <td>Granite Filter</td> </tr> <tr> <td style="text-align: center;">▧</td> <td>Screen</td> </tr> <tr> <td style="text-align: center;">▽</td> <td>Groundwater First Appearance Level</td> </tr> <tr> <td style="text-align: center;">▼</td> <td>Static Groundwater Level</td> </tr> </table>	▨	Cement Grout	▤	Bentonite	⊠	Granite Filter	▧	Screen	▽	Groundwater First Appearance Level	▼	Static Groundwater Level
▨	Cement Grout													
▤	Bentonite													
⊠	Granite Filter													
▧	Screen													
▽	Groundwater First Appearance Level													
▼	Static Groundwater Level													



# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong, Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

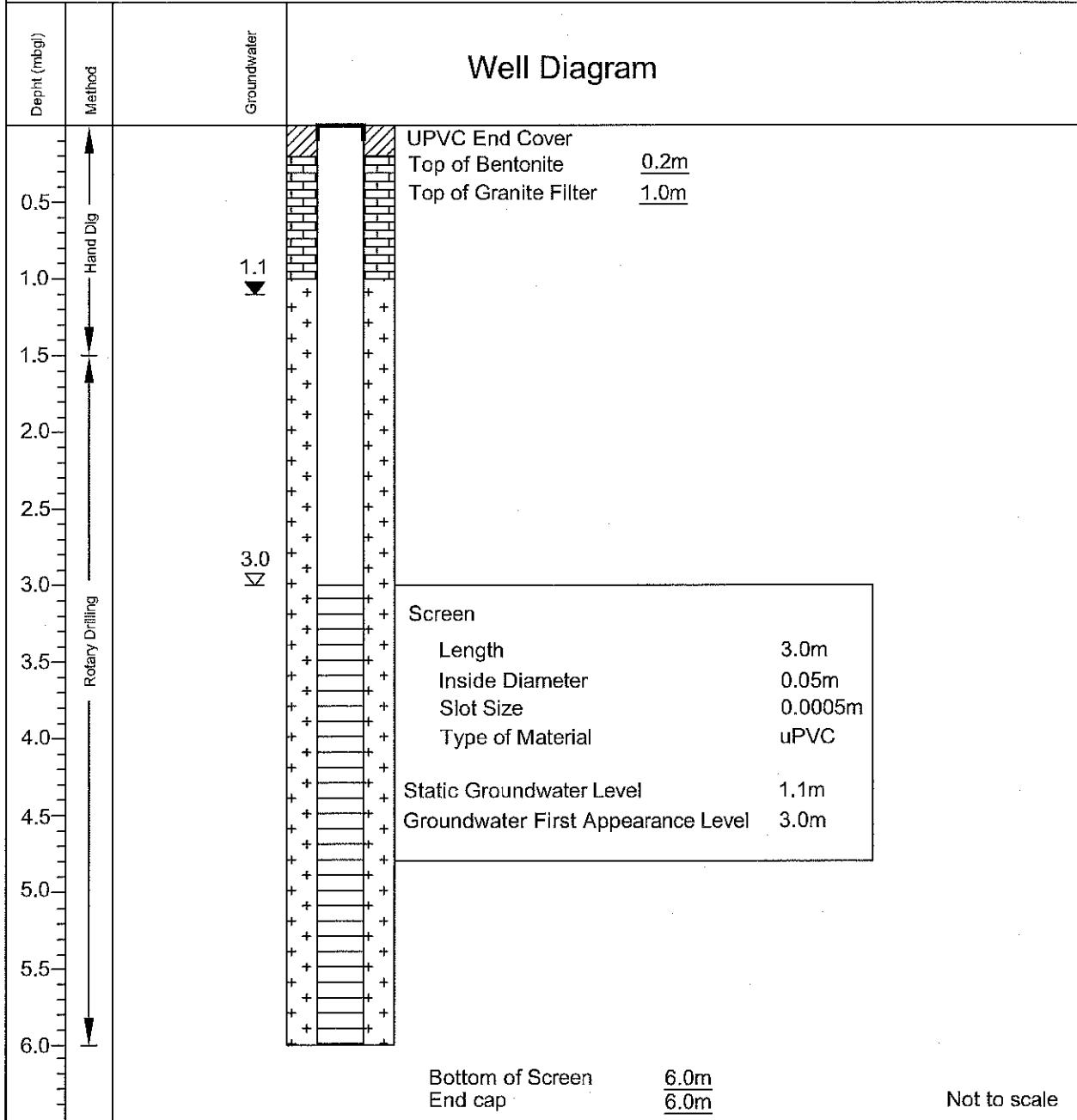
Coordinates E827145, N833004

Hole No.: B-21

Ground Level Elevation: +19.43 mPD

Installation Date: 19-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
<p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>3.0m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong  
Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

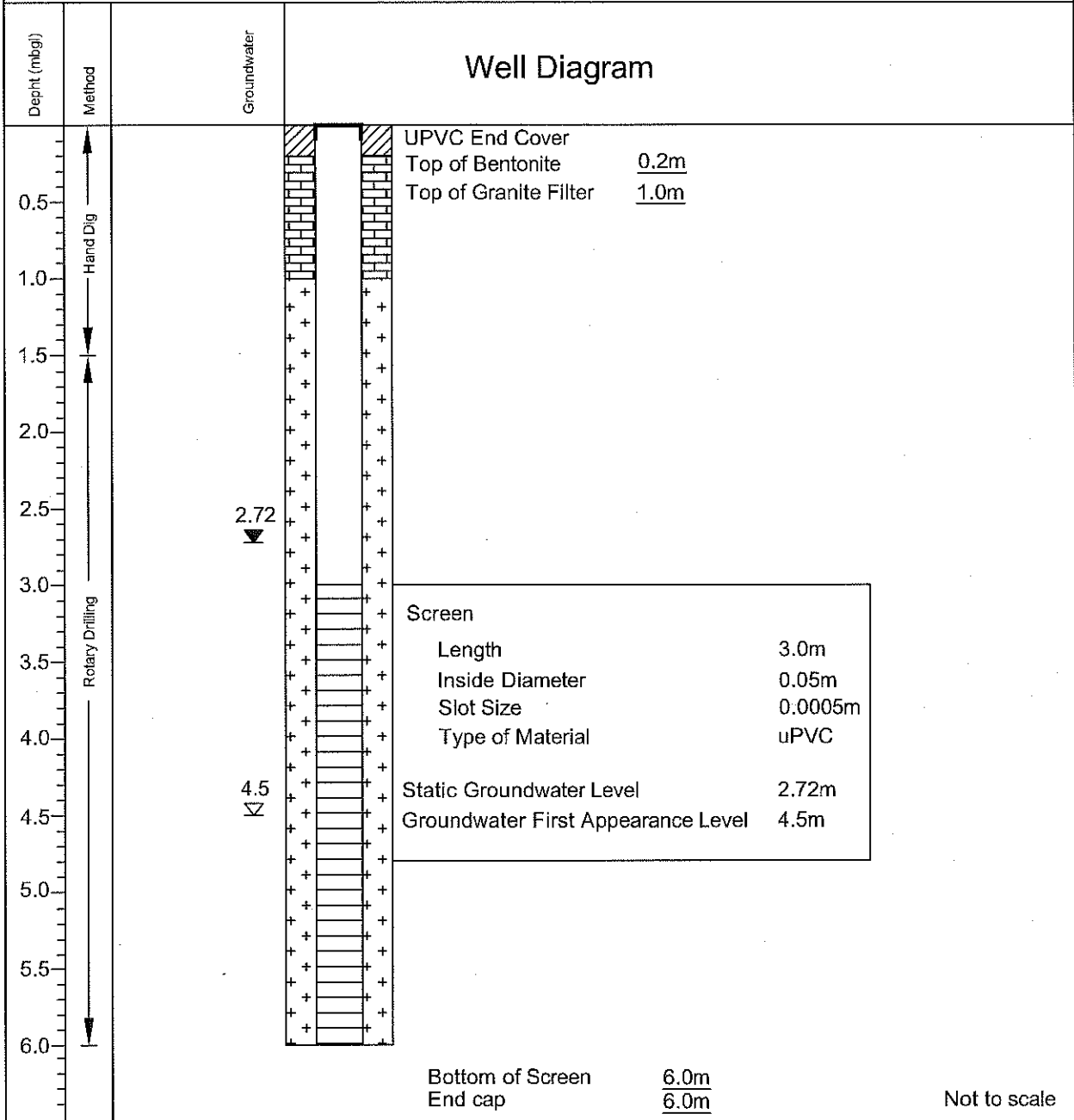
Coordinates E827123, N833056

Hole No.: B-22

Ground Level Elevation: +19.18 mPD

Installation Date: 01-Apr-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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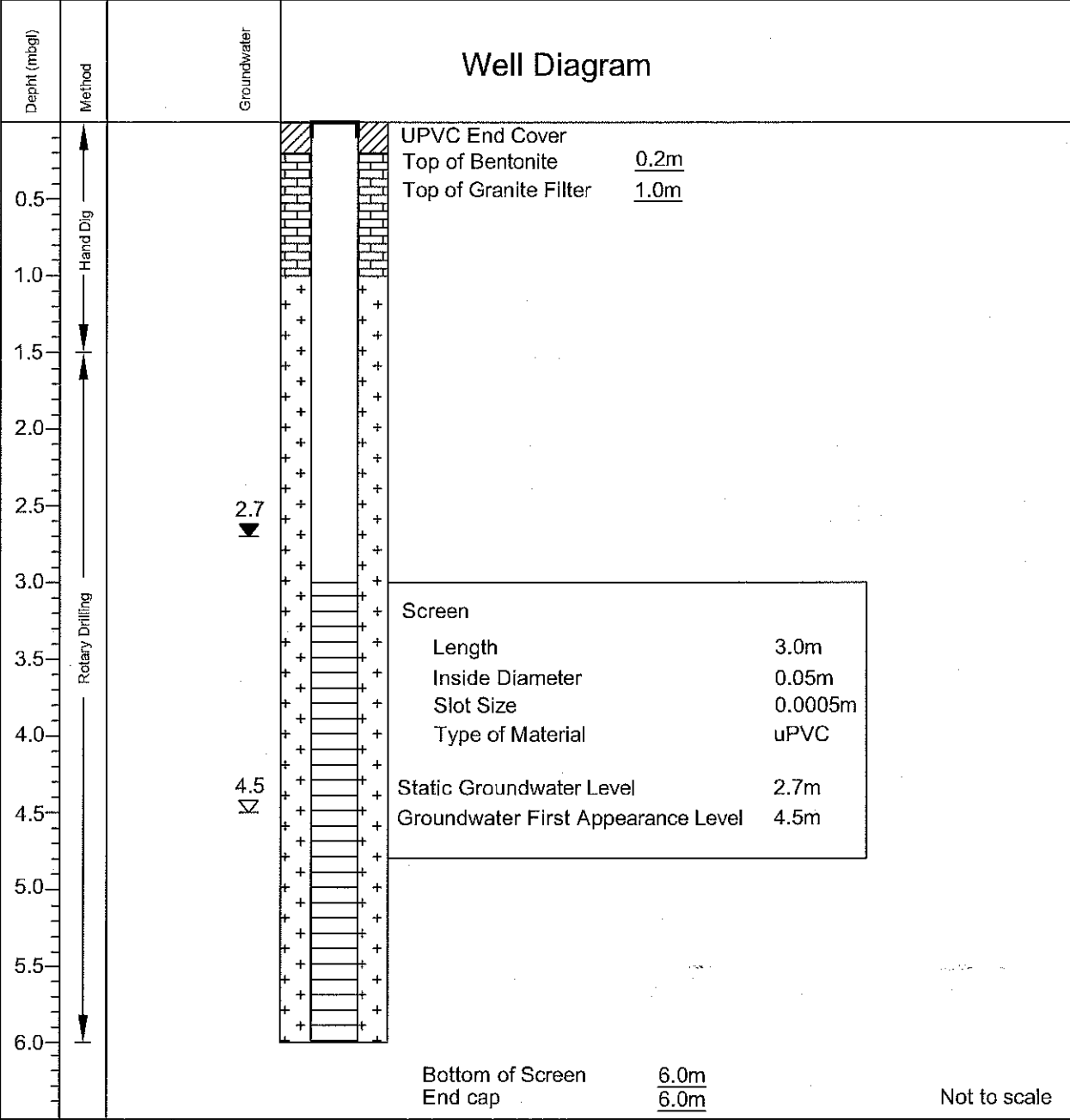
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827130, N833033 Hole No.: B-23

Ground Level Elevation: +19.42 mPD Installation Date: 31-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>4.5m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

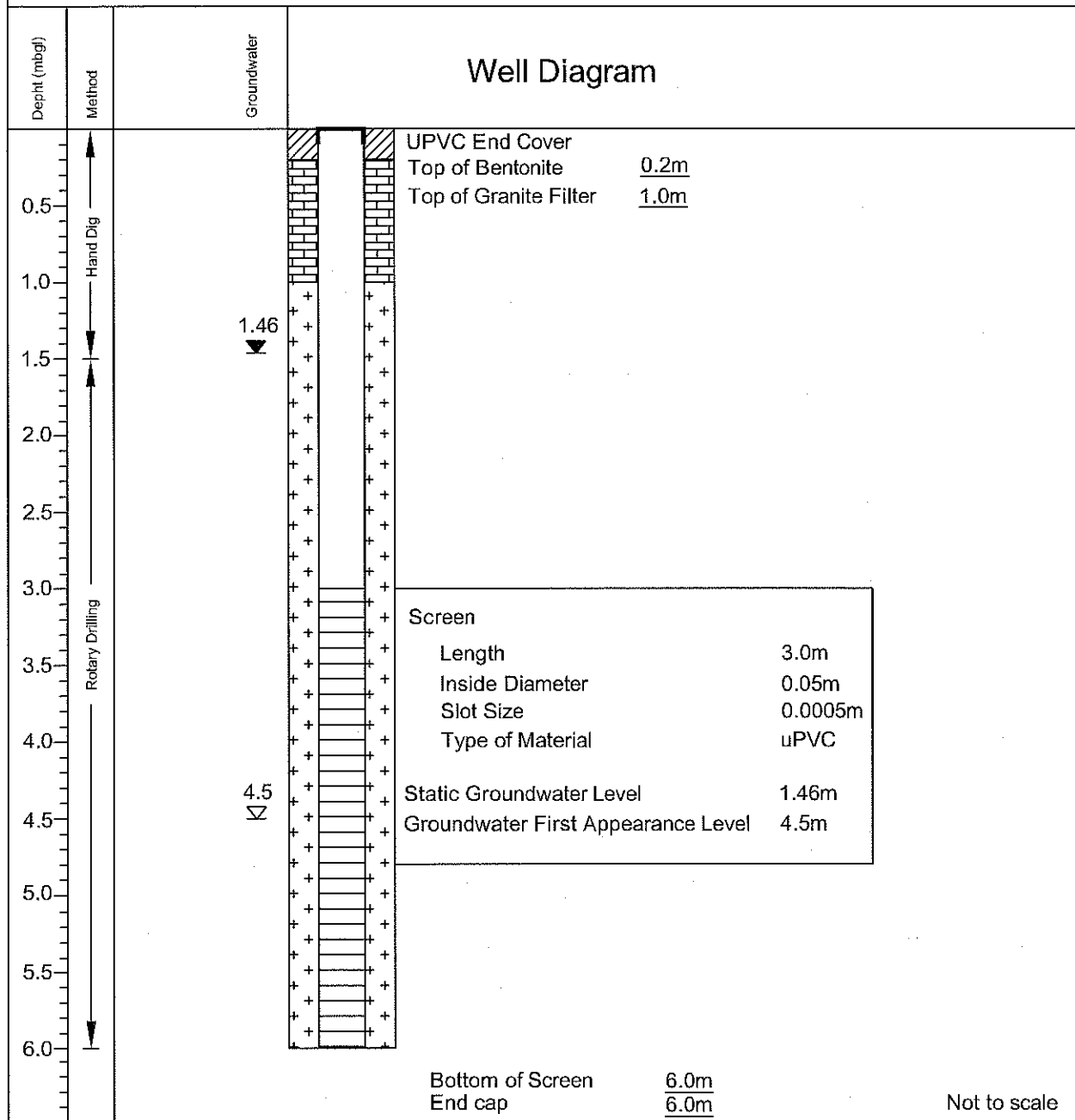
Coordinates E827128, N833021

Hole No.: B-24

Ground Level Elevation: +19.43 mPD

Installation Date: 30-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>4.5m</u>	



# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

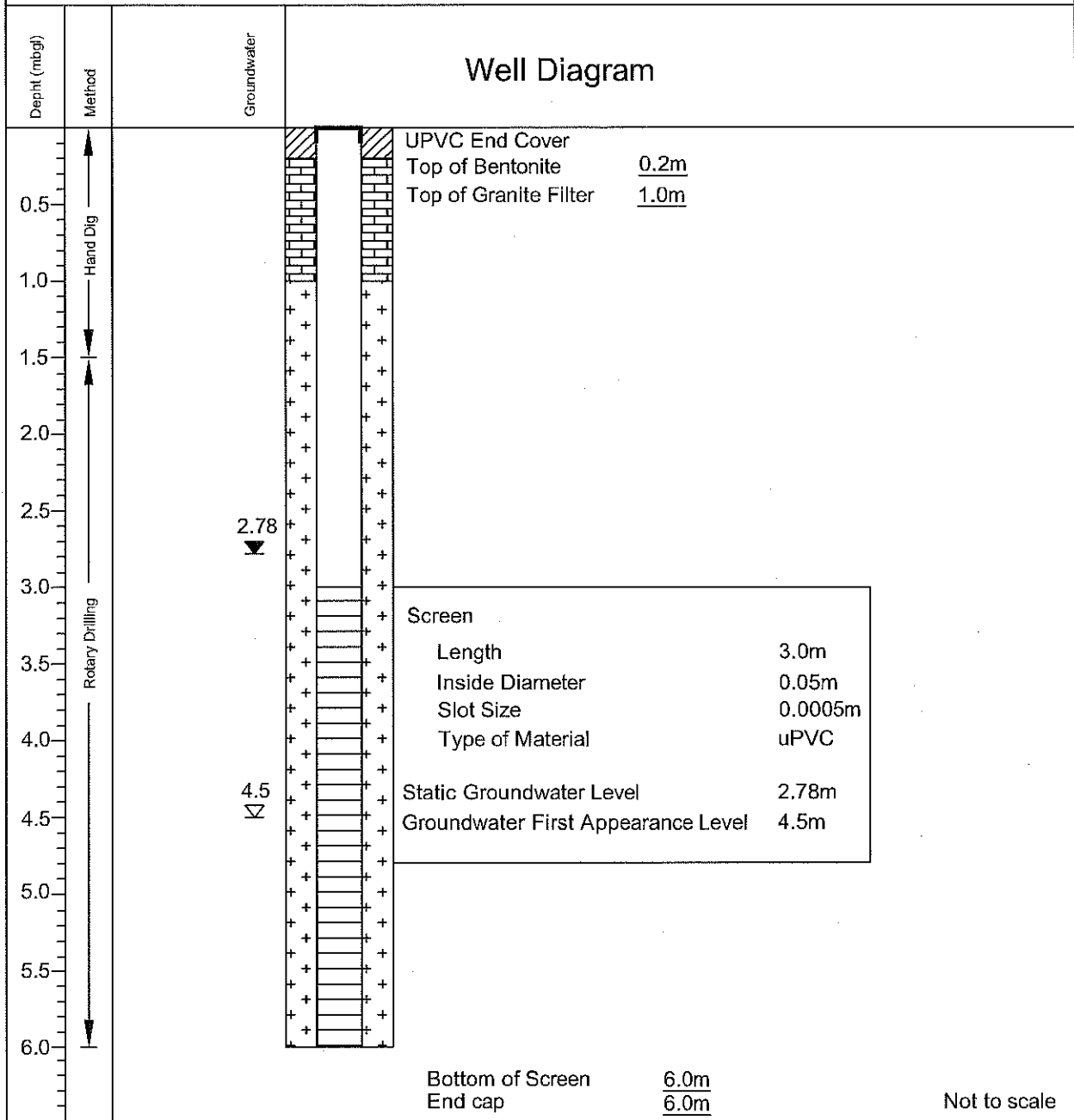
Coordinates E827116, N833045

Hole No.: B-26

Ground Level Elevation: +19.35 mPD

Installation Date: 31-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
<p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>4.5m</u></p>	<p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>

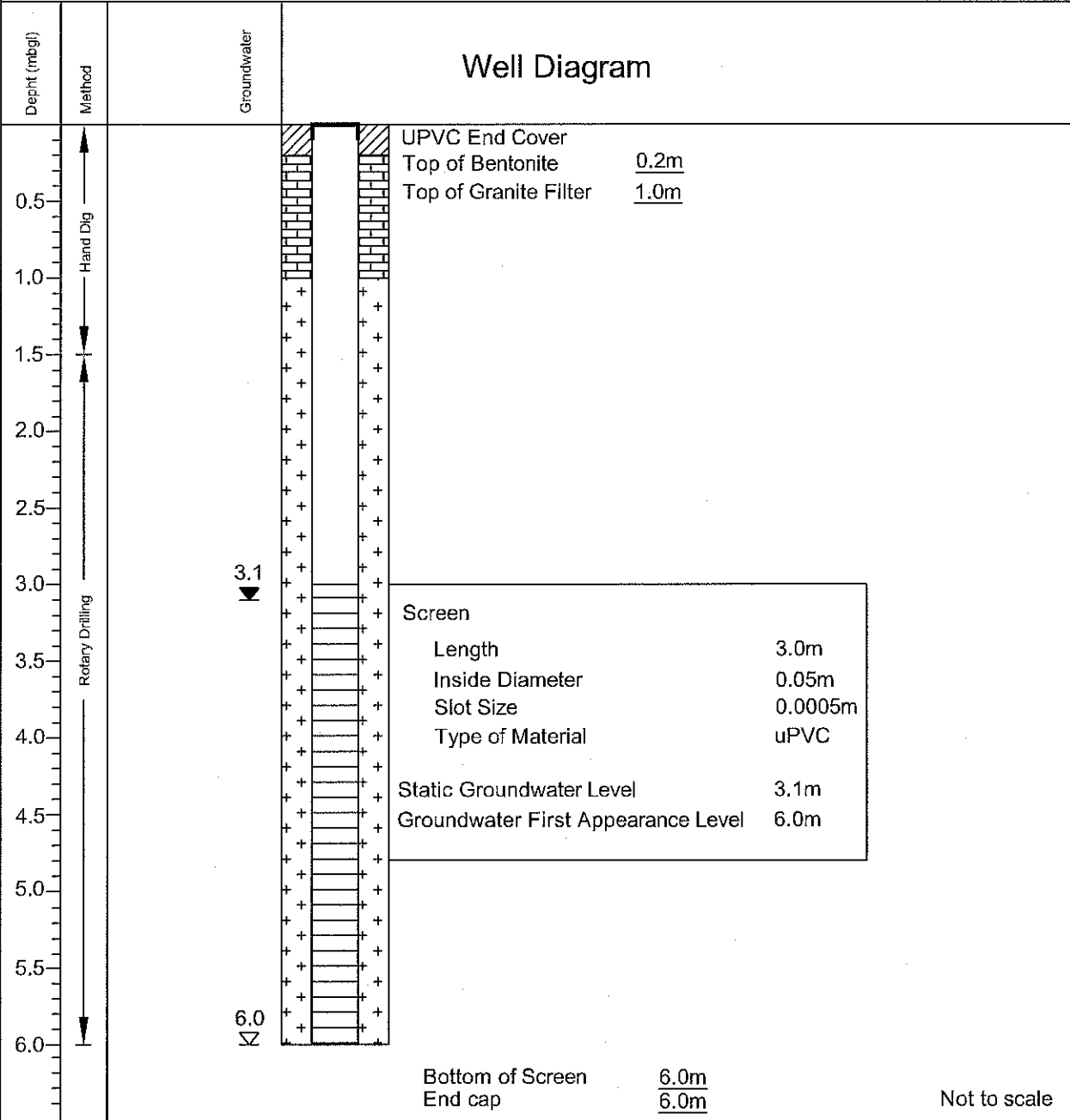
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827106, N833037 Hole No.: B-27

Ground Level Elevation: +19.21 mPD Installation Date: 30-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>6.0m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

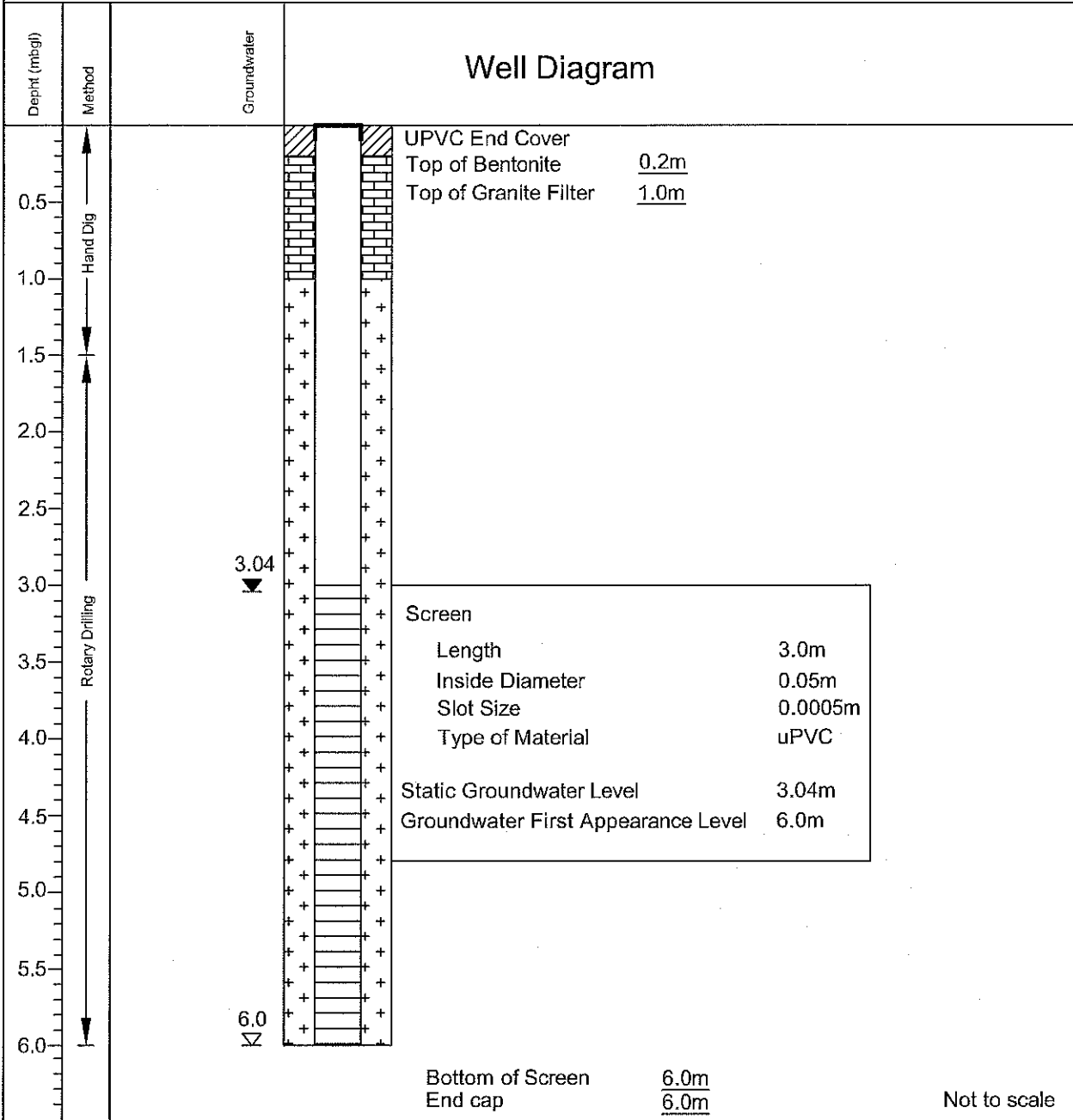
Coordinates E827089, N833049

Hole No.: B-29

Ground Level Elevation: +18.75 mPD

Installation Date: 29-Mar-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

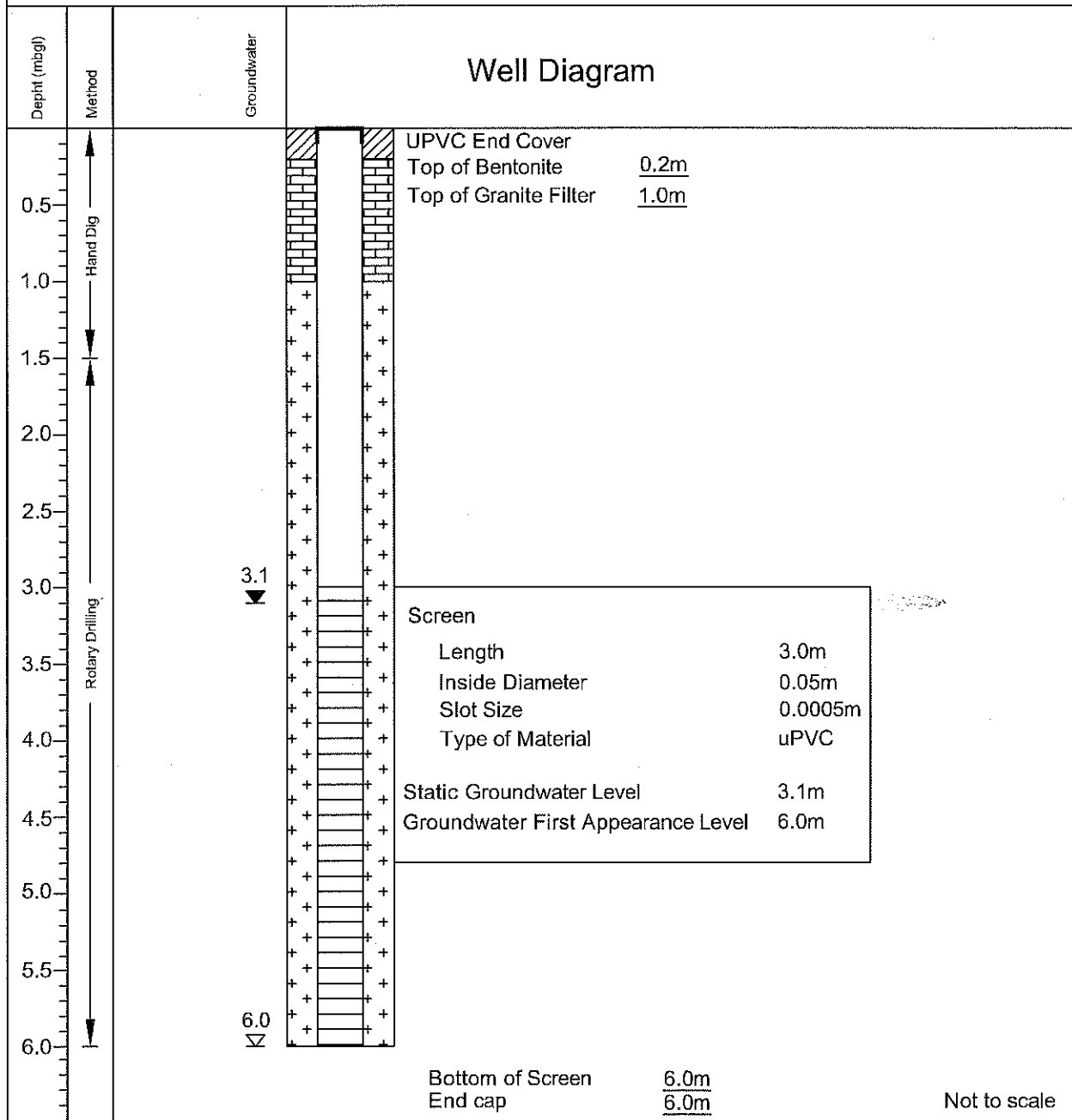
Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.0m</u>	Granite Filter
	Screen: <u>3.0 to 6.0m</u>	Screen
	Granite Pack: <u>1.0 to 6.0m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>6.0m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong  
Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827092, N833038  
 Ground Level Elevation: +18.82 mPD  
 Driller: Teemway Engineering Ltd.

Hole No.: B-30  
 Installation Date: 28-Mar-11



**End of soil bore = 6.0m**

<p><b>Remarks</b></p> <p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p><b>Well Installation Details</b></p> <p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>3.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>6.0m</u></p>	<p><b>Legend</b></p> <p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>
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**Appendix G-2**  
**Groundwater Monitoring Well Diagram**  
**(Site F)**

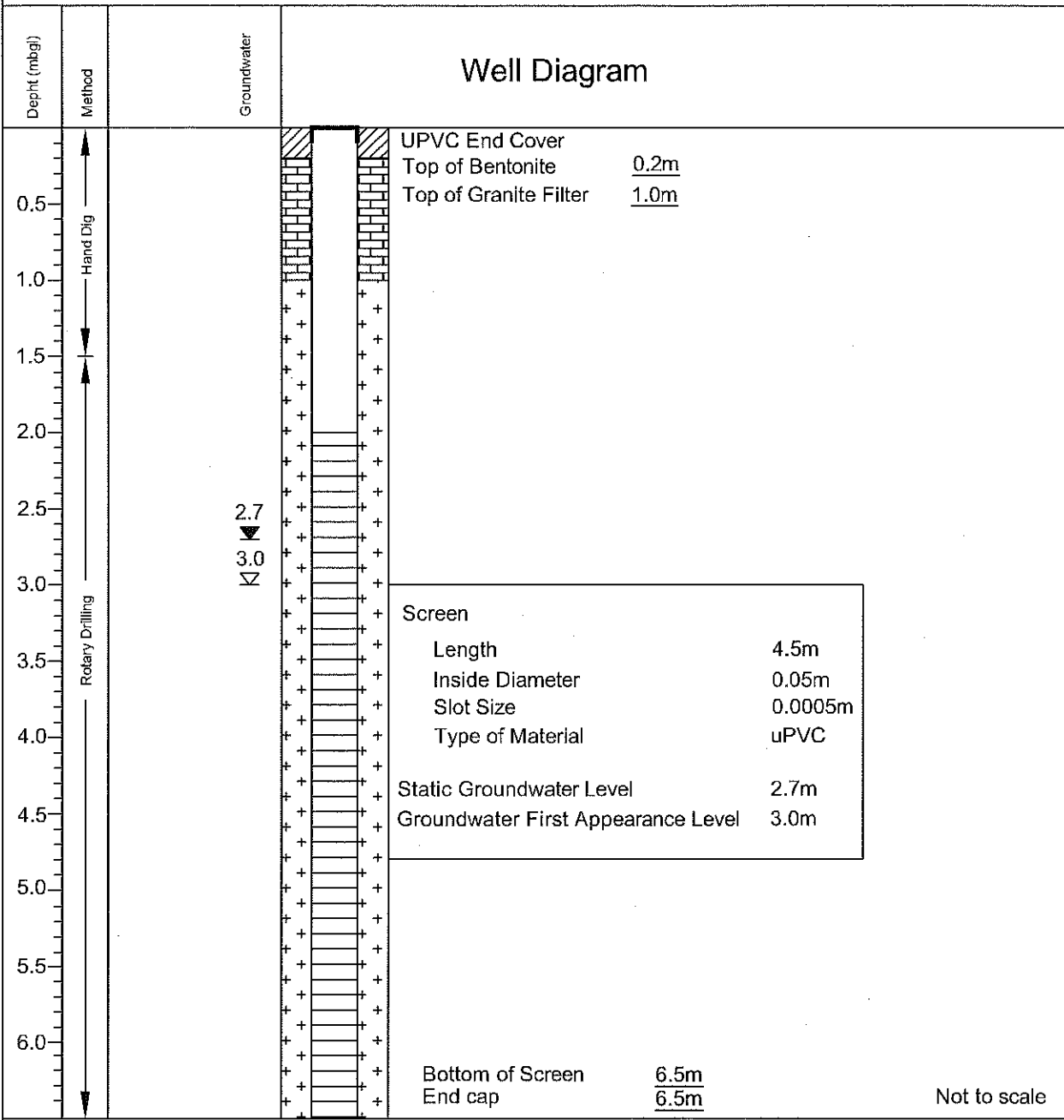
# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E826818, N833518 Hole No.: F-05

Ground Level Elevation: +13.12 mPD Installation Date: 15-Feb-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.5m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.5m</u>	Granite Filter
	Screen: <u>2.0 to 6.5m</u>	Screen
	Granite Pack: <u>1.0 to 6.5m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>3.0m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

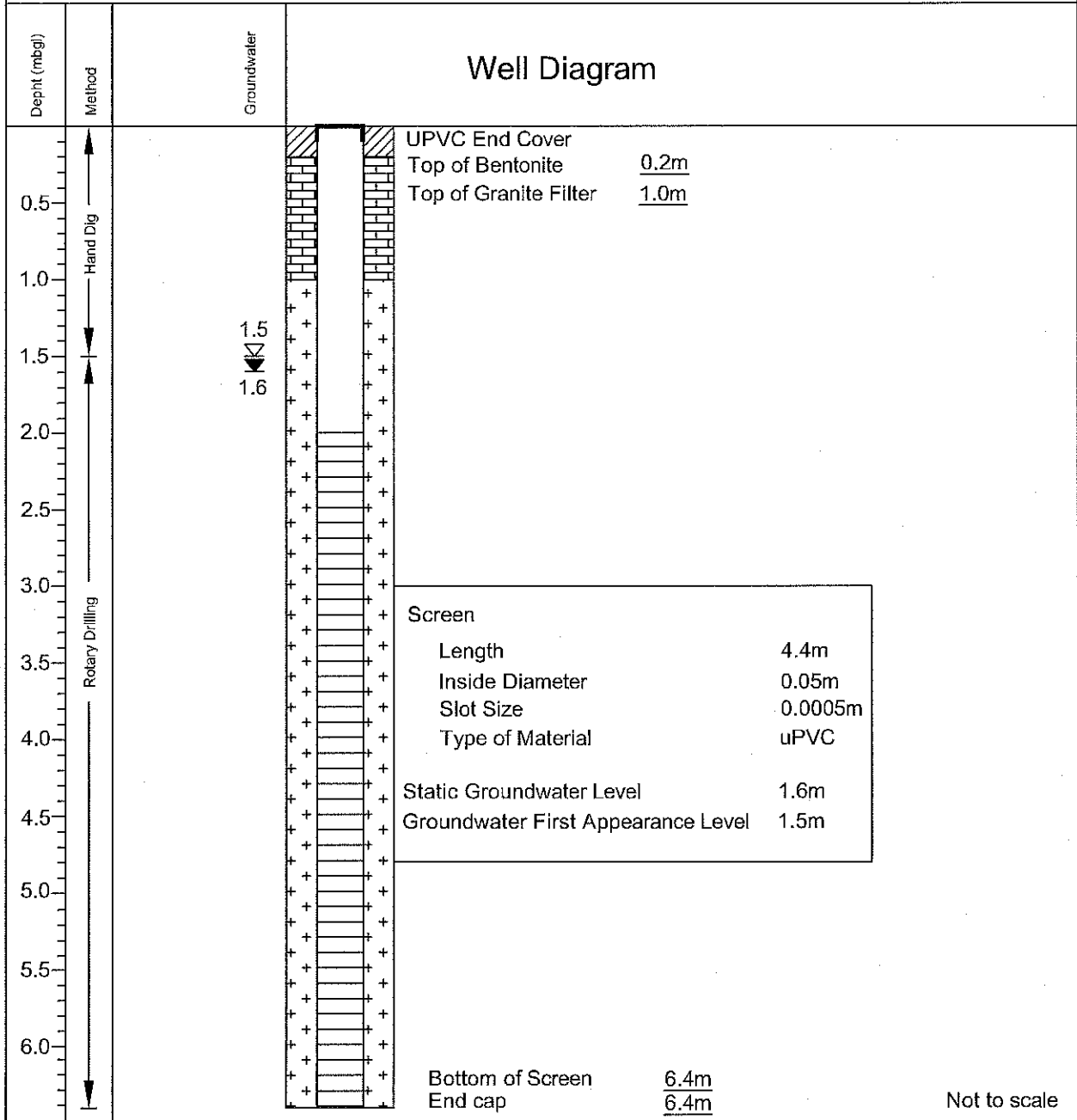
Coordinates E826821, N833529

Hole No.: F-06

Ground Level Elevation: +13.10 mPD

Installation Date: 16-Feb-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.4m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level	Soil Bore Diameter: <u>0.11m</u>	Cement Grout
(2) No LNAPL identified during SI works	Inside Well Diameter: <u>0.05m</u>	Bentonite
	Total Depth of Well: <u>6.4m</u>	Granite Filter
	Screen: <u>2.0 to 6.4m</u>	Screen
	Granite Pack: <u>1.0 to 6.4m</u>	Groundwater First Appearance Level
	Bentonite: <u>0.2 to 1.0m</u>	Static Groundwater Level
	Cement Grout: <u>0.0 to 0.2m</u>	
	Groundwater First Appearance Level: <u>1.5m</u>	

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong  
Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

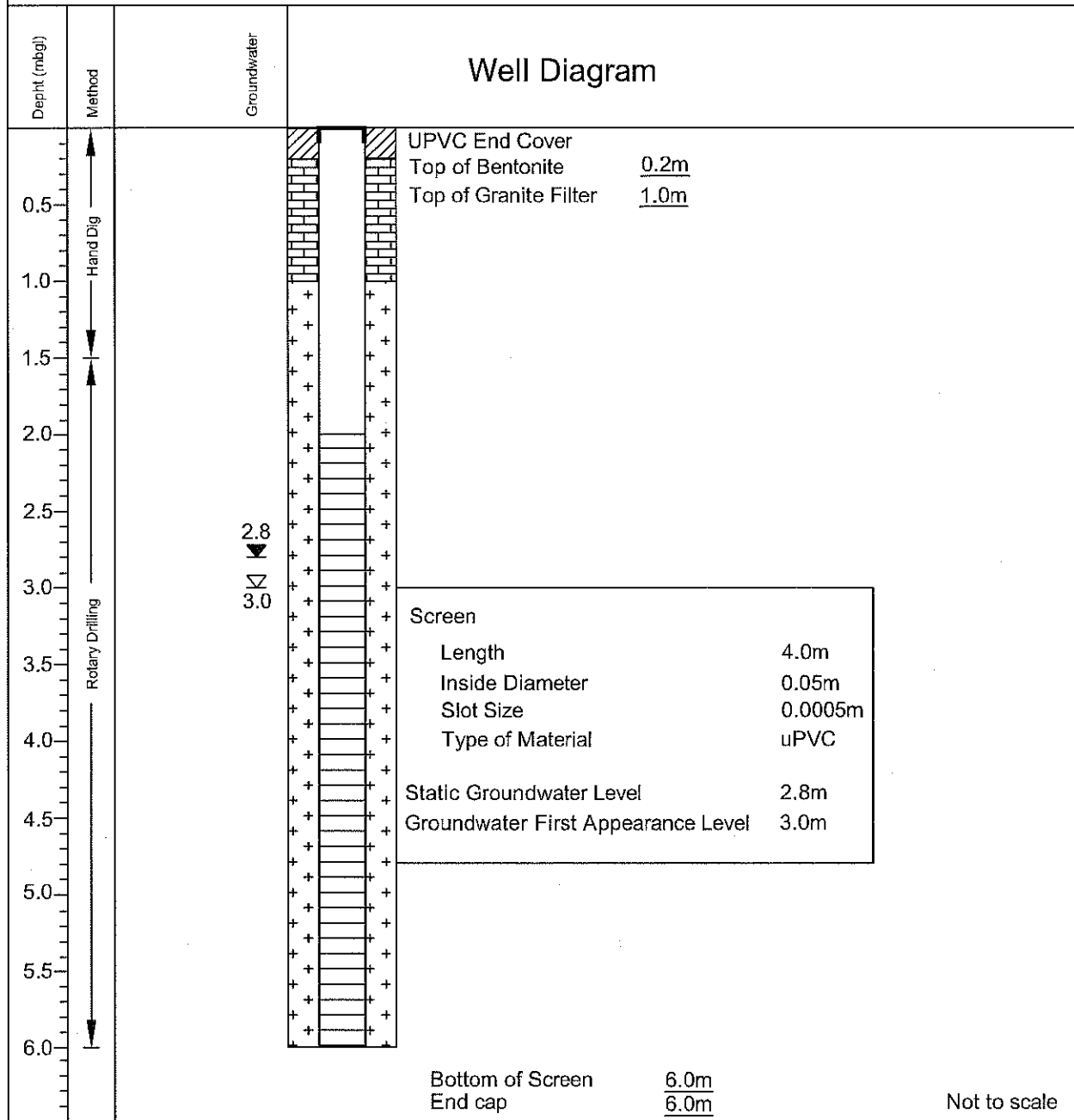
Coordinates E826831, N833516

Hole No.: F-07

Ground Level Elevation: +13.18 mPD

Installation Date: 14-Feb-11

Driller: Teemway Engineering Ltd.



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
<p>(1) "mbgl" denotes meter below ground level</p> <p>(2) No LNAPL identified during SI works</p>	<p>Soil Bore Diameter: <u>0.11m</u></p> <p>Inside Well Diameter: <u>0.05m</u></p> <p>Total Depth of Well: <u>6.0m</u></p> <p>Screen: <u>2.0 to 6.0m</u></p> <p>Granite Pack: <u>1.0 to 6.0m</u></p> <p>Bentonite: <u>0.2 to 1.0m</u></p> <p>Cement Grout: <u>0.0 to 0.2m</u></p> <p>Groundwater First Appearance Level: <u>3.0m</u></p>	<p> Cement Grout</p> <p> Bentonite</p> <p> Granite Filter</p> <p> Screen</p> <p> Groundwater First Appearance Level</p> <p> Static Groundwater Level</p>

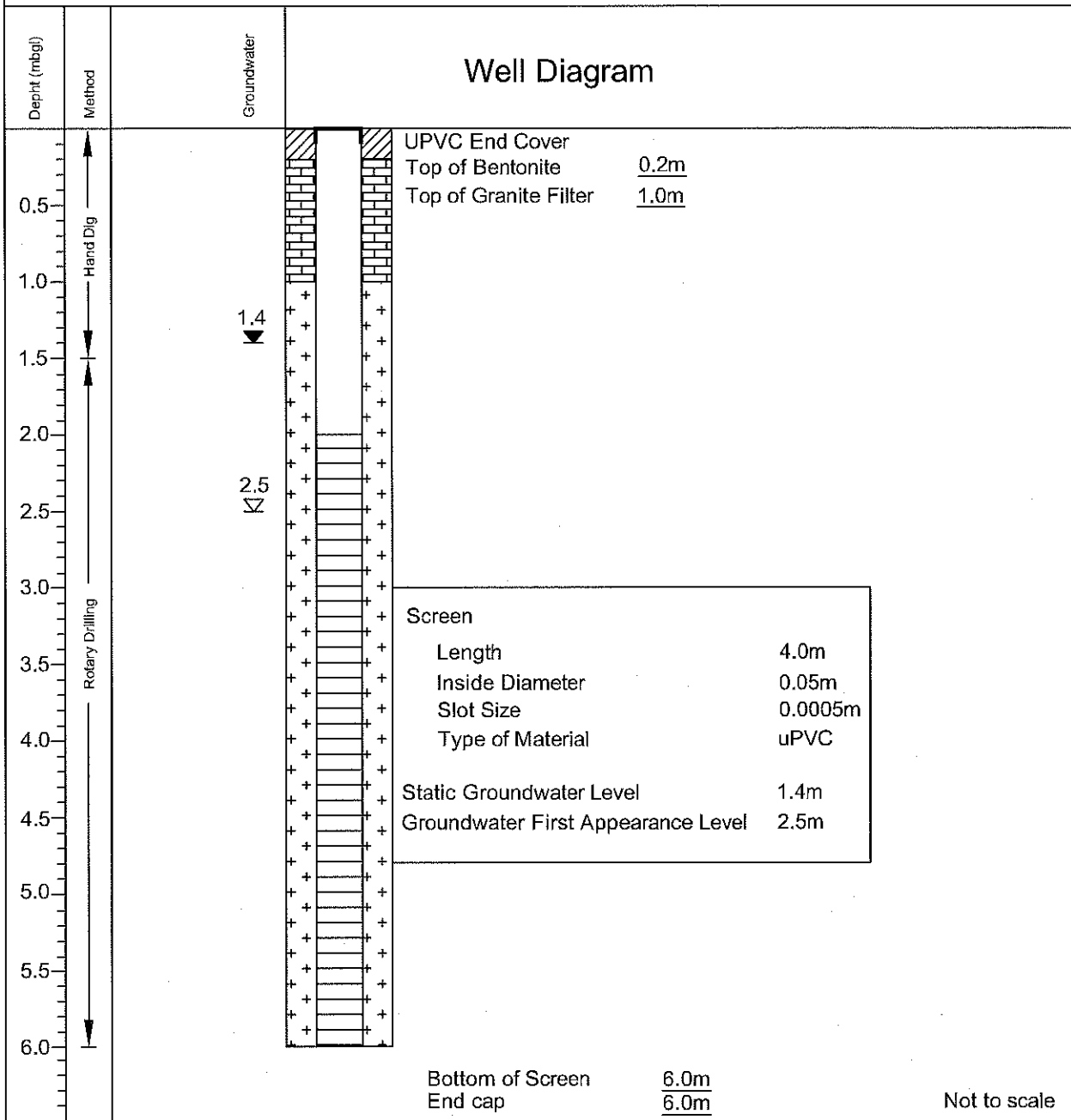
**Appendix G-3**  
**Groundwater Monitoring Well Diagram**  
**(Site G)**

# Groundwater Monitoring Well Diagram

Project Title: Land Contamination Investigation Works for Shek Kong  
Stabling Sidings Works Area III (Sites B,F,G,U,V and W)

Coordinates E827116, N833073  
 Ground Level Elevation: +18.85 mPD  
 Driller: Teemway Engineering Ltd.

Hole No.: G-05  
 Installation Date: 21-Feb-11



**End of soil bore = 6.0m**

Remarks	Well Installation Details	Legend
(1) "mbgl" denotes meter below ground level (2) No LNAPL identified during SI works	Soil Bore Diameter: <u>0.11m</u> Inside Well Diameter: <u>0.05m</u> Total Depth of Well: <u>6.0m</u> Screen: <u>2.0 to 6.0m</u> Granite Pack: <u>1.0 to 6.0m</u> Bentonite: <u>0.2 to 1.0m</u> Cement Grout: <u>0.0 to 0.2m</u> Groundwater First Appearance Level: <u>2.5m</u>	Cement Grout Bentonite Granite Filter Screen Groundwater First Appearance Level Static Groundwater Level



