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Your Ref
Our Ref 2295LR02/JT

10th July 2015

Mrs L Spiby
17 Action Gardens
Wrexham
LL12 8DD

Dear Lynda,

Investigations for Residential Development: Former Westminster Arms, Ruthin Road, Bwlchgwyn

1. Introduction

TerraConsult Limited was commissioned by yourself to carry out a Phase 1 and 2 Site Investigation for a new house on the site. The purpose of the report was to provide information on ground conditions at the site in order to discharge a planning condition prior to occupation of the new development.

This letter report should be read in conjunction with the earlier investigation report. It is understood that the report has been reviewed by Wrexham County Borough Council. The following letter is to address comments from Wrexham Council dated 30th June 2015.

2. Fieldwork

The fieldwork was carried out on the 22nd May 2015. TerraConsult personnel were present to supervise all work, describe the ground encountered and carry out soil sampling.

The investigation comprised the following fieldwork scope:

- 4 No. machine/hand excavated trial pits and associated sampling
- Sampling of stockpile material
- testing of soils;
- description of the ground encountered in accordance with BS5930:1999+A2 (2010) "Code of Practice for Site Investigations;"

The locations of the trial pits were positioned within the proposed rear garden area and under / adjacent to the old heating oil tank.

During the site visit, inspection was made of the area along the eastern boundary within the proposed front garden of the new development. No soils were encountered within these areas as rockhead was immediately underneath the historical building. No sampling was attempted within this area.

3. Laboratory Testing

Four samples were submitted to QTS Environmental of Lenham in Kent who are UKAS accredited in accordance with ISO17025 and are also MCERTS accredited for soil analysis in accordance with the Environment Agency's scheme. The laboratory carries out Quality Assurance and Quality Control in accordance with BS ISO 17025 and participate in external laboratory comparison and quality control schemes. Details of the accreditation and the methods of analysis are provided on the relevant test reports.

4. Ground Encountered

The geology encountered during the site investigations was generally consistent with that anticipated from the desk study and is summarised below. Slight hydrocarbon impact was found in TP4 adjacent to the tank.

Table 1: Trial Pit Summary			
TP Number	Depth Top (m)	Depth Bot (m)	Stratum Description
TP1	0.00	0.30	MADE GROUND: Brown slightly clayey fine to coarse sandy fine-coarse GRAVEL of sandstone and occasional brick fragments
	0.30	-	Strong light brown well cemented fine-medium grained SANDSTONE – Cefn-y-fedw Sandstone Formation
TP2	0.00	0.30	MADE GROUND: Brown slightly clayey fine to coarse sandy fine-coarse GRAVEL of sandstone and occasional brick fragments
	0.30	-	Strong light brown well cemented fine-medium grained SANDSTONE – Cefn-y-fedw Sandstone Formation
TP3	0.00	0.20	MADE GROUND: Brown slightly clayey fine to coarse sandy fine-coarse GRAVEL of sandstone and occasional brick fragments
	0.20	-	Strong light brown well cemented fine-medium grained SANDSTONE – Cefn-y-fedw Sandstone Formation
TP4	0.00	0.30	MADE GROUND: Brown slightly clayey fine to coarse sandy fine-coarse GRAVEL of sandstone and occasional brick fragments
	0.30	0.45	MADE GROUND: Black clayey sandy fine-coarse angular, tabular Gravel with slight Hydrocarbon odour
	0.45	-	Strong light brown well cemented fine-medium grained SANDSTONE – Cefn-y-fedw Sandstone Formation
Stockpile	-		MADE GROUND: Brown slightly sandy gravelly CLAY. Gravel is fine-coarse, sandstone, brick and concrete fragments.

5. Assessment of Test Data

The results of the fieldwork and contamination testing have showed generally low concentrations of contamination however there is evidence of elevated levels of certain toxic metals (Lead and Arsenic). The site is known to be within a lead mining area therefore the local background lead concentrations could also be elevated.

The thin reworked material within the proposed garden areas could pose a risk to the end users of the site if left accessible in the garden areas of the new development. It is therefore considered appropriate to remove all the material within the proposed garden area and replaced with clean material.

TP4 recorded slight hydrocarbon impact during the site visit assumed to be associated with the historic heating oil tank. The results have shown low concentrations of contamination within this area and can remain on site.

6. Remedial Measures

It is understood that all excess materials have already been removed from site and are not going to be re-used as previously thought. Waste transfer notes from this waste will be recorded in the validation report.

It is understood that the proposed garden area will now be constructed with artificial grass. The construction design of the artificial grass has not been completed at the time of this report however it is understood that garden area will contain geotextile layers, compacted graded granular fill and possibly a concrete layer overlying the artificial grass surfacing. The garden area will have no soft landscaping and there will be no accessible soils and therefore no risk to the end users of the site.

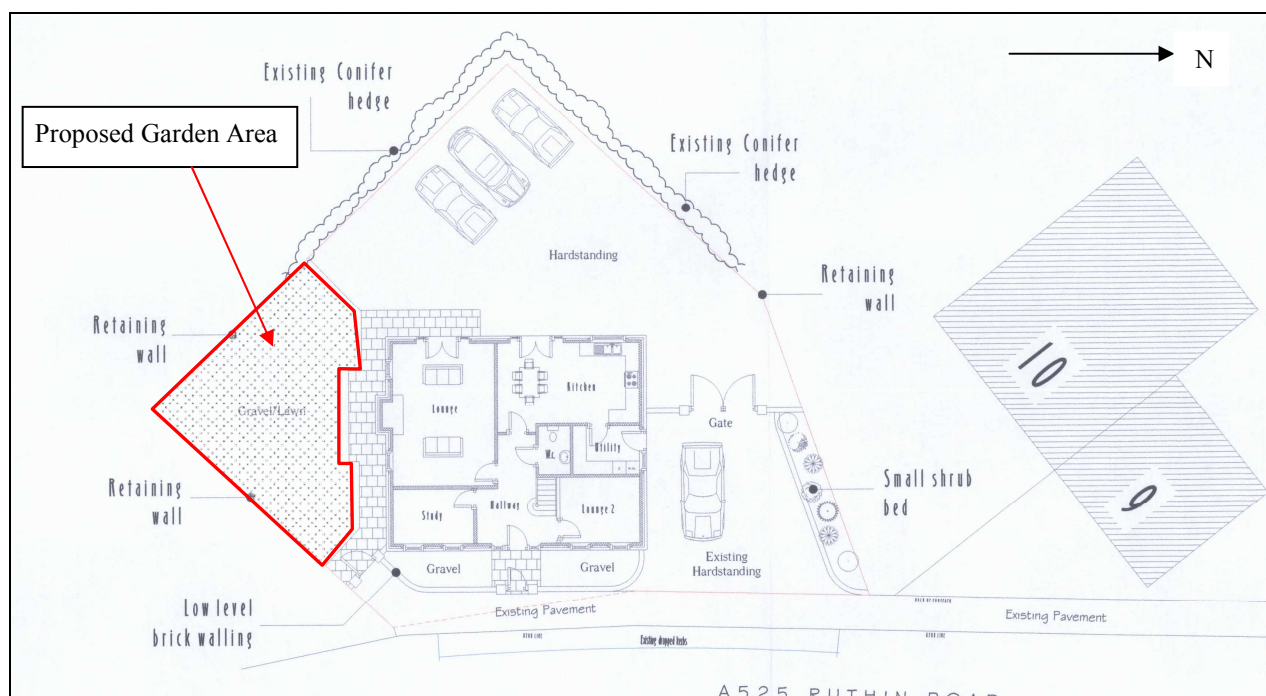


Figure 1: Proposed Development Plan.

2295LR02/JT -
Former Westminster Arms, Ruthin Rd, Bwlchgwyn
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Waste Classification

During the site visit on 22nd May 2015, there was a stockpile within the centre of the site. The material comprised of reworked clay with varying amounts of brick, concrete and sandstone gravel. Based on the test results of the stockpile, this material would not be classified as hazardous waste. The results from TP1, TP2 and TP3 have generally recorded low concentrations except the lead concentrations, however these soils would also be classed as non-hazardous waste.

The sample taken from TP4, adjacent to the old heating oil tank recorded very high concentrations of lead and based on this, the material would be classified as hazardous waste. It is understood that the soils within this area will be below the proposed access road and will remain on site.

All the chemical test results should be presented to the chosen landfill operator prior to exportation from the site.

In summary the remedial measures are as follows:

1. Removal of soil material within the proposed garden area (already carried out)
2. Export existing material from garden area offsite as non-hazardous waste
3. construct artificial grass garden area.

7. Verification Strategy

It is understood that the remedial measures and verification report will be carried out and issued by the developer to the local authority. The verification report will have to show that all the elements of the agreed remedial measures have been carried out correctly and all elements documented.

The following is an outline of the requirements for the verification report:

1. Evidence showing removal of existing soil material from the proposed garden areas (e.g. photographs)
2. Copies of Waste consignment notes for all waste material removed from the site.
3. Artificial grass construction Verification
 - Photographs with scale (tape measure)

We trust that you find the assessment set out in this letter meets your approval. Should you wish to discuss any matters in further detail, please do not hesitate to contact us.

Yours sincerely

for and on behalf of TerraConsult Ltd

J Thorburn

J Thorburn

APPENDIX 1

Correspondence from Wrexham County Borough Council

Head of Housing, Public Protection and Environment
Pennaeth Tai, Gwarchod y Cyhoedd a'r Amgylchedd
Andy Lewis

Housing, Public Protection and Environment Department, Ruthin Road, Wrexham LL13 7TU
Adran Tai, Gwarchod y Cyhoedd a'r Amgylchedd, Ffordd Rhuthun, Wrecsam LL13 7TU
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Ms Spiby
BY EMAIL ONLY

Your Ref/Eich Cyf	P/2015/0008
Our Ref/Ein Cyf	30 June 2015
Date/Dyddiad	Angela Guy
Ask for/Gofynner am	01978 297433
Direct Dial/Rhif Union	angela.guy@wrexham.gov.uk
E-mail/E-bost	

Dear Ms Spiby

**FORMER WESTMINSTER ARMS, RUTHIN ROAD, BWLCHGWYN – PHASE 1 & 2
SITE INVESTIGATION**

Thank you for forwarding a copy of the site investigation report to me. Having reviewed the report I can confirm that I'm satisfied with the investigation findings in so far as remedial works for the garden area are required. However having taken advice from Natural Resource Wales regarding the potential solution to reuse the excavated soils under permanent hard landscaped areas I should point out that this would require compliance with the CL:AIRE Code of Practice 'Definition of Waste'. Your consultant is likely to be able to provide further advice on this. Alternatively Terraconsult have provided details in Appendix F about classification of soils for disposal off site as waste. It is possible that the soils at your property may be hazardous waste.

I would recommend that a remediation strategy is prepared and submitted for approval, this will detail specifically what remediation will be undertaken. Once this has been obtained the remediation works can then be undertaken and finally a verification report should be submitted for approval (this will demonstrate the works have been undertaken as proposed in the strategy).

Please do not hesitate to contact me should you have any queries regarding this letter.

Yours sincerely

Angela Guy
Contaminated Land Officer

2295LR01/JT -
Former Westminster Arms, Ruthin Rd, Bwlchgwyn

APPENDIX 2

Chemical Test Results



Chris Eccles
TerraConsult Ltd
Bold Business Centre
Bold Lane
Sutton
St Helens
Merseyside
WA9 4TX



QTS Environmental Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 15-31718

Site Reference: Westminster Arms

Project / Job Ref: 2295

Order No: 14224

Sample Receipt Date: 26/05/2015

Sample Scheduled Date: 26/05/2015

Report Issue Number: 1

Reporting Date: 01/06/2015

Authorised by:

Russell Jarvis
Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director

On behalf of QTS Environmental Ltd

QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
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Soil Analysis Certificate						
QTS Environmental Report No: 15-31718	Date Sampled	22/05/15	22/05/15	22/05/15	22/05/15	22/05/15
TerraConsult Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Westminster Arms	TP / BH No	TP1-ES1	TP2-ES1	TP3-ES1	TP4-ES1	Stockpile-ES1
Project / Job Ref: 2295	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 14224	Depth (m)	0.20	0.20	0.20	0.35	None Supplied
Reporting Date: 01/06/2015	QTSE Sample No	149968	149969	149970	149971	149972

Determinand	Unit	RL	Accreditation					
Asbestos Screen	N/a	N/a	ISO17025	Not Detected				Not Detected
pH	pH Units	N/a	MCERTS	7.6	7.8	6.6	6.9	6.9
Total Cyanide	mg/kg	< 2	NONE	< 2		< 2	< 2	< 2
Total Sulphate as SO ₄	mg/kg	< 200	NONE				3224	
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.09		0.09	0.16	0.16
Organic Matter	%	< 0.1	MCERTS				1.3	
Total Organic Carbon (TOC)	%	< 0.1	MCERTS				0.8	1.3
W/S Chloride (2:1)	mg/kg	< 1	MCERTS				11	
Arsenic (As)	mg/kg	< 2	MCERTS	15	34	11	53	12
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	0.7	0.3	1.2	0.6
Chromium (Cr)	mg/kg	< 2	MCERTS	15	13	17	16	19
Copper (Cu)	mg/kg	< 4	MCERTS	42	43	35	98	37
Lead (Pb)	mg/kg	< 3	MCERTS	1140	1400	479	4020	737
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1	1.6	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	18	10	27	9	22
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	68	99	71	280	141
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2		< 2	< 2	< 2
DRO (C10 - C24)	mg/kg	< 6	MCERTS				47	
Oil (C25 - C40)	mg/kg	< 6	MCERTS				79	
Mineral Oil (C10 - C40)	mg/kg	< 10	MCERTS				52	

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C
Analysis carried out on the dried sample is corrected for the stone content
The samples have been examined to identify the presence of asbestiform minerals by polarising light microscopy and dispersion staining technique to In-House Procedures QTSE600 Determination of Asbestos in Bulk Materials; Asbestos in Soils/Sediments (fibre screening and identification)
This report refers to samples as received, and QTS Environmental Ltd, takes no responsibility for the accuracy or competence of sampling by others.
The material description shall be regarded as tentative and is not included in our scope of UKAS Accreditation.
Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.
Asbestos Analyst: Wioletta Goral
RL: Reporting Limit
Pinch Test: Where pinch test is positive it is reported "Loose Fibres - PT" with type(s).
Subcontracted analysis ⁽⁵⁾



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Soil Analysis Certificate - Speciated PAHs						
QTS Environmental Report No: 15-31718	Date Sampled	22/05/15	22/05/15	22/05/15	22/05/15	
TerraConsult Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Westminster Arms	TP / BH No	TP1-ES1	TP3-ES1	TP4-ES1	Stockpile-ES1	
Project / Job Ref: 2295	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: 14224	Depth (m)	0.20	0.20	0.35	None Supplied	
Reporting Date: 01/06/2015	QTSE Sample No	149968	149970	149971	149972	

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Coronene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Total Oily Waste PAHs	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	
Total Dutch 10 PAHs	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	
Total WAC-17 PAHs	mg/kg	< 1.7	NONE	< 1.7	< 1.7	< 1.7	< 1.7	

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - TPH CWG Banded						
QTS Environmental Report No: 15-31718	Date Sampled	22/05/15				
TerraConsult Ltd	Time Sampled	None Supplied				
Site Reference: Westminster Arms	TP / BH No	TP4-ES1				
Project / Job Ref: 2295	Additional Refs	None Supplied				
Order No: 14224	Depth (m)	0.35				
Reporting Date: 01/06/2015	QTSE Sample No	149971				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	4			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	12			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	22			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	18			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	56			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	26			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	26			
Total >C5 - C35	mg/kg	< 42	NONE	81			

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - BTEX / MTBE						
QTS Environmental Report No: 15-31718	Date Sampled	22/05/15				
TerraConsult Ltd	Time Sampled	None Supplied				
Site Reference: Westminster Arms	TP / BH No	TP4-ES1				
Project / Job Ref: 2295	Additional Refs	None Supplied				
Order No: 14224	Depth (m)	0.35				
Reporting Date: 01/06/2015	QTSE Sample No	149971				

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2				
Toluene	ug/kg	< 5	MCERTS	< 5				
Ethylbenzene	ug/kg	< 2	MCERTS	< 2				
p & m-xylene	ug/kg	< 2	MCERTS	< 2				
o-xylene	ug/kg	< 2	MCERTS	< 2				
MTBE	ug/kg	< 5	MCERTS	< 5				

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - Sample Descriptions	
QTS Environmental Report No: 15-31718	
TerraConsult Ltd	
Site Reference: Westminster Arms	
Project / Job Ref: 2295	
Order No: 14224	
Reporting Date: 01/06/2015	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
149968	TP1-ES1	None Supplied	0.20	12.2	Light brown clayey gravel with rubble
149969	TP2-ES1	None Supplied	0.20	9.8	Light brown clayey gravel with rubble
& 149970	TP3-ES1	None Supplied	0.20	9.8	Green gravelly clay with rubble
149971	TP4-ES1	None Supplied	0.35	10.9	Brown clayey gravel with rubble
149972	Stockpile-ES1	None Supplied	None Supplied	16.4	Black gravelly clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

& samples received in inappropriate containers for hydrocarbon analysis



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Soil Analysis Certificate - Methodology & Miscellaneous Information				
QTS Environmental Report No: 15-31718				
TerraConsult Ltd				
Site Reference: Westminster Arms				
Project / Job Ref: 2295				
Order No: 14224				
Reporting Date: 01/06/2015				

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received