



Princes, Long Sutton
Phase 2 Site Investigation Report
S180404/SI
Faithful + Gould

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PHASE 2 SITE INVESTIGATION REPORT

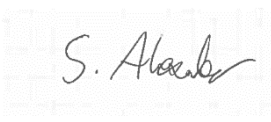
PRINCES, LONG SUTTON

TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	2
2	INTRODUCTION	3
3	SITE DESCRIPTION AND FIELDWORK	3
4	GROUND CONDITIONS	4
5	CONTAMINATION TESTING RESULTS	4
6	CONCEPTUAL MODEL AND CONTAMINATION ANALYSIS.....	7
TABLE 1 - SUMMARY OF INORGANIC CONTAMINATION TESTING RESULTS (COMMERCIAL)		5
TABLE 3 - SUMMARY OF ORGANIC CONTAMINATION TESTING RESULTS (COMMERCIAL)		6
TABLE 3 - CONCEPTUAL MODEL.....		8

APPENDICES

- Appendix A: Maps and Photographs
 Appendix B: Borehole and Trial Pit Logs
 Appendix C: Contamination Laboratory Results
 Appendix D: Notes on Limitations and Contamination Guidelines

Revision	Date	Prepared By	Signed
Final	May 2018	S Alexander Engineering Geologist	
		Checked By	
		R Woods Principal Geotechnical Engineer	
		Approved By	
		R Woods Principal Geotechnical Engineer	

1 EXECUTIVE SUMMARY

Site Address	Princes, Bridge Road, Long Sutton, PE12 9EQ.
Proposed Development	Proposed redevelopment of existing factory buildings.
Fieldwork	• 29no. hand dug trial pits (BH01 to BH29) to max. 1.00m below ground level (bgl) • 18no. machine excavated trial pits (TP01 to TP18) to max. 1.10mbgl. • Chemical testing.
Ground Conditions	• Made ground proven to max. of 1.10mbgl generally in and adjacent to spoil piles. Made ground beneath hardstanding in boreholes generally between 0.20m and 0.40mbgl and consisted of sub angular to sub rounded sand and gravel dolomite or flint fill. TPs 16-18 encountered orange and grey stone fill with angular brick and concrete cobbles and boulders. • Natural deposits were generally brown sandy silty clay overlain locally by brown clayey sand. • Perched groundwater in TP08 within Made Ground.
Contamination Testing Results	• Thirteen samples tested for metal, PAH and TPH. • Slightly elevated values were returned for Dibenzo(a,h)anthracene (BH14 0.20-0.40m). Remainder of values were below threshold levels. • 50no. samples tested for asbestos, one sample (BH25 0.20-0.40m) returned 3.91% chrysotile. No asbestos was recorded in the remainder of the samples tested. • Slightly alkaline to alkaline pH • Sulphates <10 to 334mg/l.
Contamination Analysis	• Contamination may pose a risk to construction workers and suitable PPE should be adopted. • Chrysotile fibres in BH25 indicates PPE including breathing apparatus and full body suits should be used when working with material in this area. Watching brief and supervision by suitably qualified engineer during any excavation works around the area of BH025. • Made ground is likely to be either removed during site works or encapsulated beneath concrete aprons as part of development. As such they are unlikely to pose a risk to current or future users of the site. • Sub surface concrete should be designed to DS-1, ACEC (Class AC-1) • pH levels >8 preclude use of copper pipes.

2 INTRODUCTION

2.1 Authorisation

The site investigation described in this report was carried out by Solmek Ltd. to the instructions of Faithful + Gould on land located at Princes, Bridge, Road, Long Sutton, PE12 9EQ.

Sources of information, including previous work undertaken at the site, are detailed below:

- *Solmek Phase 1 Desk Study – Project No. S150806 (August 2015)*

Reference should be made to the above report for details of the site's history and environmental setting, the ground conditions encountered, and the results of historical contamination analysis.

2.2 Scope of Works

A site investigation comprised contamination analysis was requested to ascertain presence of underlying contamination from historical and contemporary activity on the site.

The fieldwork and testing was generally carried out according to the recommendations of BS5930: 2015 “Code of Practice for Ground Investigations” and where applicable BS EN 1997-2:2007 with soil descriptions to BS EN 14688-1:2013 where applicable. The information provided in this report is based on the investigation fieldwork, and is subject to the comments and approval of the various regulatory authorities.

There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Solmek reserve the right to alter conclusions and recommendations should further information be available or provided. Any schematic representation or opinion of the possible configuration of ground conditions between exploratory holes is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

3 SITE DESCRIPTION AND FIELDWORK

A site inspection, as recommended in BS 5930 and BS 10175, was undertaken on 17th April 2018. The centre of the site is located at OS Grid Ref 545028, 322237 and covers an area of approximately 13.113Ha.

The investigation site is currently occupied by the Princes manufacturing buildings. There are various portal frame warehouse buildings occupying the west and centre of the site with the north-east brick office buildings with tarmac car parking areas adjacent to this. The south-east corner contains a number of storage tanks. The north-easternmost most of the site is grassland with three small grassed spoil piles located towards the south and south-west of the grassed area adjacent to the car park and tanks area respectively. The south-east beyond the tanks is an area of overgrown grassland and spoil piles comprising of brick rubble and concrete.

The site can be navigated by a series of concrete and tarmac service roads accessed via Bridge Road from the north or Hundreds Lane to the west of the site. Various types of services were noted on site including, power, foul and surface drainage, potable water sources and television, telephone and internet. Overhead power cables were noted on the field adjacent to the south and west of the site.

3.1 Fieldwork

The fieldwork was carried out commencing on the 17th April 2018 and comprised:

- 29no. hand dug boreholes (BH01 to BH29) drilled to a maximum depth of 1.00m below ground level (bgl).
 - Boreholes were agreed upon by client to target specific areas of potential contamination.
 - In areas of hardstanding, there were either broken using hand held breaker in tarmac or a concrete corer in concrete.
- 18no. machine excavated trial pits within soft landscaping (TP01 to TP18 inclusive) excavated to a maximum depth of 1.10mbgl.

- The trial pit locations agreed by client to target specific areas of potential contamination.

Disturbed samples were retrieved for laboratory testing. Descriptions of the strata encountered in the boreholes and trial pits together with details of testing, sampling and groundwater are presented in Appendix B of this report. Plans showing the location of all the exploratory positions undertaken, Figure 2 (East), Figure 3 (Centre), Figure 4 (West) can be found in Appendix A.

4 GROUND CONDITIONS

A summary of the ground conditions encountered is given below.

4.1 Made Ground

Tarmac or concrete was present at surface in majority of boreholes and directly overlay made ground comprising generally of either rounded sand and gravel dolomite fill or as a gravel and cobble flint fill to a maximum depth of 1.00mbgl.

In trial pits topsoil was noted in majority of pits except TPs 6 and 8 where clay fill was noted overlying natural deposits and TPs 11-15 where clay fill was noted through the entire hole. TPs 16-18 encountered sand and gravel fill of grey and orange stone, and brick and concrete rubble was noted in TP18. It should be noted that these trial pits were carried out adjacent to or within spoil mounds.

4.2 Natural Superficial Deposits

Natural deposits proven underlying the made ground generally comprised of a dark brown clayey silty fine to coarse sand and firm consistency brown slightly sandy silty clay.

4.3 Groundwater

Groundwater was only recorded within TP08 perched within made ground. It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities.

5 CONTAMINATION TESTING RESULTS

The proposed development of the site is to involve the redevelopment of the existing factory complex and a complete contamination assessment was requested for the site.

5.1 Contamination Testing and Rationale

To provide information upon the possibility of ground contamination three samples were selected for shallow contamination testing. A low to moderate overall contamination risk was highlighted in the Phase 1 Desk Study, and the following samples were tested:

- TP02 – 0.50-0.60m
- TP08 – 0.80-1.00m
- TP010 – 0.30-0.50m
- TP012 – 0.00-0.50m
- BH02 – 0.20-0.50m
- BH07 – 0.20-0.40m
- BH11 – 0.10-0.30m
- BH14 – 0.20-0.40m
- BH16 – 0.50-0.70m
- BH19 – 0.70-1.00m
- BH21 – 0.10-0.20m
- BH23 – 0.20-0.40m
- BH28 – 0.60-0.80m

The thirteen samples selected are considered to provide coverage of the made ground from across the site that would be most likely to be exposed during future site works.

- 13no Metals, semi-metals, non-metals, inorganic determinands
- 13no Speciated Polyaromatic Hydrocarbons (PAHs)
- 13no Total Petroleum Hydrocarbon Criteria Working Group fractions (TPHCWG)
- 50no samples taken from the forty-seven locations were undertaken for asbestos identification testing

Further to the above five samples were also selected for Waste Acceptance Criteria (WAC) testing:

- TP09 – 0.00-0.30m
- TP14 – 0.00-0.50m
- TP17 – 0.00-0.40m
- BH04 – 0.20-0.50m
- BH26 – 0.40-0.70m

5.2 Test Results

Based on the proposed development at the site, the test results have been compared to a series of Land Quality Management (LQM) Suitable for Use Levels (S4UL) based on a Commercial Land use. These are the most up to date thresholds published in December 2014.

The value for lead has been compared with the Category 4 Screening Level (March 2014) developed by Contaminated Land: Applications In Real Environments (CL:AIRE).

The test results are presented in Appendix C, and a summary is provided below in Tables 1 and 2.

TABLE 1 - SUMMARY OF INORGANIC CONTAMINATION TESTING RESULTS (COMMERCIAL)

Determinand	Units	Number of Samples above Level of Detection	Minimum Level	Maximum Level	Commercial Value	Number of Results Exceeding Threshold Value
Metals						
Cadmium	mg/kg	4	<0.2	1.2	190	0
Chromium III	mg/kg	13	17	117	8600	0
Copper	mg/kg	13	4.9	33	68000	0
Lead	mg/kg	13	4.5	80	2300*	0
Mercury	mg/kg	0	<0.5	-	1100	0
Nickel	mg/kg	13	5.4	24	980	0
Zinc	mg/kg	13	15	771	730000	0
Semi metals and non-metals						
Arsenic	mg/kg	13	2.9	31	640	0
Boron, Water Soluble	mg/kg	12	<0.5	1.8	240000	0
Selenium	mg/kg	12	<0.3	1.1	12000	0
Inorganic chemicals						
Cyanide, Total	mg/kg	0	<1	-	1580**	0
W.S. Sulphate	mg/l	13	11	334	500 ⁺	0
Other						
pH	pH	13	7.8	11.2	<5.5 [^]	0
* Category 4 Screening Levels, March 2014 ** CLEA Software Version 1.06 (pH7 and 1%SOM) [^] EA Threshold Values ⁺ BRE Special Digest 1: 2005						

5.3 Metals, Semi Metals and Non-Metals

All levels are below the S4UL threshold values.

5.4 Inorganic Chemicals

Soluble sulphates (potentially aggressive to foundation concrete) were recorded between 11 and 334mg/l. None of the samples were elevated above levels affecting human health or above the BRE Special Digest 1 500mg/l limit for the sulphate classification of concrete.

The results of the pH testing were between 7.8 and 11.2. These pH levels are consistent with slightly alkaline to alkaline conditions.

5.5 Organic Chemicals

The organic thresholds vary depending on the levels of Organic Matter Content (OMC).

The average OMC recorded across the site was 0.65% therefore a OMC of 1.00% has been used to determine the S4UL thresholds. Table 2, below, summarises the results.

TABLE 2 - SUMMARY OF ORGANIC CONTAMINATION TESTING RESULTS (COMMERCIAL)

Determinand	Units	Number of Samples above Level of Detection	Minimum Level	Maximum Level	Commercial Value at 1.00% OMC	Number of Results Exceeding Threshold Value
TPH Aliphatic Fractions						
Aliphatic C5-C6	mg/kg	0	<0.1	-	3200	0
Aliphatic C6-C8	mg/kg	0	<0.1	-	77800	0
Aliphatic C8-C10	mg/kg	8	<0.1	0.7	2000	0
Aliphatic C10-C12	mg/kg	3	<4	26	9700	0
Aliphatic C12-C16	mg/kg	2	<4	54	59000	0
Aliphatic C16-C35	mg/kg	12	<0	2098	1600000	0
TPH Aromatic Fractions						
Aromatic C5-C7	mg/kg	0	<0.01	-	26000	0
Aromatic C7-C8	mg/kg	0	<0.01	-	56000	0
Aromatic C8-C10	mg/kg	0	<0.01	-	3500	0
Aromatic C10-C12	mg/kg	0	<1	-	16000	0
Aromatic C12-C16	mg/kg	2	<1	4	36000	0
Aromatic C16-C21	mg/kg	4	<1	55	28000	0
Aromatic C21-C35	mg/kg	5	<1	85	28000	0
Speciated PAH						
Naphthalene	mg/kg	1	<0.01	0.23	190	0
Acenaphthylene	mg/kg	2	<0.01	0.19	83000	0
Acenaphthene	mg/kg	3	<0.01	0.73	84000	0
Fluorene	mg/kg	3	<0.01	0.51	63000	0
Phenanthrene	mg/kg	5	<0.02	8.66	22000	0
Anthracene	mg/kg	5	<0.02	2.94	520000	0
Fluoranthene	mg/kg	6	<0.02	20.89	23000	0
Pyrene	mg/kg	6	<0.02	18.50	54000	0
Benzo(a)anthracene	mg/kg	5	<0.02	10.03	170	0
Chrysene	mg/kg	5	<0.01	8.61	350	0
Benzo(b)fluoranthene	mg/kg	5	<0.02	18.18	44	0
Benzo(k)fluoranthene	mg/kg	5	<0.02	6.86	1200	0
Benzo(a)pyrene	mg/kg	5	<0.02	15.46	35	0
Indeno(1,2,3-c,d)pyrene	mg/kg	4	<0.02	15.00	500	0
Dibenzo(a,h)anthracene	mg/kg	4	<0.02	3.59	3.5	1
Benzo(g,h,i)perylene	mg/kg	5	<0.02	14.54	3900	0
PAH Total	mg/kg	5	<0.27	145	1000*	0
Phenol - Monohydric	mg/kg	0	<0.5	-	760	0
* EA Threshold Values						

Of the samples tested only one slightly elevated Dibenzo(a,h)anthracene was noted in BH14 (0.20-0.40m), the remainder of the samples returned values below threshold limits. This borehole was carried out in a car park area and is most likely a result of a small amount of tarmac in the sample.

5.6 Asbestos

From the fifty samples of made ground subject to asbestos screening, only one sample from BH25 0.20-0.40m was returned as positive for Chrysotile fibres. This sample was then undertaken for asbestos quantification testing. The chrysotile value was returned as 3.91%.

5.7 Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to *“identify and remove unacceptable risks to human health and the environment”* and to *“seek to ensure that contaminated land is made suitable for its current use”*. Part 2A uses a risk based approach to defining contaminated land whereby the “risk” is interpreted as *“the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land”* and by *“the scale and seriousness of such harm or pollution if it did occur”*.

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *“for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters.”*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include *“land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health.”* Categories 3 and 4 *“encompass land which is not capable of being determined on such grounds”*.

See Appendix D for additional notes on contamination guidelines.

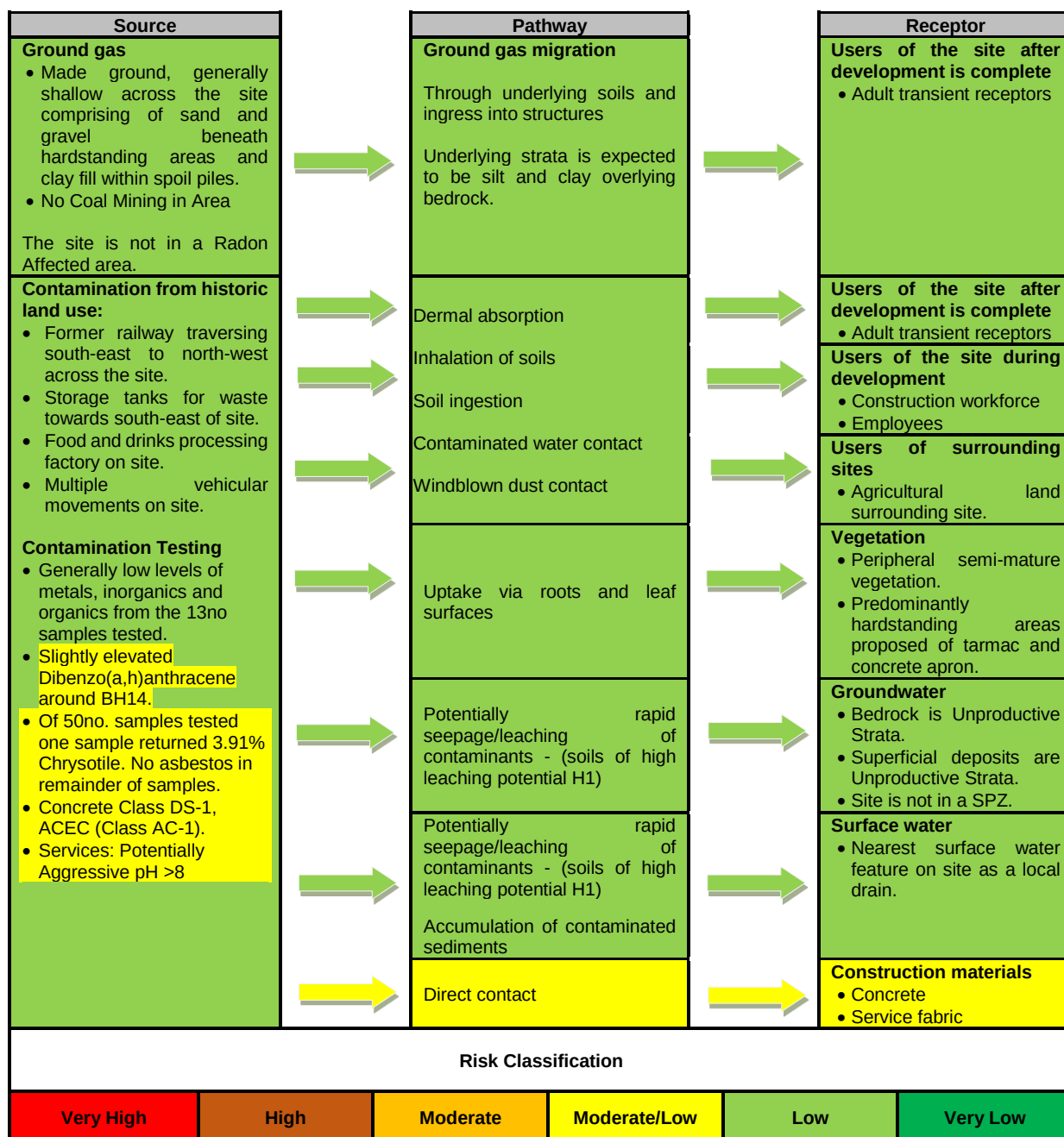
6 CONCEPTUAL MODEL AND CONTAMINATION ANALYSIS

The contamination conceptual model in Table 3 identifies the potential pollution linkages present on site based on source – pathway – receptor relationships.

The conceptual model collates the salient aspects of the site to form a model which should enable comparison after fieldwork and testing. This model identifies the potential pollution linkages that may influence the proposed development and geotechnical considerations. The risk ratings are based on the current potential liabilities and likely potential future liabilities. The risks posed by the geotechnical and contamination aspects of the site will be revised following site works, and any mitigating action required added.

The Conceptual Model has been undertaken in accordance with CIRIA C552. The Conceptual Model assesses the consequence and the likelihood of a risk being realised to provide a risk classification, which is then used to produce the Conceptual Model. Full details of the tables used to assess consequence, likelihood and risk classification are presented in Appendix D.

TABLE 3 - CONCEPTUAL MODEL



In general terms, construction workers and construction materials are potentially at risk as pollution linkages may be present for each of these receptors. Users of the site, users of the surrounding sites, vegetation, and construction materials are considered to be potentially at risk from contamination in the soils on site. Controlled waters are considered to be potentially at risk.

Mitigation measures to reduce the risks identified for reach receptor are discussed in the following sections.

6.1 Users of the Site Once Development is Complete

To establish if the levels of contaminants present on site may pose a risk to the health of the future users of the site the results of the contamination testing have been compared to a series of LQM S4UL and C4SL thresholds based on a commercial land use.

Contamination levels within the made ground, based on the samples tested to date, were generally below the thresholds apart from a slightly elevated value of Dibenzo(a,h)anthracene, BH14 0.20-0.40m.

It is assumed that this material will be removed as part of an initial site strip. However, as the proposed development includes concrete aprons and hardstanding areas if this material is not removed off site then this should be encapsulated beneath areas of hardstanding to sever the source, receptor pathway.

The volume of material that can be sampled during any site investigation only provides a small percentage of the actual volume of material at the site. As such further contamination not sampled and tested during this investigation may be present on site. Therefore, during the initial site strip and subsequent construction works if any zones of odorous, brightly coloured or suspected contaminated ground are encountered then work should cease in that area until the material has been tested. The results of the tests will determine whether or not remediation will be required.

6.2 Waste Acceptance Criteria Testing

The current legislation on waste involves the categorisation of materials into Inert Waste, Non-Reactive Hazardous Wastes and Hazardous Wastes. The determination of the category depends on DEFRA landfill directive WAC. Material taken off site may be subject to WAC testing by the appropriate waste disposal company.

WAC testing was carried out on five samples of made ground and topsoil. The results are presented in Appendix C.

The results show that the majority of the determinands, for both waste and leachate, fall within the Inert Waste category apart from slightly raised Fluoride in BH26 0.40-0.70m, TP09 0-0.30m, TP17 0-0.40m. Ultimately, the decision of the waste category is purely down to the discretion of the particular waste company used to remove the spoil.

6.3 Construction Workers and Users of Surrounding Sites

Short term human exposure to contaminants present in soils can occur via several pathways during the construction and ground works phase of the development. These include dermal absorption after contact with contaminated ground, inhalation of soil or dust (including windblown dust), inhalation of volatised compounds, inadvertent soil ingestion and contact with contaminated groundwater.

It is considered that the levels of contamination may pose a risk to construction workers. As such, it is recommended that appropriate PPE in accordance with HSE and Environment Agency guidance is adopted for the duration of the contractor works and good practice is adopted to minimise the release of potential contaminants during ground works.

Chrysotile fibres were detected in one sample (BH25 0.20-0.40m) of the fifty samples subject to testing within this investigation, as such the possibility exists that further asbestos containing materials may still be present on site and still currently lies undetected. It is therefore advised that a 'watching brief' is undertaken across the entirety of the site. A fully qualified engineer should supervise any excavation works in the area around BH25 and can advise if further asbestos is found or suspected. PPE such as breathing apparatus and full body suits may be necessary when working with material from around BH25. All works should be undertaken in accordance with the Control of Asbestos Regulations 2012.

During dry weather, any excavations may require clean water to be sprinkled at shallow depth to prevent excess dust escaping to offsite receptors. Monitoring of dust concentrations during construction should be given careful consideration to ensure occupational exposure levels are not exceeded. Encapsulation or covering of material from around BH25 may be necessary if material is to be stored on site for any period of time.

6.4 Vegetation

Soft landscaping is not proposed for the development however peripheral soft landscaping may be included as part of development.

6.5 Construction Materials

Materials at risk from potential soil contamination include inorganic matrices such as cement and concrete and also organic material; e.g. plastics and rubbers. Acid ground conditions and elevated levels of sulphates can accelerate the corrosion of building materials. Plastics and rubbers are generally used for piping and

service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

Concrete Classification

BRE Special Digest One: “*Concrete in Aggressive Ground*”: 2005 3rd Edition has been used to assess the risks posed to underground concrete and to establish the design measures required to mitigate the risks. The results of the pH and sulphate tests fall into Class DS-1, ACEC (Class AC-1) requirements for concrete protection assuming mobile groundwater conditions.

Water Supply Pipes Material Selection

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication “Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites” (January 2011). A Brownfield Site is defined in the document as “Land or premises that have previously been used or developed that may be vacant or derelict”. It should be noted that Brownfields sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer.

The concentrations of the selected determinants should be compared to the pipe material selection table in Appendix D and consultation with the appropriate water supply company is required to identify the most suitable service fabric. pH conditions (>8) preclude the use of copper pipes.

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Appendix A

Drawings & Photographs

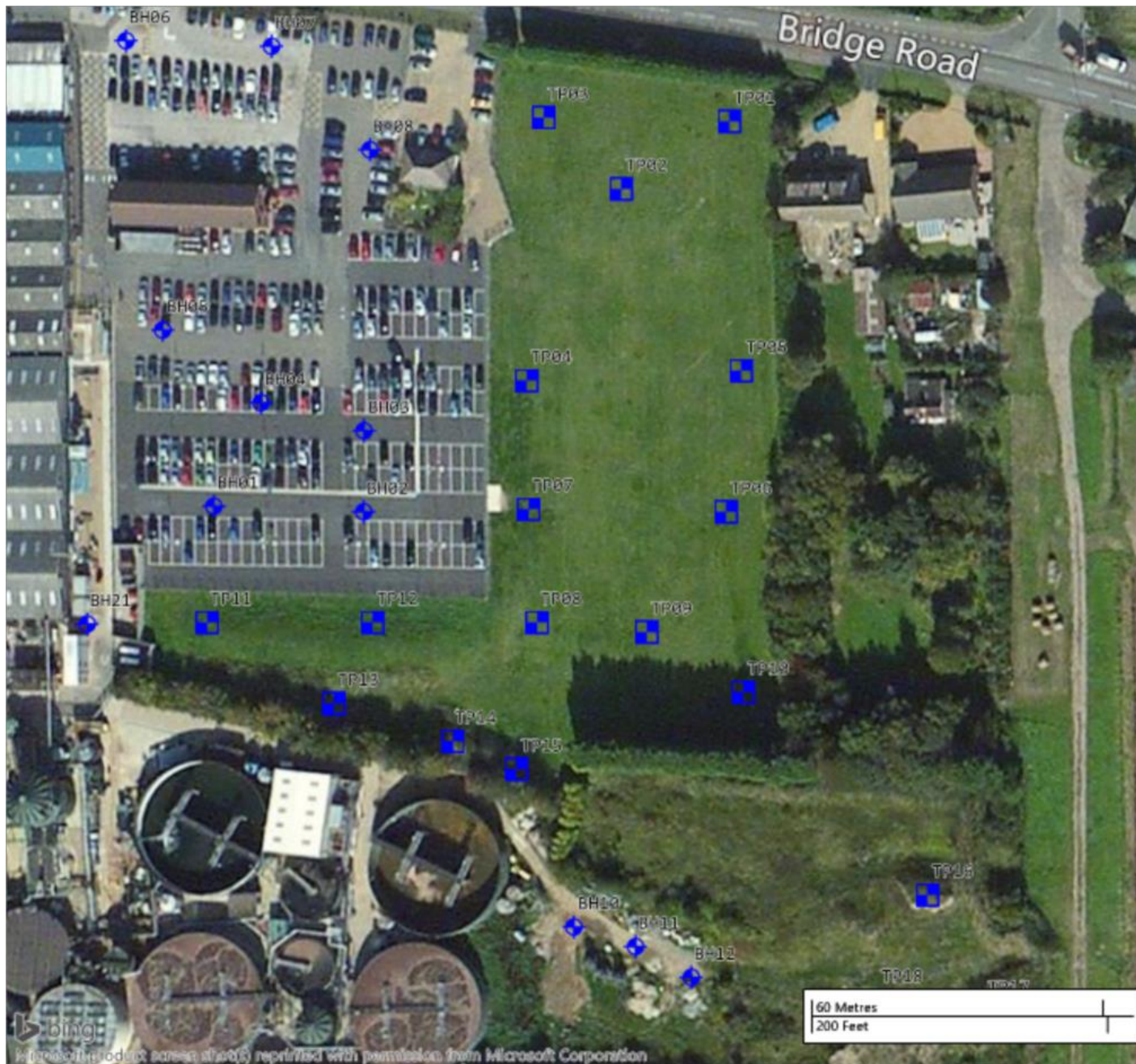


Title
Site Location Plan
Project
Princes, Long Sutton
Client
Faithful + Gould
Date
May 2018
Fig No.
Figure 1
Scale
Do Not Scale
Key
Site Boundary

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Title	Borehole Location Plan – East of Site
Project	Princes, Long Sutton
Client	Faithful + Gould
Date	May 2018
Fig No.	Figure 2
Scale	Do Not Scale
Key	 Trial Pit  Borehole  N
Solmek Ltd. 12 Yarm Road Stockton-on-Tees TS18 3NA Tel: +44 (0) 1642 607083 Fax: +44 (0) 1642 612355 e-mail: south@solmek.com www.solmek.com	
	



Title	Borehole Location Plan – Centre of Site
Project	Princes, Long Sutton
Client	Faithful + Gould
Date	May 2018
Fig No.	Figure 3
Scale	Do Not Scale
Key	 Trial Pit  Borehole 
Solmek Ltd. 12 Yarm Road Stockton-on-Tees TS18 3NA Tel: +44 (0) 1642 607083 Fax: +44 (0) 1642 612355 e-mail: south@solmek.com www.solmek.com 	



Title
Borehole Location Plan – West of Site
Project
Princes, Long Sutton
Client
Faithful + Gould
Date
May 2018
Fig No.
Figure 4
Scale
Do Not Scale
Key
 Trial Pit  Borehole 
Solmek Ltd. 12 Yarm Road Stockton-on-Tees TS18 3NA Tel: +44 (0) 1642 607083 Fax: +44 (0) 1642 612355 e-mail: south@solmek.com www.solmek.com 

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Appendix B
Borehole and Trial
Pit Logs



Borehole Log

Scale 1:50 Sheet 1 of 1

BH02

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545216
Northing:	322203
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH03

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	17/04/2018
Ended:	17/04/2018
Backfilled:	17/04/2018

GL (AOD):	
Easting:	545216
Northing:	322219
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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Ended:	17/04/2018
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Backfilled:	17/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH06

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	17/04/2018
Ended:	17/04/2018
Backfilled:	17/04/2018

GL (AOD):	
Easting:	545164
Northing:	322298
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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Ended:	17/04/2018
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Backfilled:	17/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH10

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545263
Northing:	322118
Logged:	SA
Status:	FINAL

Client:	Princes Food
----------------	--------------

Method:	Hand Dug Borehole
----------------	-------------------

Ended:	18/04/2018
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Backfilled:	18/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH11

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545275
Northing:	322115
Logged:	SA
Status:	FINAL

Client:	Princes Food
----------------	--------------

Method:	Hand Dug Borehole
----------------	-------------------

Ended:	18/04/2018
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Backfilled:	18/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH12

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545287
Northing:	322109
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH13

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	544860
Northing:	322329
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH18

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	544727
Northing:	322272
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH19

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	544712
Northing:	322322
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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Ended:	18/04/2018
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Backfilled:	18/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH20

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	544700
Northing:	322348
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Scale	1:50	Sheet 1 of 1
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BH21

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545160
Northing:	322178
Logged:	SA
Status:	FINAL

Method:	Hand Dug Borehole
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Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
					No groundwater encountered							



Borehole Log

Scale 1:50 Sheet 1 of 1

BH23

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545088
Northing:	322173
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH24

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545072
Northing:	322164
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH25

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545080
Northing:	322208
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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Ended:	18/04/2018
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Backfilled:	18/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH26

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	18/04/2018
Ended:	18/04/2018
Backfilled:	18/04/2018

GL (AOD):	
Easting:	545098
Northing:	322236
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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Ended:	18/04/2018
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Backfilled:	18/04/2018
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[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH28

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	19/04/2018
Ended:	19/04/2018
Backfilled:	19/04/2018

GL (AOD):	
Easting:	545110
Northing:	322257
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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Backfilled:	19/04/2018
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Status: FINAL

[illegible]



Borehole Log

Scale 1:50 Sheet 1 of 1

BH29

Contract no: S180404

Site: Princes, Long Sutton

Driller:	SR Drilling
Plant used:	Hand Dug Borehole
Started:	19/04/2018
Ended:	19/04/2018
Backfilled:	19/04/2018

GL (AOD):	
Easting:	545092
Northing:	322252
Logged:	SA
Status:	FINAL

Client:	Princes Food
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Method:	Hand Dug Borehole
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[illegible]



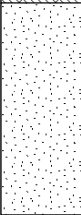
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Trial Pit Log

TrialPit No
TP01
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545290E - 322286N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.00	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.50	ES		0.30			MADE GROUND: Dark grey slightly clayey sandy slightly gravelly topsoil with occasional plant roots.	
	0.80 - 1.00	ES		1.00			Greyish brown slightly clayey silty fine to coarse SAND.	
							End of Pit at 1.00m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP02
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545268E - 322271N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
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Client: Princes Food	Depth 0.60	Logged SA
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.20	ES					MADE GROUND: Dark grey slightly clayey sandy slightly gravelly topsoil with occasional plant root	
				0.30			Greyish brown slightly clayey silty fine to coarse SAND.	
	0.50 - 0.60	ES					End of Pit at 0.60m	
				0.80				

1

2

3

4

5

Remarks: No groundwater encountered

Stability: Pit Stable



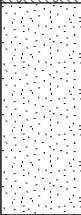
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Trial Pit Log

TrialPit No
TP03
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545251E - 322285N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.00	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20 - 0.30	ES		0.30			MADE GROUND: Dark grey slightly clayey sandy slightly gravelly topsoil with occasional plant root	
	0.60 - 0.80	ES		1.00			Greyish brown slightly clayey silty fine to coarse SAND.	
							End of Pit at 1.00m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP04
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545249E - 322231N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.00	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20 - 0.40	ES		0.30			MADE GROUND: Dark brown slightly sandy clay.	
	0.80 - 1.00	ES		1.00			Greyish brown slightly clayey silty fine to coarse SAND.	
							End of Pit at 1.00m	1
								2
								3
								4
								5

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP05
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545294E - 322234N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 0.90	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.10	ES		0.20			MADE GROUND: Dark grey slightly clayey sandy slightly gravelly topsoil with occasional plant root	
	0.50 - 0.60	ES		0.90			Dark brown clayey silty fine to coarse SAND.	
							End of Pit at 0.90m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP06
Sheet 1 of 1

Project Name:	Princes, Long Sutton	Project No.	S180404	Co-ords: 545292E - 322205N	Date	17/04/2018
Plant Used:	Mini Digger	Dimensions (m):			Scale	1:25
Client:	Princes Food	Depth 1.00			Logged	SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.50	ES		0.20			MADE GROUND: Brown slightly sandy silty clay.	
							Dark brown clayey silty fine to coarse SAND.	
	0.80 - 1.00	ES		0.80			Firm consistency brown slightly sandy silty CLAY.	
				1.00			End of Pit at 1.00m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP07
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545251E - 322204N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 0.90	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20 - 0.30	ES		0.30			MADE GROUND: Dark brown clayey slightly sandy slightly gravelly topsoil with occasional plant matter.	
							Brown clayey silty SAND	
	0.60 - 0.80	ES		0.60			Brown slightly clayey silty SAND.	
				0.90			End of Pit at 0.90m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP08
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545253E - 322181N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.00	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.50	ES					MADE GROUND: Firm consistency brown sandy clay fill	
	0.80 - 1.00	ES		0.70			MADE GROUND: Mixed soft to firm consistency sandy silty clay fill.	1
				1.00			End of Pit at 1.00m	5

Remarks: Perched groundwater at 0.90mbgl

Stability: Pit Stable



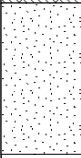
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Trial Pit Log

TrialPit No
TP09
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545276E - 322180N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 0.80	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.30	ES		0.30			MADE GROUND: Dark brown clayey slightly sandy slightly gravelly topsoil with occasional plant matter.	
	0.60 - 0.80	ES		0.80			Light orangish brown slightly clayey silty SAND	
							End of Pit at 0.80m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP10
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545296E - 322168N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 0.60	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.50	ES		0.30			MADE GROUND: Dark grey slightly clayey sandy slightly gravelly topsoil with occasional plant root	
							Light orangish brown slightly clayey silty SAND	
	0.80 - 1.00	ES		0.80			Brown slightly clayey silty SAND.	
				1.10			End of Pit at 0.60m	
								1
								2
								3
								4
								5

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP11
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545185E - 322179N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
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Client: Princes Food	Depth 1.10	Logged SA
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.50 0.00 - 1.00	ES B					MADE GROUND: Mixed soft to stiff consistency sandy clay. (Slight decomposition smell)	
	0.50 - 1.00	ES		1.10			End of Pit at 1.10m	

Remarks: No groundwater encountered

Stability: Pit Stable



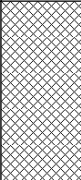
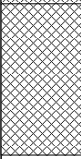
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Trial Pit Log

Trial Pit No
TP12
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545219E - 322180N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.10	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.50	ES					MADE GROUND: Mixed soft to stiff consistency sandy clay.	
	0.60 - 1.00	ES		0.60			MADE GROUND: Mixed soft to stiff sandy gravelly clay. Sand is fine to coarse. Gravel is sub rounded to sub angular fine to coarse of dolomite.	1
				1.10			End of Pit at 1.10m	2 3 4 5

Remarks: No groundwater encountered

Stability: Pit Stable



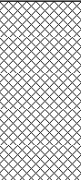
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Trial Pit Log

TrialPit No
TP13
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545212E - 322163N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 0.90	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.30	ES					MADE GROUND: Mixed soft to firm consistency sandy silty clay fill.	
	0.60 - 0.80	ES		0.60			Light brown slightly clayey silty SAND.	
				0.90			End of Pit at 0.90m	
								1
								2
								3
								4
								5

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP14
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545236E - 322156N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
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Client: Princes Food	Depth 1.00	Logged SA
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.50	ES					MADE GROUND: Dark brown sandy gravelly clay fill with common plant roots. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of dolomite and sandstone.	
	0.50 - 1.00	ES		1.00				
							End of Pit at 1.00m	

Remarks: No groundwater encountered

Stability: Pit Stable



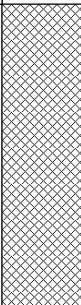
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Trial Pit Log

TrialPit No
TP15
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545250E - 322150N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.00	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.50	ES		1.00			MADE GROUND: Dark brown sandy gravelly clay fill with common plant roots. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of dolomite and sandstone.	1
	0.60 - 0.80	ES						
							End of Pit at 1.00m	2
								3
								4
								5

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP16
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545336E - 322127N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
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Client: Princes Food	Depth 1.00	Logged SA
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.50	ES					MADE GROUND: Orangish brown clayey gravelly SAND. Gravel is angular fine to coarse of grey and orange stone.	
	0.50 - 1.00	ES		1.00				
							End of Pit at 1.00m	

Remarks: No groundwater encountered

Stability: Pit Stable



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Trial Pit Log

TrialPit No
TP17
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545348E - 322103N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 1.00	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.40	ES					MADE GROUND: Orangish brown clayey gravelly SAND. Gravel is angular fine to coarse of grey and orange stone.	
	0.60 - 0.80	ES		1.00				
							End of Pit at 1.00m	

Remarks: No groundwater encountered

Stability: Pit Stable



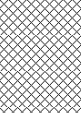
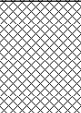
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Trial Pit Log

TrialPit No
TP18
Sheet 1 of 1

Project Name: Princes, Long Sutton	Project No. S180404	Co-ords: 545326E - 322105N Level:	Date 17/04/2018
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Plant Used: Mini Digger	Dimensions (m):	Scale 1:25
Client: Princes Food	Depth 0.80	Logged SA

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.00 - 0.40	ES					MADE GROUND: Orangish brown slightly clayey sandy sub rounded to sub angular fine to coarse gravel of high cobble content Cobbles are angular of brick, concrete, dolomite and stone.	
	0.40 - 0.80	ES		0.40			MADE GROUND: Orangish brown slightly clayey sandy sub rounded to sub angular fine to coarse gravel of medium cobble content. Cobbles are sub angular to sub rounded of grey stone.	
				0.80			End of Pit at 0.80m	
								1
								2
								3
								4
								5

Remarks: No groundwater encountered

Stability: Pit Stable

Appendix C Chemical Testing Results



2531



ANALYTICAL TEST REPORT

Contract no: 71589(1)
 Contract name: Princes, Long Sutton
 Client reference: S180404
 Clients name: Solmek
 Clients address: 12 Yarm Road
 Stockton-on-Tees
 TS18 3NA

Samples received: 02 May 2018

Analysis started: 02 May 2018

Analysis completed 24 May 2018

Report issued: 24 May 2018

This is a supplementary report to report number 71589 issued 14 May 2018.

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
 Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
 Methods, procedures and performance data are available on request.
 Results reported herein relate only to the material supplied to the laboratory.
 This report shall not be reproduced except in full, without prior written approval.
 Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
 M MCERTS & UKAS accredited test
 \$ Test carried out by an approved subcontractor
 I/S Insufficient sample to carry out test
 N/S Sample not suitable for testing
 NAD No Asbestos Detected

Approved by:

James Spittle
 Customer Services Team Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
71589-2	BH2	0.20-0.50	Sand with Gravel	-	-	10.4
71589-7	BH7	0.20-0.40	Clay & Sand with Gravel & String	-	-	20.3
71589-11	BH11	0.10-0.30	Clay Gravel & Roots	-	-	18.0
71589-14	BH14	0.20-0.40	Sand with Gravel	-	-	4.5
71589-16	BH16	0.50-0.70	Sandy Clay with Gravel	-	-	11.0
71589-19	BH19	0.80-1.00	Sand	-	-	20.7
71589-21	BH21	0.10-0.20	Clay & Sand with Gravel	-	-	14.7
71589-23	BH23	0.20-0.40	Sand with Gravel	-	-	10.2
71589-28	BH28	0.60-0.80	Sand & Clay	-	-	17.0
71589-31	TP2	0.50-0.60	Sand & Clay	-	-	18.3
71589-37	TP8	0.80-1.00	Sand & Clay	-	-	26.7
71589-39	TP10	0.30-0.50	Sand & Clay	-	-	18.5
71589-42	TP12	0.00-0.50	Clay & Sand with Gravel	-	-	16.7

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SOILS

Lab number			71589-1	71589-2	71589-3	71589-4	71589-5	71589-6
Sample id			BH1	BH2	BH3	BH4	BH5	BH6
Depth (m)			0.20-0.40	0.20-0.50	0.30-0.50	0.20-0.50	0.80-1.00	0.30-0.60
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	-	7.1	-	-	-	-
Boron (water soluble)	CE063 ^M	mg/kg B	-	1.5	-	-	-	-
Cadmium (total)	CE127 ^M	mg/kg Cd	-	<0.2	-	-	-	-
Chromium (total)	CE127 ^M	mg/kg Cr	-	17	-	-	-	-
Copper (total)	CE127 ^M	mg/kg Cu	-	4.9	-	-	-	-
Lead (total)	CE127 ^M	mg/kg Pb	-	4.5	-	-	-	-
Mercury (total)	CE127 ^M	mg/kg Hg	-	<0.5	-	-	-	-
Nickel (total)	CE127 ^M	mg/kg Ni	-	5.4	-	-	-	-
Selenium (total)	CE127 ^M	mg/kg Se	-	<0.3	-	-	-	-
Zinc (total)	CE127 ^M	mg/kg Zn	-	15	-	-	-	-
pH	CE004 ^M	units	-	8.4	-	-	-	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	-	55	-	-	-	-
Cyanide (total)	CE077	mg/kg CN	-	<1	-	-	-	-
Phenols (total)	CE078	mg/kg PhOH	-	<0.5	-	-	-	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	-	1.21	-	-	-	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	-	2.09	-	-	-	-
PAH								
Naphthalene	CE087 ^M	mg/kg	-	<0.01	-	-	-	-
Acenaphthylene	CE087 ^M	mg/kg	-	<0.01	-	-	-	-
Acenaphthene	CE087 ^M	mg/kg	-	<0.01	-	-	-	-
Fluorene	CE087 ^U	mg/kg	-	<0.01	-	-	-	-
Phenanthrene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Anthracene	CE087 ^U	mg/kg	-	<0.02	-	-	-	-
Fluoranthene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Pyrene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Benzo(a)anthracene	CE087 ^U	mg/kg	-	<0.02	-	-	-	-
Chrysene	CE087 ^M	mg/kg	-	<0.01	-	-	-	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Benzo(a)pyrene	CE087 ^U	mg/kg	-	<0.02	-	-	-	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	<0.02	-	-	-	-
PAH (total of USEPA 16)	CE087	mg/kg	-	<0.27	-	-	-	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	<0.01	-	-	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	<0.01	-	-	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	<0.01	-	-	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	<1	-	-	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	<1	-	-	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	<1	-	-	-	-

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SOILS

Lab number			71589-1	71589-2	71589-3	71589-4	71589-5	71589-6
Sample id			BH1	BH2	BH3	BH4	BH5	BH6
Depth (m)			0.20-0.40	0.20-0.50	0.30-0.50	0.20-0.50	0.80-1.00	0.30-0.60
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	<1	-	-	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	<1	-	-	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	<0.1	-	-	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	<0.1	-	-	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	<0.1	-	-	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	<4	-	-	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	<4	-	-	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	<10	-	-	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	<10	-	-	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-7	71589-8	71589-9	71589-10	71589-11	71589-12
Sample id			BH7	BH8	BH9	BH10	BH11	BH12
Depth (m)			0.20-0.40	0.70-1.00	0.20-0.60	0.20-0.40	0.10-0.30	0.20-0.40
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	13	-	-	-	13	-
Boron (water soluble)	CE063 ^M	mg/kg B	1.3	-	-	-	0.8	-
Cadmium (total)	CE127 ^M	mg/kg Cd	1.2	-	-	-	0.2	-
Chromium (total)	CE127 ^M	mg/kg Cr	69	-	-	-	117	-
Copper (total)	CE127 ^M	mg/kg Cu	23	-	-	-	17	-
Lead (total)	CE127 ^M	mg/kg Pb	80	-	-	-	20	-
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	-	-	-	<0.5	-
Nickel (total)	CE127 ^M	mg/kg Ni	22	-	-	-	24	-
Selenium (total)	CE127 ^M	mg/kg Se	0.8	-	-	-	0.4	-
Zinc (total)	CE127 ^M	mg/kg Zn	105	-	-	-	150	-
pH	CE004 ^M	units	8.1	-	-	-	8.0	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	39	-	-	-	161	-
Cyanide (total)	CE077	mg/kg CN	<1	-	-	-	<1	-
Phenols (total)	CE078	mg/kg PhOH	<0.5	-	-	-	<0.5	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	0.14	-	-	-	0.78	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	0.24	-	-	-	1.34	-
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.01	-	-	-	<0.01	-
Acenaphthylene	CE087 ^M	mg/kg	<0.01	-	-	-	<0.01	-
Acenaphthene	CE087 ^M	mg/kg	<0.01	-	-	-	<0.01	-
Fluorene	CE087 ^U	mg/kg	<0.01	-	-	-	<0.01	-
Phenanthrene	CE087 ^M	mg/kg	0.14	-	-	-	0.08	-
Anthracene	CE087 ^U	mg/kg	0.07	-	-	-	0.03	-
Fluoranthene	CE087 ^M	mg/kg	0.55	-	-	-	0.10	-
Pyrene	CE087 ^M	mg/kg	0.51	-	-	-	0.10	-
Benzo(a)anthracene	CE087 ^U	mg/kg	0.23	-	-	-	0.02	-
Chrysene	CE087 ^M	mg/kg	0.32	-	-	-	0.05	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.43	-	-	-	0.05	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.23	-	-	-	0.04	-
Benzo(a)pyrene	CE087 ^U	mg/kg	0.37	-	-	-	0.05	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.22	-	-	-	<0.02	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.05	-	-	-	<0.02	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.26	-	-	-	0.03	-
PAH (total of USEPA 16)	CE087	mg/kg	3.37	-	-	-	0.56	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	-	-	-	<0.01	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	-	-	-	<0.01	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	-	-	-	<0.01	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	-	-	-	<1	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	-	-	-	<1	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	2	-	-	-	1	-

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SOILS

Lab number			71589-7	71589-8	71589-9	71589-10	71589-11	71589-12
Sample id			BH7	BH8	BH9	BH10	BH11	BH12
Depth (m)			0.20-0.40	0.70-1.00	0.20-0.60	0.20-0.40	0.10-0.30	0.20-0.40
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	3	-	-	-	1	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	-	-	-	<1	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	-	-	-	<0.1	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	-	-	-	<0.1	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	-	-	-	<0.1	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	-	-	-	<4	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	-	-	-	<4	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	36	-	-	-	58	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	<10	-	-	-	23	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-13	71589-14	71589-15	71589-16	71589-17	71589-18
Sample id			BH13	BH14	BH15	BH16	BH17	BH18
Depth (m)			0.50-0.70	0.20-0.40	0.15-0.30	0.50-0.70	0.30-0.50	0.20-0.40
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	-	2.9	-	8.9	-	-
Boron (water soluble)	CE063 ^M	mg/kg B	-	0.6	-	1.4	-	-
Cadmium (total)	CE127 ^M	mg/kg Cd	-	<0.2	-	<0.2	-	-
Chromium (total)	CE127 ^M	mg/kg Cr	-	30	-	57	-	-
Copper (total)	CE127 ^M	mg/kg Cu	-	7.7	-	17	-	-
Lead (total)	CE127 ^M	mg/kg Pb	-	11	-	14	-	-
Mercury (total)	CE127 ^M	mg/kg Hg	-	<0.5	-	<0.5	-	-
Nickel (total)	CE127 ^M	mg/kg Ni	-	7.3	-	14	-	-
Selenium (total)	CE127 ^M	mg/kg Se	-	0.5	-	1.1	-	-
Zinc (total)	CE127 ^M	mg/kg Zn	-	29	-	44	-	-
pH	CE004 ^M	units	-	8.7	-	8.4	-	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	-	205	-	397	-	-
Cyanide (total)	CE077	mg/kg CN	-	<1	-	<1	-	-
Phenols (total)	CE078	mg/kg PhOH	-	<0.5	-	<0.5	-	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	-	0.94	-	0.75	-	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	-	1.62	-	1.29	-	-
PAH								
Naphthalene	CE087 ^M	mg/kg	-	0.23	-	<0.01	-	-
Acenaphthylene	CE087 ^M	mg/kg	-	0.19	-	<0.01	-	-
Acenaphthene	CE087 ^M	mg/kg	-	0.73	-	0.33	-	-
Fluorene	CE087 ^U	mg/kg	-	0.51	-	0.38	-	-
Phenanthrene	CE087 ^M	mg/kg	-	8.66	-	2.81	-	-
Anthracene	CE087 ^U	mg/kg	-	2.94	-	1.24	-	-
Fluoranthene	CE087 ^M	mg/kg	-	20.89	-	6.95	-	-
Pyrene	CE087 ^M	mg/kg	-	18.50	-	5.93	-	-
Benzo(a)anthracene	CE087 ^U	mg/kg	-	10.03	-	3.75	-	-
Chrysene	CE087 ^M	mg/kg	-	8.61	-	2.73	-	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	18.18	-	3.30	-	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	6.86	-	1.54	-	-
Benzo(a)pyrene	CE087 ^U	mg/kg	-	15.46	-	2.78	-	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	15.00	-	2.04	-	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	3.59	-	0.53	-	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	14.54	-	1.81	-	-
PAH (total of USEPA 16)	CE087	mg/kg	-	145	-	36.1	-	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	<0.01	-	<0.01	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	<0.01	-	<0.01	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	<0.01	-	<0.01	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	1	-	<1	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	4	-	2	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	55	-	19	-	-

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SOILS

Lab number			71589-13	71589-14	71589-15	71589-16	71589-17	71589-18
Sample id			BH13	BH14	BH15	BH16	BH17	BH18
Depth (m)			0.50-0.70	0.20-0.40	0.15-0.30	0.50-0.70	0.30-0.50	0.20-0.40
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	85	-	22	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	21	-	4	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	<0.1	-	<0.1	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	<0.1	-	<0.1	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	0.1	-	0.7	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	26	-	8	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	54	-	19	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	2098	-	545	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	2267	-	204	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-19	71589-20	71589-21	71589-22	71589-23	71589-24
Sample id			BH19	BH20	BH21	BH22	BH23	BH24
Depth (m)			0.80-1.00	0.20-0.50	0.10-0.20	0.21-0.50	0.20-0.40	0.50-1.00
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	9.1	-	13	-	12	-
Boron (water soluble)	CE063 ^M	mg/kg B	1.0	-	1.4	-	<0.5	-
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	-	0.4	-	<0.2	-
Chromium (total)	CE127 ^M	mg/kg Cr	53	-	63	-	49	-
Copper (total)	CE127 ^M	mg/kg Cu	7.0	-	33	-	7.6	-
Lead (total)	CE127 ^M	mg/kg Pb	9.1	-	50	-	10	-
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	-	<0.5	-	<0.5	-
Nickel (total)	CE127 ^M	mg/kg Ni	18	-	23	-	13	-
Selenium (total)	CE127 ^M	mg/kg Se	0.5	-	0.5	-	0.5	-
Zinc (total)	CE127 ^M	mg/kg Zn	42	-	771	-	53	-
pH	CE004 ^M	units	8.3	-	7.8	-	11.2	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	36	-	334	-	125	-
Cyanide (total)	CE077	mg/kg CN	<1	-	<1	-	<1	-
Phenols (total)	CE078	mg/kg PhOH	<0.5	-	<0.5	-	<0.5	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	0.22	-	1.69	-	<0.1	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	0.38	-	2.91	-	<0.1	-
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.01	-	<0.01	-	<0.01	-
Acenaphthylene	CE087 ^M	mg/kg	<0.01	-	0.11	-	<0.01	-
Acenaphthene	CE087 ^M	mg/kg	<0.01	-	0.13	-	<0.01	-
Fluorene	CE087 ^U	mg/kg	<0.01	-	0.15	-	<0.01	-
Phenanthrene	CE087 ^M	mg/kg	<0.02	-	1.93	-	<0.02	-
Anthracene	CE087 ^U	mg/kg	<0.02	-	0.68	-	<0.02	-
Fluoranthene	CE087 ^M	mg/kg	<0.02	-	3.99	-	<0.02	-
Pyrene	CE087 ^M	mg/kg	<0.02	-	3.47	-	<0.02	-
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02	-	1.55	-	<0.02	-
Chrysene	CE087 ^M	mg/kg	<0.01	-	1.49	-	<0.01	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02	-	2.21	-	<0.02	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.02	-	0.91	-	<0.02	-
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	-	1.92	-	<0.02	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	-	1.65	-	<0.02	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	-	0.41	-	<0.02	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	-	1.45	-	<0.02	-
PAH (total of USEPA 16)	CE087	mg/kg	<0.27	-	22.1	-	<0.27	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	-	<0.01	-	<0.01	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	-	<0.01	-	<0.01	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	-	<0.01	-	<0.01	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	-	<1	-	<1	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	-	<1	-	<1	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	<1	-	11	-	<1	-

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SOILS

Lab number			71589-19	71589-20	71589-21	71589-22	71589-23	71589-24
Sample id			BH19	BH20	BH21	BH22	BH23	BH24
Depth (m)			0.80-1.00	0.20-0.50	0.10-0.20	0.21-0.50	0.20-0.40	0.50-1.00
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	<1	-	14	-	<1	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	-	4	-	<1	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	-	<0.1	-	<0.1	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	0.1	-	<0.1	-	<0.1	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	0.4	-	0.2	-	0.2	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	6	-	<4	-	<4	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	-	<4	-	<4	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	54	-	155	-	28	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	55	-	121	-	28	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-25	71589-26	71589-27	71589-28	71589-29	71589-30
Sample id			BH25	BH26	BH27	BH28	BH29	TP1
Depth (m)			0.20-0.40	0.40-0.70	0.30-0.50	0.60-0.80	0.30-0.50	0.30-0.50
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	-	-	-	11	-	-
Boron (water soluble)	CE063 ^M	mg/kg B	-	-	-	1.1	-	-
Cadmium (total)	CE127 ^M	mg/kg Cd	-	-	-	<0.2	-	-
Chromium (total)	CE127 ^M	mg/kg Cr	-	-	-	55	-	-
Copper (total)	CE127 ^M	mg/kg Cu	-	-	-	10	-	-
Lead (total)	CE127 ^M	mg/kg Pb	-	-	-	15	-	-
Mercury (total)	CE127 ^M	mg/kg Hg	-	-	-	<0.5	-	-
Nickel (total)	CE127 ^M	mg/kg Ni	-	-	-	22	-	-
Selenium (total)	CE127 ^M	mg/kg Se	-	-	-	0.7	-	-
Zinc (total)	CE127 ^M	mg/kg Zn	-	-	-	56	-	-
pH	CE004 ^M	units	-	-	-	8.5	-	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	-	-	-	49	-	-
Cyanide (total)	CE077	mg/kg CN	-	-	-	<1	-	-
Phenols (total)	CE078	mg/kg PhOH	-	-	-	<0.5	-	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	-	-	-	0.30	-	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	-	-	-	0.51	-	-
PAH								
Naphthalene	CE087 ^M	mg/kg	-	-	-	<0.01	-	-
Acenaphthylene	CE087 ^M	mg/kg	-	-	-	<0.01	-	-
Acenaphthene	CE087 ^M	mg/kg	-	-	-	<0.01	-	-
Fluorene	CE087 ^U	mg/kg	-	-	-	<0.01	-	-
Phenanthrene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Anthracene	CE087 ^U	mg/kg	-	-	-	<0.02	-	-
Fluoranthene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Pyrene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Benzo(a)anthracene	CE087 ^U	mg/kg	-	-	-	<0.02	-	-
Chrysene	CE087 ^M	mg/kg	-	-	-	<0.01	-	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Benzo(a)pyrene	CE087 ^U	mg/kg	-	-	-	<0.02	-	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	-	-	<0.02	-	-
PAH (total of USEPA 16)	CE087	mg/kg	-	-	-	<0.27	-	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	-	-	<0.01	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	-	-	<0.01	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	-	-	<0.01	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	-	-	<1	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	-	-	<1	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	-	-	<1	-	-

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SOILS

Lab number			71589-25	71589-26	71589-27	71589-28	71589-29	71589-30
Sample id			BH25	BH26	BH27	BH28	BH29	TP1
Depth (m)			0.20-0.40	0.40-0.70	0.30-0.50	0.60-0.80	0.30-0.50	0.30-0.50
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	-	-	<1	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	-	-	<1	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	-	-	<0.1	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	-	-	<0.1	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	-	-	<0.1	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	-	-	<4	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	-	-	<4	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	-	-	18	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	-	-	16	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	Chrysotile	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	3.914	-	-	-	-	-

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SOILS

Lab number			71589-31	71589-32	71589-33	71589-34	71589-35	71589-36
Sample id			TP2	TP3	TP4	TP5	TP6	TP7
Depth (m)			0.50-0.60	0.20-0.30	0.20-0.40	0.50-0.60	0.30-0.50	0.60-0.80
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	10	-	-	-	-	-
Boron (water soluble)	CE063 ^M	mg/kg B	1.5	-	-	-	-	-
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	-	-	-	-	-
Chromium (total)	CE127 ^M	mg/kg Cr	55	-	-	-	-	-
Copper (total)	CE127 ^M	mg/kg Cu	9.0	-	-	-	-	-
Lead (total)	CE127 ^M	mg/kg Pb	13	-	-	-	-	-
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	-	-	-	-	-
Nickel (total)	CE127 ^M	mg/kg Ni	17	-	-	-	-	-
Selenium (total)	CE127 ^M	mg/kg Se	0.5	-	-	-	-	-
Zinc (total)	CE127 ^M	mg/kg Zn	43	-	-	-	-	-
pH	CE004 ^M	units	8.0	-	-	-	-	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	14	-	-	-	-	-
Cyanide (total)	CE077	mg/kg CN	<1	-	-	-	-	-
Phenols (total)	CE078	mg/kg PhOH	<0.5	-	-	-	-	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	0.41	-	-	-	-	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	0.71	-	-	-	-	-
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.01	-	-	-	-	-
Acenaphthylene	CE087 ^M	mg/kg	<0.01	-	-	-	-	-
Acenaphthene	CE087 ^M	mg/kg	<0.01	-	-	-	-	-
Fluorene	CE087 ^U	mg/kg	<0.01	-	-	-	-	-
Phenanthrene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Anthracene	CE087 ^U	mg/kg	<0.02	-	-	-	-	-
Fluoranthene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Pyrene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02	-	-	-	-	-
Chrysene	CE087 ^M	mg/kg	<0.01	-	-	-	-	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	-	-	-	-	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	-	-	-	-	-
PAH (total of USEPA 16)	CE087	mg/kg	<0.27	-	-	-	-	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	-	-	-	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	-	-	-	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	-	-	-	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	-	-	-	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	-	-	-	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	<1	-	-	-	-	-

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SOILS

Lab number			71589-31	71589-32	71589-33	71589-34	71589-35	71589-36
Sample id			TP2	TP3	TP4	TP5	TP6	TP7
Depth (m)			0.50-0.60	0.20-0.30	0.20-0.40	0.50-0.60	0.30-0.50	0.60-0.80
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	<1	-	-	-	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	-	-	-	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	-	-	-	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	-	-	-	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	0.1	-	-	-	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	-	-	-	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	-	-	-	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	22	-	-	-	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	17	-	-	-	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-37	71589-38	71589-39	71589-40	71589-41	71589-42
Sample id			TP8	TP9	TP10	TP11	TP11	TP12
Depth (m)			0.80-1.00	0.00-0.30	0.30-0.50	0.00-0.50	0.50-1.00	0.00-0.50
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	31	-	12	-	-	16
Boron (water soluble)	CE063 ^M	mg/kg B	0.9	-	1.8	-	-	1.1
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	-	<0.2	-	-	0.3
Chromium (total)	CE127 ^M	mg/kg Cr	49	-	50	-	-	69
Copper (total)	CE127 ^M	mg/kg Cu	11	-	10	-	-	17
Lead (total)	CE127 ^M	mg/kg Pb	16	-	14	-	-	70
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	-	<0.5	-	-	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	25	-	19	-	-	21
Selenium (total)	CE127 ^M	mg/kg Se	0.7	-	0.6	-	-	0.7
Zinc (total)	CE127 ^M	mg/kg Zn	59	-	48	-	-	82
pH	CE004 ^M	units	7.8	-	8.0	-	-	7.9
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	18	-	11	-	-	18
Cyanide (total)	CE077	mg/kg CN	<1	-	<1	-	-	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5	-	<0.5	-	-	<0.5
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	0.51	-	0.70	-	-	0.77
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	0.89	-	1.21	-	-	1.32
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.01	-	<0.01	-	-	<0.01
Acenaphthylene	CE087 ^M	mg/kg	<0.01	-	<0.01	-	-	<0.01
Acenaphthene	CE087 ^M	mg/kg	<0.01	-	<0.01	-	-	<0.01
Fluorene	CE087 ^U	mg/kg	<0.01	-	<0.01	-	-	<0.01
Phenanthrene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	<0.02
Anthracene	CE087 ^U	mg/kg	<0.02	-	<0.02	-	-	<0.02
Fluoranthene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	0.04
Pyrene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	0.04
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02	-	<0.02	-	-	<0.02
Chrysene	CE087 ^M	mg/kg	<0.01	-	<0.01	-	-	<0.01
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	<0.02
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	<0.02
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	-	<0.02	-	-	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	<0.02
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	-	<0.02	-	-	<0.02
PAH (total of USEPA 16)	CE087	mg/kg	<0.27	-	<0.27	-	-	<0.27
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	-	<0.01	-	-	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	-	<0.01	-	-	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	-	<0.01	-	-	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	-	<1	-	-	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	-	<1	-	-	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	<1	-	<1	-	-	<1

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SOILS

Lab number			71589-37	71589-38	71589-39	71589-40	71589-41	71589-42
Sample id			TP8	TP9	TP10	TP11	TP11	TP12
Depth (m)			0.80-1.00	0.00-0.30	0.30-0.50	0.00-0.50	0.50-1.00	0.00-0.50
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	<1	-	<1	-	-	<1
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	-	<1	-	-	<1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	-	<0.1	-	-	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	-	0.1	-	-	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	0.2	-	0.3	-	-	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	-	<4	-	-	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	-	<4	-	-	<4
EPH Aliphatic (>C16-C35)	CE068	mg/kg	16	-	24	-	-	1126
EPH Aliphatic (>C35-C44)	CE068	mg/kg	11	-	12	-	-	12
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-43	71589-44	71589-45	71589-46	71589-47	71589-48
Sample id			TP13	TP14	TP14	TP15	TP16	TP17
Depth (m)			0.60-0.80	0.00-0.50	0.50-1.00	0.30-0.50	0.00-0.50	0.00-0.40
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	-	-	-	-	-	-
Boron (water soluble)	CE063 ^M	mg/kg B	-	-	-	-	-	-
Cadmium (total)	CE127 ^M	mg/kg Cd	-	-	-	-	-	-
Chromium (total)	CE127 ^M	mg/kg Cr	-	-	-	-	-	-
Copper (total)	CE127 ^M	mg/kg Cu	-	-	-	-	-	-
Lead (total)	CE127 ^M	mg/kg Pb	-	-	-	-	-	-
Mercury (total)	CE127 ^M	mg/kg Hg	-	-	-	-	-	-
Nickel (total)	CE127 ^M	mg/kg Ni	-	-	-	-	-	-
Selenium (total)	CE127 ^M	mg/kg Se	-	-	-	-	-	-
Zinc (total)	CE127 ^M	mg/kg Zn	-	-	-	-	-	-
pH	CE004 ^M	units	-	-	-	-	-	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	-	-	-	-	-	-
Cyanide (total)	CE077	mg/kg CN	-	-	-	-	-	-
Phenols (total)	CE078	mg/kg PhOH	-	-	-	-	-	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	-	-	-	-	-	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	-	-	-	-	-	-
PAH								
Naphthalene	CE087 ^M	mg/kg	-	-	-	-	-	-
Acenaphthylene	CE087 ^M	mg/kg	-	-	-	-	-	-
Acenaphthene	CE087 ^M	mg/kg	-	-	-	-	-	-
Fluorene	CE087 ^U	mg/kg	-	-	-	-	-	-
Phenanthrene	CE087 ^M	mg/kg	-	-	-	-	-	-
Anthracene	CE087 ^U	mg/kg	-	-	-	-	-	-
Fluoranthene	CE087 ^M	mg/kg	-	-	-	-	-	-
Pyrene	CE087 ^M	mg/kg	-	-	-	-	-	-
Benzo(a)anthracene	CE087 ^U	mg/kg	-	-	-	-	-	-
Chrysene	CE087 ^M	mg/kg	-	-	-	-	-	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	-	-	-	-	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	-	-	-	-	-
Benzo(a)pyrene	CE087 ^U	mg/kg	-	-	-	-	-	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	-	-	-	-	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	-	-	-	-	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	-	-	-	-	-
PAH (total of USEPA 16)	CE087	mg/kg	-	-	-	-	-	-
TPH								
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	-	-	-	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	-	-	-	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	-	-	-	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	-	-	-	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	-	-	-	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	-	-	-	-	-

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SOILS

Lab number			71589-43	71589-44	71589-45	71589-46	71589-47	71589-48
Sample id			TP13	TP14	TP14	TP15	TP16	TP17
Depth (m)			0.60-0.80	0.00-0.50	0.50-1.00	0.30-0.50	0.00-0.50	0.00-0.40
Date sampled			17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018	17/04/2018
Test	Method	Units						
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	-	-	-	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	-	-	-	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	-	-	-	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	-	-	-	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	-	-	-	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	-	-	-	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	-	-	-	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	-	-	-	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	-	-	-	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-	-	-	-	-

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SOILS

Lab number			71589-49	71589-50
Sample id			TP17	TP18
Depth (m)			0.60-0.80	0.00-0.40
Date sampled			17/04/2018	17/04/2018
Test	Method	Units		
Arsenic (total)	CE127 ^M	mg/kg As	-	-
Boron (water soluble)	CE063 ^M	mg/kg B	-	-
Cadmium (total)	CE127 ^M	mg/kg Cd	-	-
Chromium (total)	CE127 ^M	mg/kg Cr	-	-
Copper (total)	CE127 ^M	mg/kg Cu	-	-
Lead (total)	CE127 ^M	mg/kg Pb	-	-
Mercury (total)	CE127 ^M	mg/kg Hg	-	-
Nickel (total)	CE127 ^M	mg/kg Ni	-	-
Selenium (total)	CE127 ^M	mg/kg Se	-	-
Zinc (total)	CE127 ^M	mg/kg Zn	-	-
pH	CE004 ^M	units	-	-
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	-	-
Cyanide (total)	CE077	mg/kg CN	-	-
Phenols (total)	CE078	mg/kg PhOH	-	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	-	-
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	-	-
PAH				
Naphthalene	CE087 ^M	mg/kg	-	-
Acenaphthylene	CE087 ^M	mg/kg	-	-
Acenaphthene	CE087 ^M	mg/kg	-	-
Fluorene	CE087 ^U	mg/kg	-	-
Phenanthrene	CE087 ^M	mg/kg	-	-
Anthracene	CE087 ^U	mg/kg	-	-
Fluoranthene	CE087 ^M	mg/kg	-	-
Pyrene	CE087 ^M	mg/kg	-	-
Benzo(a)anthracene	CE087 ^U	mg/kg	-	-
Chrysene	CE087 ^M	mg/kg	-	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	-
Benzo(a)pyrene	CE087 ^U	mg/kg	-	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	-
PAH (total of USEPA 16)	CE087	mg/kg	-	-
TPH				
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	-

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SOILS

Lab number			71589-49	71589-50
Sample id			TP17	TP18
Depth (m)			0.60-0.80	0.00-0.40
Date sampled			17/04/2018	17/04/2018
Test	Method	Units		
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	-
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	-
Subcontracted analysis				
Asbestos (qualitative)	\$	-	NAD	NAD
Asbestos (quantitative)	\$	% w/w	-	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry	M	0.5	mg/kg B
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO ₄
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	Wet		1	mg/kg CN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	Wet		0.5	mg/kg PhOH
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	M	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	M	0.1	% w/w
CE087	Naphthalene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	Wet	U	0.01	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	Wet		0.27	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	Wet		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	Wet		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	Wet		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	Wet		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	Wet		0.1	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	Wet		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	Wet		10	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-
\$	Asbestos (quantitative)	HSG 248, Microscopy & Gravimetry	Dry	U	0.001	% w/w

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
IT	Sample not cooled
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
71589-2	BH2	0.20-0.50	N	
71589-7	BH7	0.20-0.40	N	
71589-11	BH11	0.10-0.30	N	
71589-14	BH14	0.20-0.40	N	
71589-16	BH16	0.50-0.70	N	
71589-19	BH19	0.80-1.00	N	
71589-21	BH21	0.10-0.20	N	
71589-23	BH23	0.20-0.40	N	
71589-28	BH28	0.60-0.80	N	
71589-31	TP2	0.50-0.60	N	
71589-37	TP8	0.80-1.00	N	
71589-39	TP10	0.30-0.50	N	
71589-42	TP12	0.00-0.50	N	

Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



Sample Details

Contract Name Princes, Long Sutton
Lab Number 71589-4
Sample ID BH4 0.20-0.50m
Date Sampled 17 April 2018
Date Received 2 May 2018
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.195
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 11.43
Dry Matter Content Ratio (DR) % 89.74
Leachant Volume (1) (L2) Litre 0.330
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.270
Eluate Volume (2) (VE2) Litre 1.330

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	6.8	7.6
Temperature (°C)	20	20
Conductivity (µS/cm)	439	164
Antimony (µg/l Sb)	0.2	<0.1
Arsenic (µg/l As)	0.14	0.09
Barium (µg/l Ba)	9.8	6.5
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	1.4	0.7
Copper (µg/l Cu)	0.9	0.9
Lead (µg/l Pb)	<0.2	<0.2
Mercury (µg/l Hg)	<0.008	<0.008
Molybdenum (µg/l Mo)	<0.3	<0.3
Nickel (µg/l Ni)	<0.5	0.5
Selenium (µg/l Se)	<0.07	<0.07
Zinc (µg/l Zn)	<1	<1
Chloride (mg/l Cl)	58	56
Fluoride (mg/l F)	0.8	0.8
Sulphate (mg/l SO ₄)	17	16
Total Dissolved Solids (mg/l TDS)	330	125
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	<5	14

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.0004	<0.002	0.06	0.7	5
0.0003	0.001	0.5	2	25
0.020	0.070	20	100	300
<0.0002	<0.0007	0.04	1	5
0.003	0.008	0.5	10	70
0.002	0.009	2	50	100
<0.0004	<0.002	0.5	10	50
<0.00002	<0.00008	0.01	0.2	2
<0.0006	<0.003	0.5	10	30
<0.001	<0.005	0.4	10	40
<0.0002	<0.0007	0.1	0.5	7
<0.002	<0.010	4	50	200
115	563	800	15000	25000
1.6	7.7	10	150	500
33	158	1000	20000	50000
660	1566	4000	60000	100000
<0.02	<0.1	1		
<10	<127	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	<0.1	3%	5%	6%
Loss on Ignition	% w/w	4.4			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
TPH (C10 - C40)	mg/kg	284	500		
PAH (total)	mg/kg	<0.29	100		
pH	pH units	8.5		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.18		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.06		To be evaluated	

Disclaimer : The Landfill Waste Acceptance Criteria limits in this report are provided for guidance only.
Chemtech Environmental Ltd does not take responsibility for any errors or omissions. Data is correct as of 01/09/2005.
Samples will be disposed of 6 weeks from initial receipt unless written instructions are received and further storage is agreed
Waste Acceptance Criteria testing is outside the scope of the laboratory's UKAS accreditation.

Comments

Authorised by:

J. Campbell

Name:

John Campbell

Report date:

14 May 2018

Position:

Director

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Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



Sample Details

Contract Name Princes, Long Sutton
Lab Number 71589-26
Sample ID BH26 0.40-0.70m
Date Sampled 17 April 2018
Date Received 2 May 2018
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.216
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 23.43
Dry Matter Content Ratio (DR) % 81.02
Leachant Volume (1) (L2) Litre 0.350
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.260
Eluate Volume (2) (VE2) Litre 1.320

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	6.4	7.8
Temperature (°C)	20	20
Conductivity (µS/cm)	309	145
Antimony (µg/l Sb)	1.3	0.5
Arsenic (µg/l As)	3.34	2.78
Barium (µg/l Ba)	16.5	8.7
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	2.2	1.3
Copper (µg/l Cu)	6.3	3.4
Lead (µg/l Pb)	0.4	<0.2
Mercury (µg/l Hg)	<0.008	<0.008
Molybdenum (µg/l Mo)	22.2	8.8
Nickel (µg/l Ni)	1.1	1.7
Selenium (µg/l Se)	2.22	0.65
Zinc (µg/l Zn)	<1	<1
Chloride (mg/l Cl)	18	12
Fluoride (mg/l F)	3.9	3.9
Sulphate (mg/l SO ₄)	17	<10
Total Dissolved Solids (mg/l TDS)	235	110
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	5.9	<5

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.003	0.006	0.06	0.7	5
0.007	0.029	0.5	2	25
0.037	0.100	20	100	300
<0.0002	<0.0007	0.04	1	5
0.005	0.015	0.5	10	70
0.014	0.039	2	50	100
0.0009	<0.003	0.5	10	50
<0.00002	<0.00008	0.01	0.2	2
0.050	0.110	0.5	10	30
0.002	0.016	0.4	10	40
0.005	0.009	0.1	0.5	7
<0.002	<0.010	4	50	200
39	128	800	15000	25000
8.7	40	10	150	500
38	<113	1000	20000	50000
525	1311	4000	60000	100000
<0.02	<0.1	1		
13	<53	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	0.6	3%	5%	6%
Loss on Ignition	% w/w	3.5			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
TPH (C10 - C40)	mg/kg	47	500		
PAH (total)	mg/kg	<0.29	100		
pH	pH units	8.1		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.16		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.04		To be evaluated	

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Comments

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J. Campbell

Name:

John Campbell

Report date:

14 May 2018

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Director

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Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



Sample Details

Contract Name Princes, Long Sutton
Lab Number 71589-38
Sample ID TP9 0.00-0.30m
Date Sampled 17 April 2018
Date Received 2 May 2018
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.221
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 26.29
Dry Matter Content Ratio (DR) % 79.19
Leachant Volume (1) (L2) Litre 0.304
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.240
Eluate Volume (2) (VE2) Litre 1.300

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.2	7.6
Temperature (°C)	20	20
Conductivity (µS/cm)	185	104
Antimony (µg/l Sb)	0.5	0.2
Arsenic (µg/l As)	0.66	1.08
Barium (µg/l Ba)	69.5	28.7
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	0.4	0.2
Copper (µg/l Cu)	3.6	2.3
Lead (µg/l Pb)	<0.2	<0.2
Mercury (µg/l Hg)	<0.008	<0.008
Molybdenum (µg/l Mo)	5.0	3.7
Nickel (µg/l Ni)	0.7	0.6
Selenium (µg/l Se)	0.10	0.14
Zinc (µg/l Zn)	<1	<1
Chloride (mg/l Cl)	4.6	1.3
Fluoride (mg/l F)	2.1	2.1
Sulphate (mg/l SO ₄)	11	10
Total Dissolved Solids (mg/l TDS)	140	80
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	<5	<5

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.001	0.002	0.06	0.7	5
0.001	0.010	0.5	2	25
0.139	0.343	20	100	300
<0.0002	<0.0007	0.04	1	5
0.001	0.002	0.5	10	70
0.007	0.025	2	50	100
<0.0004	<0.002	0.5	10	50
<0.00002	<0.00008	0.01	0.2	2
0.010	0.039	0.5	10	30
0.001	0.006	0.4	10	40
0.000	0.001	0.1	0.5	7
<0.002	<0.010	4	50	200
9.2	17	800	15000	25000
4.2	21.06	10	150	500
21	101	1000	20000	50000
280	882	4000	60000	100000
<0.02	<0.1	1		
<10	<50	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	0.3	3%	5%	6%
Loss on Ignition	% w/w	2.1			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
TPH (C10 - C40)	mg/kg	<10	500		
PAH (total)	mg/kg	<0.29	100		
pH	pH units	8.2		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.17		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.05		To be evaluated	

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Waste Acceptance Criteria testing is outside the scope of the laboratory's UKAS accreditation.

Comments

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Report date:

14 May 2018

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Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



Sample Details

Contract Name Princes, Long Sutton
Lab Number 71589-44
Sample ID TP14 0.00-0.50m
Date Sampled 17 April 2018
Date Received 2 May 2018
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.189
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 8.00
Dry Matter Content Ratio (DR) % 92.59
Leachant Volume (1) (L2) Litre 0.336
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.260
Eluate Volume (2) (VE2) Litre 1.310

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.4	7.7
Temperature (°C)	20	20
Conductivity (µS/cm)	331	147
Antimony (µg/l Sb)	1.1	0.6
Arsenic (µg/l As)	2.76	4.28
Barium (µg/l Ba)	50.9	21.1
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	1.4	0.7
Copper (µg/l Cu)	11.5	7.2
Lead (µg/l Pb)	0.8	2.4
Mercury (µg/l Hg)	<0.008	<0.008
Molybdenum (µg/l Mo)	20.6	8.7
Nickel (µg/l Ni)	2.0	1.3
Selenium (µg/l Se)	0.49	0.46
Zinc (µg/l Zn)	<1	<1
Chloride (mg/l Cl)	25	23
Fluoride (mg/l F)	0.9	0.9
Sulphate (mg/l SO ₄)	33	32
Total Dissolved Solids (mg/l TDS)	250	110
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	<5	14

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.002	0.007	0.06	0.7	5
0.006	0.041	0.5	2	25
0.102	0.255	20	100	300
<0.0002	<0.0007	0.04	1	5
0.003	0.008	0.5	10	70
0.023	0.078	2	50	100
0.002	0.021	0.5	10	50
<0.00002	<0.00008	0.01	0.2	2
0.041	0.105	0.5	10	30
0.004	0.014	0.4	10	40
0.001	0.005	0.1	0.5	7
<0.002	<0.010	4	50	200
51	236	800	15000	25000
1.8	9.0	10	150	500
66	318	1000	20000	50000
500	1308	4000	60000	100000
<0.02	<0.1	1		
<10	<127	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	1.4	3%	5%	6%
Loss on Ignition	% w/w	3.7			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
TPH (C10 - C40)	mg/kg	132	500		
PAH (total)	mg/kg	2.62	100		
pH	pH units	8.2		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.17		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.05		To be evaluated	

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Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process



Sample Details

Contract Name Princes, Long Sutton
Lab Number 71589-48
Sample ID TP17 0.00-0.40m
Date Sampled 17 April 2018
Date Received 2 May 2018
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.218
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 24.57
Dry Matter Content Ratio (DR) % 80.28
Leachant Volume (1) (L2) Litre 0.307
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.280
Eluate Volume (2) (VE2) Litre 1.340

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.4	7.6
Temperature (°C)	20	20
Conductivity (µS/cm)	254	123
Antimony (µg/l Sb)	0.3	<0.1
Arsenic (µg/l As)	0.22	0.33
Barium (µg/l Ba)	18.7	8.4
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	1.8	0.7
Copper (µg/l Cu)	3.0	1.9
Lead (µg/l Pb)	<0.2	<0.2
Mercury (µg/l Hg)	<0.008	<0.008
Molybdenum (µg/l Mo)	0.7	1.3
Nickel (µg/l Ni)	0.6	<0.5
Selenium (µg/l Se)	0.11	0.12
Zinc (µg/l Zn)	<1	<1
Chloride (mg/l Cl)	3.6	2.6
Fluoride (mg/l F)	1.5	1.5
Sulphate (mg/l SO ₄)	19	18
Total Dissolved Solids (mg/l TDS)	190	90
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	<5	<5

Amount Leached		BS EN 12457-3 Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.001	<0.002	0.06	0.7	5
0.000	0.003	0.5	2	25
0.037	0.101	20	100	300
<0.0002	<0.0007	0.04	1	5
0.004	0.009	0.5	10	70
0.006	0.021	2	50	100
<0.0004	<0.002	0.5	10	50
<0.00002	<0.00008	0.01	0.2	2
0.001	0.012	0.5	10	30
0.001	<0.006	0.4	10	40
0.000	0.001	0.1	0.5	7
<0.002	<0.010	4	50	200
7.3	28	800	15000	25000
3.0	15.1	10	150	500
38	183	1000	20000	50000
380	1060	4000	60000	100000
<0.02	<0.1	1		
<10	<50	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	0.2	3%	5%	6%
Loss on Ignition	% w/w	4.5			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
TPH (C10 - C40)	mg/kg	14	500		
PAH (total)	mg/kg	0.73	100		
pH	pH units	8.1		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.16		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.04		To be evaluated	

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Appendix D
Notes on Limitations &
Contamination Guidelines

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek. Solmek was a trading name of Hymas Geoenvironmental Ltd.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2001 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.

UK BACKGROUND

Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to *“identify and remove unacceptable risks to human health and the environment”* and to *“seek to ensure that contaminated land is made suitable for its current use”*.

Part 2A uses a risk based approach to defining contaminated land whereby the “risk” is interpreted as *“the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land”* and by *“the scale and seriousness of such harm or pollution if it did occur”*.

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *“for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters.”*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include *“land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health.”*

Categories 3 and 4 *“encompass land which is not capable of being determined on such grounds”*.

PRELIMINARY CONCEPTUAL MODEL

Preliminary Conceptual Models are undertaken in accordance with CIRIA C552. The Preliminary Conceptual Model assesses the consequence and the likelihood of a risk being realised to provide a risk classification, using the tables detailed below.

CONSEQUENCE OF RISK BEING REALISED (Based on C552 CIRIA, 2001)

Classification	Definition	Example
Severe	Short-term (acute) risk to human health, the environment, an element of the development or other aspect with is likely to result in <i>significant harm</i> , damage or both.	High concentrations of cyanide on the surface of an informal recreational area. Major spills of contaminants from site into controlled water. High concentrations of explosive gas in the subsurface environment that have a clear unobstructed pathway into buildings.
Moderate	Chronic damage to human health, a plausible chance that an event will occur, although the timeline is not immediate to be in the short-term.	Appreciable concentration of contamination that over the longer-term will cause significant harm i.e. high lead concentration in topsoil. Shallow mine workings that are potentially unstable but may remain in a satisfactory or stable conditions for a number of years.
Mild	Low level pollution of non-sensitive water, a feasible hazardous scenario although the timeline of such occurring can probably be considered in 10's of years.	The effect of high sulphate concentrations on structural concrete. Pollution of non-classified groundwater.
Minor	Harm, although not necessarily significant to human health, or with respect to other aspects of the development, which are considered implausible in terms of occurrence, or will have little consequential impact.	The presence of contaminants at such low concentrations that protective equipment is required during site works. Any damage to structures is minimal and will not be structural in characteristics.

PROBABILITY OF RISK BEING REALISED (C552 CIRIA, 2001)

Classification	Definition
High Likelihood	There is a viable pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence that the receptor has been harmed or polluted.
Likely	There is a viable pollutant linkage and all elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a viable pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a viable pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

RISK CLASSIFICATION MATRIX (C552 CIRIA, 2001)

Risk = Probability x Consequence		Consequence			
		Severe	Medium	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

HUMAN RECEPTORS

Human exposure to contaminants present in soils can occur via several pathways. Direct exposure pathways include dermal absorption after contact with contaminated ground, inhalation of soil or dust, inhalation of volatilised compounds, and inadvertent soil ingestion (or deliberate soil ingestion in the case of some children). Other indirect pathways include human ingestion of plants grown in contaminated soil or contaminated ground or surface water. Contaminants associated with wind blown dust can affect humans on surrounding sites.

VEGETATION

Plants can be affected by soil contamination in a number of ways resulting in growth inhibition, nutrient deficiencies and yellowing of leaves. Contaminants are taken up by plants through the roots and through foliage. Contaminants identified as being highly phytotoxic include boron, cadmium, copper, lead, nickel, and zinc.

To establish if the levels of contaminants present on a site may pose a risk to vegetation the results of the contamination testing are compared to a series of threshold values published in 'Code of Good Agricultural Practice for the Protection of Soil'.

GROUNDWATER AND SURFACE WATER RECEPTORS

The principal pathway by which soil contamination may reach the water environment is through a slow seepage or leaching to groundwater or surface water. The potential for contaminants to migrate along such pathways is dependent on the chemical and physical characteristics of the contaminants and the local hydrogeology. Surface watercourses may also accumulate contamination as contaminated sediments are deposited within the water body.

Where the site investigated overlies major/principal aquifers (and in some cases minor/secondary aquifers depending on certain conditions), groundwater Source Protection Zones and areas in close proximity to groundwater abstractions, contamination test results have been compared with the Water Supply (Water Quality) Regulations 1989 and The Water Supply (Water Quality) Regulations 2000.

Should a surface water receptor, such as a fresh water environment (river, canal, stream, lake etc), or marine environment be considered sensitive in relation to a site, then test results are compared with DEFRA & SEPA Environmental Quality Standards (2004). Many of the Environmental Quality Standards are hardness (CaCO_3) depended. Where no hardness values are available, Solmek assume conservative values (of between 0 and 50mg/l).

In the absence of vulnerable ground and surface water environments, Solmek may compare any test results with the Environment Agency Leachate Quality Threshold Values.

DETAILED QUANTITATIVE RISK ASSESSMENT (DQRA)

In line with CLR 11- Model Procedures, a DQRA for groundwater/human health may be required following a Phase 2 investigation and before the preparation of a Phase 3 Remediation Strategy. For human health DQRA, a site specific assessment criteria is undertaken using CLEA Software Version 1.06. For groundwater DQRA, the Environment Agency Remedial Targets Worksheet Version 3.1 is used.

WASTE ACCEPTANCE CRITERIA

The WAC testing relates to materials that are to be exported from a site/development to landfill, and do not directly relate to human health specifically. The WAC test categorises materials as either inert waste, non-reactive hazardous waste, and hazardous waste.

The testing results are generally presented as certificates which can be used by site owners/contractors etc, which should be presented to the accepting waste facility or waste contractor.

CONSTRUCTION MATERIALS

Materials at risk from possible soil contaminants include inorganic matrices such as cement and concrete and also organic material such as plastics and rubbers. Acid ground conditions and high levels of sulphates can accelerate the corrosion of building materials. Where pH and soluble sulphate analysis has been undertaken, Solmek compare the test results with the guidelines presented within BRE Special Digest 1, 2005 (3rd Edition) 'Concrete in Aggressive Ground'. Plastics and rubbers are generally used for piping and service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication "Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites" (January 2011). A Brownfield Site is defined in the document as "Land or premises that have not previously been used or developed that may be vacant or derelict". It should be noted that Brownfield sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer. The table below outlines the pipe material selection threshold concentrations.

Parameter group	Pipe Material (Threshold concentrations in mg/kg)					
	PE	PVC	Barrier pipe (PE-AL-PE)	Wrapped Steel	Wrapped Ductile Iron	Copper
Extended VOC suite by purge and trap or head space and GC-MS with TIC	0.5	0.125	Pass	Pass	Pass	Pass
+ BTEX + MTBE	0.1	0.03	Pass	Pass	Pass	Pass
SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C5-C10)	2	1.4	Pass	Pass	Pass	Pass
+ Phenols	2	0.4	Pass	Pass	Pass	Pass
+ Cresols and chlorinated phenols	2	0.04	Pass	Pass	Pass	Pass
Mineral oil C11-C20	10	Pass	Pass	Pass	Pass	Pass
Mineral oil C21-C40	500	Pass	Pass	Pass	Pass	Pass
Corrosive (Conductivity, Redox and pH)	Pass	Pass	Pass	Corrosive if pH <7 and conductivity >400µS/cm	Corrosive if pH <5, Eh not neutral and conductivity >400µS/cm	Corrosive if pH <5 or >8 and Eh positive
Specific suite identified as relevant following site investigation						
Ethers	0.5	1	Pass	Pass	Pass	Pass
Nitrobenzene	0.5	0.4	Pass	Pass	Pass	Pass
Ketones	0.5	0.02	Pass	Pass	Pass	Pass
Aldehydes	0.5	0.02	Pass	Pass	Pass	Pass
Amines	Fail	Pass	Pass	Pass	Pass	Pass

REQUIREMENTS OF PARTIES WITHIN THE DEVELOPMENT PROCESS

Interested parties involved in the development process may use the data in different ways and there may be varying views and interpretation of the factual data. Local Authority staff may have a view on contamination and human health and the wider environment. The Environment Agency are concerned principally with the protection of Controlled waters. Building insurers, funders and purchasers may be primarily concerned with issues of potential commercial blight. Purchasers are also not always fully informed, and perceptions on issues associated with risk can affect the decision to purchase. Developers and construction organisations will focus on financial aspects of dealing with the contamination in the context of the development and construction programme.

RISKS & LIABILITIES FROM CONTAMINATION

In simple terms, risks associated with contamination may be considered in terms of 1) statutory risks and 2) development related risks. If contamination is severe or forms a potential hazard based on its potential to affect groundwater, surface water or human health, a statutory risk may be present, and as such, if the risk is not reduced, criminal proceedings may be instigated by a government body or local authority.

If the contamination is less severe or not considered to be mobile, it may be considered a commercial liability which could, in theory remain untreated, but which may at a later date affect the value of the property, or, with changing legislation, become a statutory risk. Commercial liabilities could give rise to civil proceedings by third parties if there are grounds for action.