

Site Analytical Services Ltd.



Site Investigations, Analytical & Environmental Chemists, Laboratory Testing Services.

Units 14 + 15, River Road Business Park,
33 River Road, Barking, Essex IG11 0EA

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Your Ref:

VERBAL
JAMES GANNON

Our Ref:

16/25919
JSW/LB

SAMPLES OF 'CRUSHED CONCRETE' – DOT CLASS 6F2
RE: BRADFIELD ROAD, LONDON E16

SUBMITTED BY RECYCLED MATERIAL SUPPLIES LIMITED

RECEIVED ON 20th OCTOBER 2016

INTRODUCTION

Two samples of the above material were received into the laboratory for chemical analysis in order to determine the degree of contamination by those parameters listed under results. The samples were referenced '1' and '2'.

RESULTS

IS THE SOIL SUITABLE FOR USE?		
	No.1	No. 2
RESIDENTIAL USE WITH PRIVATE GARDENS	YES	NO
RESIDENTIAL USE WITHOUT PRIVATE GARDENS	YES	YES
ALLOTMENTS	YES	NO
PUBLIC OPEN SPACE	YES	YES
COMMERCIAL / INDUSTRIAL SITES	YES	YES



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33 River Road Barking, Essex IG11 0EA
Business Reg. No. 2255616





COMMENTS

Concentrations of the zootoxic heavy metals Total Arsenic, Total Boron, Total Cadmium, Hexavalent Chromium, Trivalent Chromium, Total Mercury, Total Selenium, Total Copper, Total Nickel and Total Zinc in the samples analysed did not exceed the S4UL Generic Guideline Values for a residential scenario with home-grown produce. The concentrations of Total Lead encountered did not exceed the Category 4 Screening Level for residential use with home-grown produce of 200mg/kg.

The concentrations of Total Cyanide were below the screening value of 20mg/kg and the concentrations of Total Phenol were below the S4UL Generic Guideline Value for a residential scenario with home-grown produce.

The marginally elevated concentration of Dibenz(a,h)anthracene was encountered in Sample 2 in excess of the S4UL Generic Guideline Values for a residential scenario with home-grown produce at 1% SOM.

The concentrations of Total Petroleum Hydrocarbons encountered did not exceed the Screening Value of 500mg/kg.

The concentrations of Total Sulphide did not exceed 5mg/kg. It is therefore not anticipated that sulphides will present any human health risk or affect construction or service materials.

The concentrations of Total Sulphate encountered were in excess of the BRE guidance level of 2400mg/kg. From the water soluble sulphate concentrations BRE Special Digest 1 : 2005, Tables C1 and C2 would classify both samples submitted as Class DS-3.

Asbestos was not detected in the samples submitted.

The samples were analysed using the 'Catwastesoil' assessment tool, which concluded that both samples were not hazardous in nature.

The above conclusions have been drawn on the results of the tests carried out on the samples submitted and address remediation issues for the protection of the end-user only. The comments made in this report do not address any third party liability.

p.p. SITE ANALYTICAL SERVICES LIMITED

A handwritten signature in black ink, appearing to read 'Aubrey Davidson', with a long horizontal line extending to the right.

25th October 2016

Aubrey Davidson BSc MSc DIC
Environmental Engineer



Site Analytical Services Ltd.

APPENDIX

Laboratory Test Data



Aubrey Davidson
Site Analytical Services Ltd
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QTS Environmental Ltd
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russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 16-50742

Site Reference: Bradfield Road

Project / Job Ref: 16/25919

Order No: 23223

Sample Receipt Date: 21/10/2016

Sample Scheduled Date: 21/10/2016

Report Issue Number: 1

Reporting Date: 25/10/2016

Authorised by:

Kevin Old
Associate Director of Laboratory

Authorised by:

Russell Jarvis
Associate Director of Client Services

Soil Analysis Certificate					
QTS Environmental Report No: 16-50742	Date Sampled	20/10/16	20/10/16		
Site Analytical Services Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Bradfield Road	TP / BH No	1	2		
Project / Job Ref: 16/25919	Additional Refs	None Supplied	None Supplied		
Order No: 23223	Depth (m)	None Supplied	None Supplied		
Reporting Date: 25/10/2016	QTSE Sample No	234409	234410		

Determinand	Unit	RL	Accreditation				
Asbestos Screen	N/a	N/a	ISO17025	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	10.8	10.7		
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2		
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2		
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2		
Total Sulphate as SO ₄	mg/kg	< 200	NONE	18830	8258		
Total Sulphate as SO ₄	%	< 0.02	NONE	1.88	0.83		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	1710	1600		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	1.71	1.60		
Sulphide	mg/kg	< 5	NONE	< 5	< 5		
Organic Matter	%	< 0.1	MCERTS	1.3	1.4		
Total Organic Carbon (TOC)	%	< 0.1	MCERTS	0.8	0.8		
Arsenic (As)	mg/kg	< 2	MCERTS	12	16		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	20	20		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	36	151		
Lead (Pb)	mg/kg	< 3	MCERTS	177	132		
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	13	14		
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3		
Zinc (Zn)	mg/kg	< 3	MCERTS	159	147		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2		
EPH (C10 - C40)	mg/kg	< 6	MCERTS	185	237		

Analytical results are expressed on a dry weight basis where samples are assisted-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: Rosie Head

RL: Reporting Limit

Pinch Test: Where pinch test is positive it is reported "Loose Fibres - PT" with type(s).

Subcontracted analysis ⁽⁵⁾



QTS Environmental Ltd
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Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Speciated PAHs					
QTS Environmental Report No: 16-50742	Date Sampled	20/10/16	20/10/16		
Site Analytical Services Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Bradfield Road	TP / BH No	1	2		
Project / Job Ref: 16/25919	Additional Refs	None Supplied	None Supplied		
Order No: 23223	Depth (m)	None Supplied	None Supplied		
Reporting Date: 25/10/2016	QTSE Sample No	234409	234410		

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	0.16	0.16		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	0.25		
Fluorene	mg/kg	< 0.1	MCERTS	0.23	0.39		
Phenanthrene	mg/kg	< 0.1	MCERTS	1.17	2.81		
Anthracene	mg/kg	< 0.1	MCERTS	2.77	0.99		
Fluoranthene	mg/kg	< 0.1	MCERTS	1.59	4.50		
Pyrene	mg/kg	< 0.1	MCERTS	1.40	3.43		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.65	2.53		
Chrysene	mg/kg	< 0.1	MCERTS	0.73	2.50		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.85	3.83		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.45	1.27		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.69	2.17		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.44	1.59		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.25		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.38	1.29		
Coronene	mg/kg	< 0.1	NONE	< 0.1	0.59		
Total Oily Waste PAHs	mg/kg	< 1	MCERTS	3.8	14.1		
Total Dutch 10 PAHs	mg/kg	< 1	MCERTS	9	19.8		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	11.5	28		
Total WAC-17 PAHs	mg/kg	< 1.7	NONE	11.5	28.6		

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



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Soil Analysis Certificate - Sample Descriptions	
QTS Environmental Report No: 16-50742	
Site Analytical Services Ltd	
Site Reference: Bradfield Road	
Project / Job Ref: 16/25919	
Order No: 23223	
Reporting Date: 25/10/2016	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
234409	1	None Supplied	None Supplied	9.4	Brown sandy clay with brick and concrete
234410	2	None Supplied	None Supplied	9.1	Brown sandy clay with brick and concrete

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

Insufficient Sample ^{1/S}

Unsuitable Sample ^{U/S}

Soil Analysis Certificate - Methodology & Miscellaneous Information
QTS Environmental Report No: 16-50742
Site Analytical Services Ltd
Site Reference: Bradfield Road
Project / Job Ref: 16/25919
Order No: 23223
Reporting Date: 25/10/2016

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