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View extent: 723m,	393m
Underground cables -	
Overhead lines -	
]	
0m Approximate s on A4 Colour	¹ 50m scale 1:2500 Landscape
	Underground cables Overhead lines Om Approximate s on A4 Colour

Map not to be used for construction

This plan shows those cables owned by National Grid Electricity Transmission plc in its role as a Licensed Electricity Transporter (ET). Electricity cables owned by other ETs, or otherwise privately owned, may be present in this area. Information with regard to such cables should be obtained from the relevant owners The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Ancillary equipment such as cooling systems and communication cables are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Electricity Transmission plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of cables and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near electricity apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Map 2 of 2 (ELECTRIC)

MAPS Plot Server Version 1.9.0

nationalgrid

Requested by: Create Consulting Engineers

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ENQUIRY SUMMARY

Received Date 27/06/2017

Your Reference 42 Elsworthy Road

Location Centre Point: 527309, 184068 X Extent: 38 Y Extent: 46 Postcode: NW3 3DL Location Description: 42 ELSORTHY ROAD, LONDON,

Map Options Paper Size: A4 Orientation: LANDSCAPE Requested Scale: 500 Actual Scale: 1:1250 (GAS), 1:2500 (ELECTRIC) Real World Extents: 361m x 196m (GAS), 723m x 393m (ELECTRIC)

<u>Recipients</u> aidan.fisher@createconsultingengineers.co.uk

Enquirer Details Organisation Name: Create Consulting Engineers Contact Name: Aidan Fisher Email Address: aidan.fisher@createconsultingengineers.co.uk Telephone: 01603877010 (01603877010) Address: 15, Princes Street, Norwich, Norwich, Norfolk, NR3 1AF

<u>Description of Works</u> TBC. Small extension to residential property

Enquiry Type Proposed Works

<u>Activity Type</u> Small-scale Construction

Work Types

Work Type: Change to Ground Level Work Type: Deep Excavation (greater than or equal to 0.3m) Work Type: Hand Digging Work Type: Shallow Excavation (less than 0.3m) Work Type: Surface Works Work Type: Materials Storage Work Type: Temporary Structures Work Type: Permanent Structures Work Type: Piling (Vibration) Work Type: Piling / Vertical Boring / Drilling (non-Vibration) Work Type: Drop Kerb

-2.4/c 23/e RTON RIS 21165 - HV5J 22.10.95 5-5-64 m 1-24c T LV 5 J 6-55 0 -7 HN. S PE .3 4c / LV CR J 4.5.79 15% LVSJ 25[.]3-55 HVSJ 2.6.55 -253/0 50m 60m 30m 40m



Plotted On : 28/06/2017 Plotted By : Kav Singh Plot Description: 42, ELSWORTHY ROAD, LONDON, NW3 3 2017/2258371/comp Map Centre : TQ2784SW

UK Power Networks Plan Provision Fore Hamlet IPSWICH Suffolk IP3 8AA Tel 0800 0565 866 Fax 08701 963782



For details of the symbology please refer to http://www.ukpowernetworks.co.uk/safety-emergencies/in-the-workplace/understanding-safety-symbols.shtml

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301	Depth normally 750mm cover Before digging within one me Telephone 0800 056 5866 in on site and any necessary pr	r in carriageway & 600mm cove etre of these cable routes n order that the Company's app rotection works agreed.	er in footway. Daratus may be located	your own risk. 2. UK Power Networks L the death of a person o personal injury to a p caused by its negligence 3. Subject to paragraph	td does not exclude or limit its r causes person where such death or per e. 2, UK Power Networks Ltd has	liability if it causes sonal injury is no liability to you	cab xcav
JUL	N.B. THRUST BORERS OR MOL CABLES BELONGING TO UK PO COMPANY.	LES MUST NOT BE USED WITHIN DWER NETWORKS WITHOUT FIRST	THE VICINITY OF ANY CONTACTING THIS	for breach of statuto damage, costs, claims, you or any third part information provided whe damage to property of	uding negligence), ry duty or otherwise howsoever demands or expenses that y may suffer or incur as a resu ether for physical or for any economic loss (includ	for any loss, It of using the ding without	t the use des stur
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	A separate record is kept for eac record. 5. All cables must be treated as 6. The information provided must & equipment. Do not use plans m purposes. 7. Please be aware that electric of	being live unless proved otherwise be given to all people working nea nore than 3 months after the issue	by UK Power Networks. In UK Power Networks In UK Power Networks' plant In date for excavation	Survey Licence number Survey base map; all pr shall remain the exclusiv Eastern Power Networks being a distribution licer 1989 for the relevant di	100019826. Data has been add oprietary rights in such addition ve property of (C) London Powe plc or South Eastern Power Ne nsee under section 6(1)(c) of th stribution services area as that	ed to the Ordnance al data are and r Networks plc or tworks plc each ne Electricity Act term is defined in	ware
	Langungun systems may be prese	ene and it is your responsibility to l		such licensee's distributi	ion licence. All rights in such do	ita reserved.	



ADVICE TO CONTRACTORS ON AVOIDING DANGER FROM BURIED ELECTRICITY CABLES.

ave cable drawings with you on site and check them before you e excavation. ave a cable locator tool on site and use it to help you. out the location of electricity cables. ot use a mechanical excavator within 0.5m of electricity cables. spades and shovels in preference to other tools. r disturb electricity cables and joints or their protective covers. IF IN DOUBT - ASK! PHONE 0800 056 5866 EMERGENCY - If you damage a cable or line Phone 0800 780 0780 (24hrs) URGENTLY

sic safety precautions are explained in detail in the HSE booklet. — Avoiding Danger from Underground Services, a copy of which obtained from your supervisor or HMSO.

e aware that electric lines belonging to other owners of licensed / distribution systems may be present and it is your responsibility y their location.



Mr. Aidan Fisher Create Consulting Engineers Ltd 15 Princces Street Norwich Norfolk NR3 1AF

> Our Ref: 2017/2258371 Your Ref: 28/06/2017

Dear Sir/Madam

42, ELSWORTHY ROAD, LONDON, NW3 3DL

Thank you for your letter of 27/06/2017 in which you asked if there are any electric lines and/or electrical plant belonging to UK Power Networks (LPN) plc ("UK Power Networks") within the land identified by your enquiry.

I enclose a copy of UK Power Networks record of its electric lines and/or electrical plant at the site identified by your enquiry. If the records provided do not relate to the land to which you had intended to refer please resubmit your enquiry.

Should your excavation affect any of our Extra High Voltage equipment (6.6 KV, 22 KV, 33 KV or 132 KV), please contact us to obtain a copy of the primary route drawings and associated cross sections.

This information is made available to you on the terms set out below.

1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.

- 2. UK Power Networks does not exclude or limit its liability if it causes the death of any person or causes personal injury to a person where such death or personal injury is caused by its negligence.
- 3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise how for any loss, damage, costs, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.
- 4. The information about UK Power Networks electrical plant and/or electric lines provided to you belongs to and remains the property of UK Power Networks. You must not alter it in any respect.
- 5. The information provided to you about the electrical plant and/or electric lines depicted on the plans may <u>NOT</u> be a complete record of such apparatus belonging to UK Power Networks. The information provided relates to electric lines and/or electrical plant belonging to UK Power Networks that it believes to be present but the plans are <u>NOT</u> definitive: other electric lines and/or electrical plant may be present and that may or may not belong to UK Power Networks.

- 6. Other apparatus not belonging to UK Power Networks is not shown on the plan. It is your responsibility to make your own enquiries elsewhere to discover whether apparatus belonging to others is present. It would be prudent to assume that other apparatus is present.
- 7. You are responsible for ensuring that the information made available to you is passed to those acting on your behalf and that all such persons are made aware of the contents of this letter.
- 8. Because the information provided to you may <u>NOT</u> be accurate, you are recommended to ascertain the presence of UK Power Networks electric lines and/or electrical plant by the digging of trial holes. <u>Trial holes</u> should be dug by hand only.

Excavations must be carried out in line with the Health and Safety Executive guidance document HSG 47. We will not undertake this work. A copy of HSG 47 can be obtained from the Health an Safety Executives website.

All electric lines discovered must be considered LIVE and DANGEROUS at all times and must not be cut, resited, suspended, bent or interfered with unless specially authorised by UK Power Networks.

The electric line and electrical plant belonging to UK Power Networks remains so even when made dead and abandoned and any such electric line and/or electrical plant exposed shall be reported to UK Power Networks.

Where your works are likely to affect our electric lines and/or electrical plant an estimate of the price of any protective /diversionary works can be prepared by UK Power Networks Branch at Metropolitan House, Darkes Lane, Potters Bar, Herts., EN6 1AG, telephone no. 0845 2340040

9 Any work near to any overhead electric lines must be carried out by you in accordance with the Health and Safety Executive guidance document GS6 and the Electricity at Work Regulations.

The GS6 Recommendations may be purchased from HSE Books or downloaded from the Energy Networks Association's website.

If given a reasonable period of prior notice UK Power Networks will attend on site without charge to advise how and where "goal posts" should be erected. If you wish to avail yourself of this service, in the first instance please telephone: 0845 6014516 between 08:30 and 17:00 Monday to Friday, Public and bank holidays excepted.

- 10. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.
- 11. If in carrying out work on land in, on, under or over which is installed an electric line and/or electrical plant that belongs to UK Power Networks you and/or anyone working on your behalf damages (however slightly) that apparatus you must inform immediately UK Power Networks by telephone at the number below providing:
 - your name, address and telephone number; and
 - the date, time and place at which such damage was caused; and
 - a description of the electric line and/or electrical plant to which damage was caused; and
 - the name of the person whom it appears to you is responsible for that damage; and
 - the nature of the damage

In the East of England or London 0800 780078 (24 Hours).

12. The expression "UK Power Networks" includes UK Power Networks (EPN) plc, UK Power Networks (LPN) plc, UK Power Networks and any of their successors and predecessors in title.

IF YOU DO **NOT** ACCEPT AND/OR **DO NOT** UNDERSTAND THE TERMS OF USE SET OUT IN PARAGRAPHS 1 TO 12 INCLUSIVE ABOVE YOU MUST NOT USE THE PLANS AND RETURN THEM TO ME.

I would remind you that work adjacent to electric lines and/or electrical plant represents a serious risk to health and safety and as such should feature amongst the items you have assessed in your workplace risk assessment and method statement.

I shall be pleased to supply you with further assistance if you require it.

Yours sincerely

Kav Singh - Telephone: 0800 0565 866 Plan Provision

UK Power Networks, Plan Provision, Fore Hamlet, Ipswich, IP3 8AA. Tel: 0800 0565866. Fax: 0870 1963782.

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Plotted By: Kav Singh

2017/2258371

Plotted On 28/06/2017

TQ2784SWBSE





2017/2258371

Plotted On 28/06/2017

TQ2784SWBSE





Plotted By: Kav Singh

2017/2258371

Plotted On 28/06/2017

TQ2784SWBSE



Maps by email Plant Information Reply



WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

APPENDIX D

CORRESPONDENCE WITH LONDON UNDERGROUND INFRASTRUCTURE PROTECTION TEAM

Transport for London London Underground



London Underground Infrastructure Protection

3rd Floor Albany House 55 Broadway London SW1H 0BD

www.tfl.gov.uk/tube

Your ref: Our ref: 20403-SI-5-290617

Andrew Warren Create Consulting Engineers Andrew.Warren@createconsultingengineers.co.uk

29 June 2017

Dear Andrew,

42 Elsworthy Road London NW3 3DL

Thank you for your communication of 28th June 2017.

I can confirm that London Underground assets will not be affected by works at the above location.

However, there are Network Rail assets close to this site.

Please contact the following to query what affect if any your proposals will have on the railway:

Asset Protection Anglia Route Network Rail Floor 11 One Stratford Place Stratford London E20 1EJ

Telephone number 0203 356 2510

Email: <u>AssetProtectionLNEEM@networkrail.co.uk</u>

If I can be of further assistance, please contact me.

Yours sincerely

Shahina Inayathusein

Information Manager Email: locationenquiries@tube.tfl.gov.uk Direct line: 020 3054 1365

London Underground Limited trading as London Underground whose registered office is 55 Broadway London SW1H 0BD

Registered in England and Wales Company number 1900907

VAT number 238 7244 46



London Underground Limited is a company controlled by a local authority within the meaning of Part V Local Government and Housing Act 1989. The controlling authority is Transport for London.

MAYOR OF LONDON

APPENDIX E

CORRESPONDENCE WITH NETWORK RAIL ASSET PROTECTION TEAM

Colin Buchanan

From:	Gudshu#Ulfkdug#UlfkdugGudshuCqhwzrunudbfr1xnA
Sent:	63₩kqh#534:#4=87
То:	FrdqÆxfkdqdq
Subject:	UH#75#Hovz runk #Urdg #QZ 6#6GO
Attachments:	45 thour ruk to dudq 1sgi

Colin

Our property diagram attached

From your description and dimensions of your proposed boreholes from our tunnel, I have no further comment...

Thx

Regards

Richard Draper Senior Asset Protection Engineer Network Rail Baskerville House Birmingham B1 2ND Ph: 0121 345 3203 Mob; 07711601086



From: Colin Buchanan [mailto:Colin.Buchanan@createconsultingengineers.co.uk]
Sent: 30 June 2017 11:28
To: Draper Richard
Subject: 42 Elsworthy Road, NW3 3DL

Dear Richard

As discussed, we have been asked to undertake a site investigation at 42 Elsworthy Road NW3 3DL (please see attached location plans) with up to 15m deep boreholes.

There is a NR asset located approximately 22m to the north (an underground railway line) and all the information I have (utility plans, OS plans, etc.) appear to confirm that the NR asset is in the same place (see Site Location 2 and Borehole Location plans). This is approx. 30 metres from where we need to drill (see attached borehole location plan and inferred distances plan), which have been crossed checked against scaled OS plans and utility service plans showing surveyed positon of asset.

The rigs being used are:

- Demountable cable percussion rig (10m high) for the 15m boreholes (green symbols); and
- Window sampling rig (2m high) for the 5m holes (red symbols).

I was hoping for a relatively quick yes / no answer on whether we need to go through the formal process today if you can, as discussed as I have drillers lined up for next week currently. Clearly, if we need to go through a formal clearance process then this will need to be re-scheduled.

Your earliest attention to this matter would be very much appreciated.

Best regards Colin

Colin Buchanan Technical Director Environmental

Create Consulting Engineers Ltd

109-112 Temple Chambers | 3-7 Temple Avenue | London | EC4Y 0HP T 0207 822 2300 M 0754 543 1487





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 Plot Scale
 1:2559

 Plot Date
 22/2/2016

Centre of Map Window (E,N): 527418 , 184153

Output Created from the GI Portal - A4 Landscape

Reproduced from the Ordnance Survey Map with permission of the controller of Her Majesty's Stationery Office. Crown Copyright. Licence No: 0100040692

APPENDIX F

BOREHOLE LOGS

C	rea	te	109-112 Temple Chamber 3-7 Temple Avenue	S		R∩	reha			Borehole I RH01	No
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FIC		42 EISWONNY	RODO				Co-oras:	n/a		СР	
Loo	cation: I	London. NW	3 3DL		13	08	Level:	n/a		NTS	
Cli	ent: I	Daniel Austir	ı				Dates:	05.07.17		Logged CB	ł
<u> </u>		Samples and	d In Situ Testing	Level	Depth			Sti	ratum		ater
3	Depth [n	n] Type	Results	AOD]	[m]	Legen	d		Description		×
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H	1.00	D2					8				
	1.50 1.50-1.95	D3 U100	BLOWS = 79		1.40 _	×	Firm to sti	iff medium I rstone banc	brown silty clay (LOND(1 at 2.5m.	ON CLAY)	-
	2.00	D4		-	2	+×_ +					
	2.50 2.50-2.95	D5 5 SPT	N=19 [5, 5 / 5, 5, 4, 5]		-						
	3.00	D6			3						
	4.00	D7 5 U100	BLOWS = 70		4						
	5.00	D8			5	 					
	5.50-5.95	5 D/S 5 SPT	N=26 [4, 4 / 6, 5, 8, 7]			× × 					
	6.00	D9			6						
	7.00 7.00-7.45	D10 5 U100	Blows = 100 (no recovery)		7						
	8.00	D11			8	 					
	8.50-8.95 8.50-8.95	5 D/S 5 SPT	N=33 (7, 6 / 7, 8, 8, 8)			 					
	9.00	D12			9			-grey silty C	LAY (LONDON CLAY).		-
┠┤╞	10.00	D13 U100	BLOWS = 100		10		×- -				
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		109-112 Iemple Chambor			`				Borehole	No
		3-7 Temple Avenue London EC47 0HP	5	ł	30	reh	ole	Log	BHO	1
									Sheet 2 c	of 2
Project: 42 Els	worthy	Road		Projec	ct No:	Co-ords:	n/a		Hole Typ CP	ce
Location: Londo	on. NW3	3DL		13	08	Level:	n/a		Scale	•
Client: Danie	el Austin					Dates:	05.07.17		Logge	d
📮 Samp	oles and	In Situ Testing	Level	Depth			Str	atum	CB	er
≥ Depth [m]	Туре	Results	[m AOD1	[m]	Legen	d		Description		Vat Vat
11.00 11.50-11.95 11.50-11.95 12.00 12.00 12.00-12.45 13.50-13.95 13.50-13.95 14.00	D14 D/S SPT D15 U100 D16 D/S SPT D17	N=32 [8, 7 / 8, 7, 8, 9] BLOWS = 100 N=41 [9, 9 / 9, 11, 10, 11]		11 12 12 13 13 14 14 15 16 16 17 17 18 18			e-grey silty CI	AY (LONDON CLAY).		

-	roa	b	109-112 Temple Chamber	S	Po	robolo		Borehole I	No
CONS			3-7 Temple Avenue London EC47 0HP		DO	renoie	LOG	BH02	
					Project No:			Sheet 1 o	f 2
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Loc	ation: L	ondon. NW3	3 3DL		1308	Level: n/a		Scale	
								NTS Logged	1
Clie	ent: D	aniel Austin	1			Dates: 06.07.17		CB	
/ell	S	amples and	d In Situ Testing	[m	Depth	St	ratum		ater
>	Depth [m] Type	Results	AOD]	Legen	d Toppou	Description		Š
	0.40 0.50 1.00	D, ES D1 D2			0.15	Dark brown friable re sand, chalk gravel c	eworked clay MADE Gf and red brick fragments	ROUND. With	
	1.00-1.45	D/S SPT	N=17 [4, 4 / 4, 4, 5, 4]						
	2.00 2.00-2.45	D3 U/100	BLOWS = 67		2	Firm to stiff medium	brown silty clay (LOND)	ON CLAY).	
	3.00 3.00-3.45 3.00-3.45	D4 D/S SPT	N=24 [5, 5 / 5, 6, 6, 7]		3				
	4.00 4.00-4.45	D5 U100	BLOWS = 90		4 ~				
	5.00 5.00-5.45 5.00-5.45	D6 D/S SPT	N=26 [6, 6 / 6, 8, 6, 6]						
	6.00	D7			6	 - - - - -			
	6.50-6.95	U100	Blows = 100						
	7.00	D8							
	8.00 8.00-8.45 8.00-8.45	D9 SPT D/S	N=32 [5, 5 / 8, 7, 8, 9]		8				
╞╡╞	-	9.00	D10	-	9-[
	9.50-9.95 9.50-9.95	D/S SPT	N=35 [6, 6 / 8, 9, 8, 10]						
	10.00	D11		-	10	-			
Rer	I narks: B N	L H02 terminc Io groundw	l ated @ 15.0m, target da ater encountered.	l epth.					

CONS			109-112 Temple Chamber 3-7 Temple Avenue London EC47 0HP	5	E	30	reh	ole	Log	Borehole No BH02	
Proj	ect:	42 Elsworthy	Road		Projec	t No:	Co-ords:	n/a		Sheet 2 of 2 Hole Type	
Loc	ation:	London, NW	3 3DL		13	08	Level:	n/a		Scale	
Clie	ent:	Daniel Austin	n				Dates:	06.07.17		NTS Logged	
=		Samples and	d In Situ Testing	Level	Depth			Stra	tum		Ге
Ň	Depth [m] Type	Results	[m AOD]	[m]	Legen	d	D	escription	3	MC
	10.50-10 10.50-10 11.00 12.00 13.00-13 13.00-13 14.00 14.50-14 14.50-14 15.00	Initial Type .95 D/S .95 SPT D12 D13 .45 D14 .45 SPT .45 D15 .95 D/S .95 D/S .95 D/S .95 D/S .95 D/S .95 J .95 J	Results N=41 [6, 7 / 13, 8, 9, 11] N=38 [6, 6 / 12, 8, 8, 10] N=38 [7, 8 / 7, 11, 10, 10]	AODJ 	11 11 12 13 13 14 14 15 16 16 17 17 18		- Firm to s	e-grey silty CLA	ay (LONDON CLAY).	ON CLAY).	
Ren	narks:	BH02 termino No groundw	ated @ 15.0m, target de ater encountered.	epth.							

C	real	e	109-112 Temple Chamber 3-7 Temple Avenue	S	F	20	reh	مام		Borehole I	No I
CON		ERS LTD	London EC47 0HP						LUY	Shoot 1 o	r .f 1
Dro	ia ati A		Dond		Projec	ct No:	C a sustau			Hole Typ	e
FIO	jeci. 4		kodu		-		Co-oras:	n/a		WS	
Loc	cation: Lo	ondon. NW3	3DL		13	08	Level:	n/a		Scale NTS	
Clie	ent: D	aniel Austin					Dates:	05.07.17		Logged CB	ł
Ē	S	amples and	In Situ Testing	Level [m	Depth			Sti	ratum		ater
3	Depth [m] Type	Results	AOD]	[m]	Legen	t k		Description		ž
	0.30 1.00-1.45 1.00-1.45 1.20 1.50-1.60 1.90-2.00 2.00-2.45 2.00-2.45 2.00-2.45 3.00-3.45 3.00-3.45 3.85-4.00 4.00-4.45 4.00-4.45	D, ES D SPT D, ES D D SPT D SPT D SPT	N=16 [3, 3 / 4, 4, 4, 4] N=10 [1, 1 / 2, 2, 3, 3] N=11 [1, 1 / 2, 3, 2, 4] N=14 [2, 2 / 3, 3, 4, 4]		0.15		TOPSOIL. Loose to GROUNE red tile fr Firm to st	medium de). With fine t agments. iff medium l	ense grey brown sandy to coarse gravel and re brown silty clay (LONDO	silty MADE ed brick / DN CLAY).	-
Rer		D SPT	N=18 [2, 2 / 3, 4, 5, 6]		5 6 7 8 8 9						
ĸer	Nurks. M	lo groundwo	ater encountered.	יווקי							
I											

			100 110 Jampia Chamba	-		•			Borehole I	No
		e	3-7 Temple Avenue London EC47 0HP	S		30	rehole	Log	WS02	
									Sheet 1 o	f 1
Proj	ject: 42	Elsworthy	Road		Projec	ct No:	Co-ords: n/a		Hole Typ WS	е
Loc	ation: Lo	ndon. NW3	3 3DL		13	08	level: n/a		Scale	
Clie	ent: Do	aniel Austir	1	Level		1	Dates: 05.07.17		CB	1
/ell	Sa	imples and	d In Situ Testing	_ [m	Depth		Sti	ratum		ater
5	Depth [m]	Туре	Results	AOD]	[m]	Legen	t t	Description		Š
	0.70 1.00-1.45 1.00-1.45 1.30-1.40 1.90-2.00 2.00-2.45 2.00-2.45 2.00-2.45 2.00-2.45 3.00-3.45 3.00-3.45 3.00-3.45 4.00-4.45 4.00-4.45 4.00-4.45 5.00-5.45	D, ES D SPT D SPT D SPT D SPT D SPT	Results N=12 [4, 3 / 2, 3, 3, 4] N=16 [2, 1 / 3, 4, 4, 5] N=12 [2, 1 / 2, 3, 3, 4] N=13 [2, 2 / 2, 3, 4, 4] N=14 [1, 2 / 3, 3, 4, 4]	AOD]	0.10 0.50 - 1 1.30 2 3 3 4 4 5 6 6 7		TOPSOIL. Dark brown friable re occasional gravel a Loose to medium de silty MADE GROUND brick fragments. Firm to stiff medium l occasional rounded	Description eworked clay MADE Gf nd red brick fragments ense medium to light br with occasional grave brown to orange silty C I coarse gravel (LONDC	ROUND with 	
Rer	narks: No	groundw	ater encountered.		8 9 10					

consulting engineers itd	109-112 Temple Chambers 3-7 Temple Avenue London EC47 0HP		Symbols				
	Soils	I	Sedimentary Rocks				
	topsoil			chalk			
	made ground			limestone			
	boulders & cobbles		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	conglomerate			
	sand			sandstone			
× × × × × × × × ×	silt		× × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × × ×	siltstone			
	gravel			mudstone			
	clay			shale			
عللد عللد عللد علند علند علند علند علند	peat						
	note: composite soil types are signified by combined symbols		· * · * · * * · * · * * · * · * * · * ·	silty sand			
Remarks:							

109-112 Temple Chambers 3-7 Temple Avenue London EC47 0HP	Кеу
Abbreviation	Meaning
WS CP ROT DS D ES B W SPT	Meaning Windowless Sample Borehole Cable Percussive Borehole Dynamic Sample Borehole Disturbed Sample [1kg tut] Environmental Sample [20kg] Water Sample [20kg] Water Sample [1ltr amber jar] Standard Penetration Test

Geo-Environmental Assessment and Basement Impact Assessment 42 ELSWORTHY ROAD, LONDON, NW3 3DL – Volume 4 of 9



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APPENDIX G

GEOTECHNICAL TEST CERTIFICATES

	TEST RE ISSUED BY : SOIL P DATE OF ISSUE : 31/07/ Contract Elsworthy Road	EPORT. ROPERTY TESTING LTD. /17 PAGE 1 of 17 Pages Serial No. S31447
CLIENT: Cre 109 3-7 Lon EC4	ate Consulting Engineers Ltd -112 Temple Chambers Temple Avenue don Y OHP	Soil Property Testing Ltd. 15,16 & 18 Halcyon Court, St Margarets Way, Stukeley Meadows, Huntingdon, Cambs. PE29 6DG. Telephone (01480) 455579 Fax (01480) 453619 Email enquiries@soilpropertytesting.com
SAMPLES S Cre	UBMITTED BY: ate Consulting Engineers Ltd	APPROVED SIGNATORIES: J.C.GARNER B.Eng (Eons.) FGS Technical Director S.P.TOWNEND FGS Quality Manager W.JOHNSTONE Materials Lab Manager
SAMPLES LA	ABELLED: Elsworthy Road	
DATE RECEI	TVED: 14/07/17 SAMPLES For the attention of Mr A Wa Your reference P17-1308 BRE SD1 Suite of tests subco included as Appendix A to th	TESTED BETWEEN 14/07/17 and 31/07/17 arren ontracted to Chemtest - results his Test Report
NOTES: 1	All remaining samples or rem will be disposed of after 21 we are notified to the contr	nants from this contract days from today, unless arv.
2	 (a) UKAS - United Kingdom Ac (b) Opinions and interpretat the scope of UKAS accred. 	creditation Service. ions expressed herein are outside itation.
3	Tests marked "NOT UKAS ACCRE are not included in the UKAS this testing laboratory.	DITED" in this test report Accreditation Schedule for
4	This test report may not be except with the prior writter	reproduced other than in full n approval of the issuing laboratory.

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							SC	HE	DL		OF	۲.	ABC)RA	тс)RY	' TE	- EST	ъ. <u>-</u> S	514	4/			
Bh./ Tp No.	Sample Ref	Depth (from)		1.10	5 EUT	0000	21222 2122 2122 2122 2122 2122 2122 2122 2122 2122 2122 2122 212 2122 212 2122 212 2	Der 520	elmite uite ne ne	aation and a start and a start	a at	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	392.1	dati									Remarks	
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	D10	7.00	*	*		ļ	 			<u> </u>	1			<u> </u>				ļ				ļ		
	U4	10.00	 	*		*	+	• 		1				<u> </u>	ļ.,	1		ĺ			 			
	<u>U5</u>	12.00		*	! *	*											 		Ĺ					
BH2	D2	1.00			*		Ì	-	<u> </u>					 	L			1	 	Ĺ				
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	D14	13.00	*	+	*		<u> </u>	¦ †—		₽ 	<u> </u>	<u> </u>	ļ	[-	_				<u> </u>	 	<u> </u>	
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TEST REPORT.

ISSUED BY : SOIL PROPERTY TESTING LTD.

DATE OF ISSUE : As page 1

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Contract Elsworthy Road Serial No. S31447

SUMMARY OF MOISTURE CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX SAMPLE PREPARATION Moîsture Liquid Plastic Plast-Liqu-Depth Bonehole/ icity idity Ret'd Corr'd Curing Sample Content Limit Limit Description CLASS Pit No. п. Index Index Nethod 0.425m M/C Time (\$) (%) (\mathbf{x}) (%) (%) s/n (\mathbf{k}) <0.425mm (hrs.) BH1 4.00 D7 31 76 30 46 0.02 N 0 (A) 28 Stiff fissured yellowish CV brown CLAY with occasional selenite crystals BH1 7.00 D10 32 78 28 50 0.08 N 0 (A) 28 Stiff fissured yellowish cν brown CLAY with occasional selenite crystals BH1 10.00 **U4** 22 53 19 34 0.09 N 0 (A) 26 Stiff (High strength) СН slightly fissured dark greyish brown CLAY BH1 12.00 U5 20 57 20 37 0.00 Ν 0 (A) 26 Very stiff (Very high CH strength) slightly fissured dark greyish brown CLAY 75 BH2 3 00 D4 23 26 49 -0.06 N 0(A) 27 Very stiff fissured yellowish CV brown CLAY with rare grey mottling and recently active roots BH2 6.50 U3 26 75 24 51 0.04 N 0 (A) 26 Stiff (High strength) CV slightly fissured dark yellowish brown CLAY with rare calcareous pockets ₿H2 13.00 D14 30 78 28 50 0.04 N 0 (A) 27 Stiff fissured dark greyish CV brown CLAY WS01 2.90 D2.9 80 27 53 31 0.08 N 0 (A) Stiff slightly fissured 26 ∇ yellowish brown CLAY with rare grey mottling METHOD OF PREPARATION : BS 1377:PART 1:1990:7.4 & PART 2:1990:4.2 S = Wet Sieved Specimen N = prepared from Natural METHOD OF TEST : BS 1377:PART 2:1990:3.2, 4.4, 5.3, 5.4 TYPE OF SAMPLE KEY : U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter. A = Assumed, M = Measured COMMENTS : REMARKS TO INCLUDE : Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample. Oven drying temperature if not 105-110 deg C.



			T	EST F	REPORT	E		
		ISST	JED BY	: SOIL	PROPERTY TH	ESTING LI	^r D.	
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		Cont	ract	1000 đ		Serial N	ю.	UKAS TESTING 0998
		ET2	worthy R	JOAQ		53144	<pre>/ [</pre>	
		INATION	OF MOIST	FURE CON	TENT, LIQUID ITY INDEX AN	LIMIT AND) PLASTI TY INDE	IC LIMIT X
Borehole/ Pit No.	Depth m_	Sample	floisture Content X		Description			Remarks
BH1	4.00	D7	31	Stiff fissured occasional set	i yellowish brown C lenite crystals	LAY with	Oven dried 80°C due to selenite	at a maximum of o the presence of
	P	REPARAT	10N	L	Liquid Limit			76 \$
Method of Pr	eparation	Specimen fro	m Natural Soi	.1	Plastic Limit			
Sample retai	ned 0.425 siev	e (Assumed	.)	o 🛪	Plasticity index			45 \$
Corrected mo	isture content	for material ;	passing 0.425mm	×	Liquidity Index	:		0.02
Curing Time				28 Hours	Clay Content			Not analysed. #
					Derived Activity (PI/CC)		Not analysed.
C = CL	AY	70						
		60						
		50 L						High
					_ ×			ange
Plasti	icity	40						
Index	: %	30						edium Volu
up/	,	m	}					
r		20						
		10		┤ - <u>M</u> I)				
M = ST	IТ							Liquid Limit %
METHOD C	F PREPARAT	ION: BS 1377	<u>20</u> 30 7:PART 1:199	40 50 0:7.4 & PART	<u>60 /0 80</u> 2:1990:4.2	90 100)
METHOD O	F TEST	: BS 1377	7:PART 2:199	0:3.2, 4.4, 5	5.3, 5.4			
TYPE OF	SAMPLE KEY	: U = Una C = Co	disturbed, B re Cutter	= Bulk, D =	Disturbed, J = Ja	ar, W = Wate	r, SPT = S _l	plit Spoon Sample,
COMMENTS	i	: PLASTIC: VOLUME (NOTE: M/	ITY CHART BS5 CHANGE POTENT odified Plast	930:1999:Figur IAL: NHBC Stan icity Index I'	e 18 dards Chapter 4.2 C p = Ip x (% less th	Junodified Pla han 425 micron	sticity Ind s/100)	éx

	[a	TEST REPORT.ISSUED BY :SOIL PROPERTY TESTING LTD.DATE OF ISSUE : As page 1PAGE 6 of 17ContractSerial No.Elsworthy RoadS31447	
Borehole/	DETERM	AINATION OF MOISTURE CONTENT, LIQUID LIMIT AND PLAST AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDE	IC LIMIT X
Pit No. BH1	m. 7.00	D10 32 Stiff fissured yellowish brown CLAY with Oven dried occasional selenite crystals 80°C due selenite	d at a maximum of to the presence of
	ـــــــــــــــــــــــــــــــــــــ	PREPARATION	7B 🕺
Method of Pr	eparation	Specimen from Natural Soil Plastic Limit	28 I
Sample retai	ned 0.425 si	eve (Assumed) 0 🗴 Plasticity Index	50 \$
Corrected mo	isture conte	nt for material passing 0.425mm 🗶 Liquidity index	0.98
Curing Time		28 Hours Clay Content	Not analysed. 🖇
		Derived Activity (P1/CC)	Not analysed.
C = CL	AY	70 60 50 50 50 50 50 50 50 50 50 5	High hange Potential
Plasti Index (Ip)	i city %	40 30 20 10 6 6	Low Medium NHBC Volume C
₩ = SI	LT	0 10 20 30 40 50 60 70 80 90 100 110 1	Liquid Limit %
METHOD C)F PREPARA	TION: BS 1377: PART 1:1990:7.4 & PART 2:1990:4.2	
METHOD O	OF TEST SAMPLE KE	: BS 1377:PART 2:1990:3.2, 4.4, 5.3, 5.4 Y : U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = 9	Split Spoon Sample,
COMMENTS	i	<pre>C = Core Cutter PLASTICITY CHART B55930:1999:Figure 18 VOLUME CHANGE POTENTIAL: NHBC Standards Chapter 4.2 Unmodified Plasticity In NOTE: Modified Plasticity Index I'p = Ip x (% less than 425 microns/100)</pre>	dex

	Æ	ISSUED DATE C Contra Elswoi	TE BY F ISSU: ACT rthy Ro	STF : SOIL E : As pa	REPC PROPEI	DRT. RTY TEST AGE 7 of Se	TING LT Elf rial N S31447	D.		
Borehole/	DETERN A Depth		* MOISTI TION OF	URE CON PLASTIC	TENT, L ITY IND		nit ane Liquidi') plast fy inde	IC LIMIT X Remarks	
Pit No. BH1	m. 10.00	04	22 S 9	tiff (High s reyish brown	trength) sl CLAY	lightly fissu	red dark	Sample loc	ally softened	
	, P	REPARATIO	N		Liquid L	imit		L	5	3 %
Method of Pr	eparation	Specimen from Na	atural Soil		Plastic	Limit			4	s x
Sample retai	ned 0.425 sie	Ve (Assumed)		o x	Plastici	ty Index			3	4 \$
Corrected ma	isture conten	t for material pass	ing 0.425mm	×	Liquidit	y Index			c	.09
Curing Time				26 Hours	Clay Con	tent			Not analysed	1. 🛪
					Der i ved	Activity (PI/CC	;)		Not analysed	1.
C = C1	AY	70								
		60						4	Ltial	
		50							High Poter	
		40							Change	
Plast Index	icity «%	30		×					Volume	
(Ip)								Me	
		20							× ×	
		10				(<u>×</u> v]				
N = ST	t T								 _ Liquid Lin	nit %
METHOD C	DF PREPARAT	ION: BS 1377:PJ	<u>.0 30</u> \RT 1:1990:	- 10 - 20 - 7.4 & PART	2:1990:4.	.2	29 100	<u>. 00 1</u> 2		
METHOD C	DF TEST	: BS 1377:P/	RT 2:1990	:3.2, 4.4,	5.3, 5.4					
TYPE OF	SAMPLE KEY	: U = Undis	turbed, B	= Bulk, D =	Disturbe	d, J = Jar,	W = Water	r, SPT = S	Split Spoon Sa	ample,
COMMENTS	i	C = Core : PLASTICITY VOLUME CHAN NOTE: Modif	CHART BS59 GE POTENTI GE POTENTI	30:1999:Figur AL: NHBC Star city Index I	e 18 dards Chap p = Ip x (ter 4.2 Unno % less than	dified Pla: 425 micron:	sticity In s/100)	lex	

	Æ		ISSUI DATE Conti Elsw	D B OF : ract orth	TE Y ISSU	ES] ;	FR SOIL As pag	PROPE	DRT. RTY TES PAGE \$ 0 S	STING L of (} Salat S3144	TD. No. 7			
Borehole/	DETERN A Depth		ION (DERIV	DF M ATIO	OIST N OI	URE F PLA	CON STIC	TENT, I	IQUID L DEX AND	imit an Liquid	D PLA ITY IN	STIC L DEX		
Pit No.	n	>ল	ibie	Conte X	nt			Descri	prion				nafks	
ВҢ1	12.00	U	5	20		Very st fissure	iff (Ve d dark	ry high s greyish b	trength) sl rown CLAY	ightly				
	Р	REPA		ON				Liquid	imit		- I			57 X
Method of Pre	paration	Specim	en from	Natura	l Soi	1		Plastic	Limit					20 X
Sample retain	ed 0.425 sie	eve (A	ssumed)			0	×	Plastic	ity index					37 🎗
Corrected moi	sture conten	it for ma	terial pa	ssing 0.	.425mm		X	Liquidi	ty Index					0.00
Curing Time						26	Hours	Ciay Co	ntent			Not	analy	sed. 🗶
								Der i ved	Activity (PI/	/00)		- Not	analy	sed.
C = CLA	Y	70												
		60											- lial	
		50								\square			Poter	
		40											Change	
Plastic	city %	40						×						
(lp)	70	30										•		
		20					4					-	_ <u>₹</u>	
		10								ME]	L	3	
	-	6			ML							Lio	l hiu	imit %
M = SIL	PREPARAT	FION: B	10 \$ 1377:	<u>20</u> PART 1	<u>30</u> 1:1990	<u>40</u>):7.4 &	<u>50</u> PART	<u>60 7</u> 2:1990:4	.2	90 100	110	120		
METHOD OF	TEST	: B	\$ 1377:	PART 2	2:1990):3.2,	4.4,5	.3, 5.4						
TYPE OF S	SAMPLE KEY	Y : U	= Undi	isturb	ed, B	= Bul⊧	<, D ≏	Disturbe	d, J = Jar	, W = Wat	er, SPT	= Split	Spoon	Sample,
COMMENTS		C : P) V(N(= Core LASTICII DLUME CH DTE: Mod	e Cutto TY CHAR HANGE P Hified	er T BSS9 OTENTI Plasti	930:1999 IAL: NHU icity Ir	9:Figur 3C Stan ndex I'	e 18 darđs Chaj p = Ip x	pter 4.2 Unn (% less than	modified Pl n 425 micro	asticity ns/100)	Index		

	ſ	IS DA Co E	SUED F TE OF ntract lswort	TE sy issu hy Ro	:ST : 50 E : 4	' R DIL Is pag	EPC PROPE	DRT. rty tes age 9 s	STING of(} Serial S314	LTD. No. 47				
	DETERN /	AINATIC	IN OF M	IOIST	URE C	ONT	ENT, L Ty IND	IQUID L EX AND	imit ai Liquii	ND PI DITY	LASTIC			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Borebole/ Pit No.	Depth m.	Sample	Moi Con	sture tent K			Descrij	ption				Renar	ks	
BH2	3.00	D4	2	3 V z	ery stil are grey	ff fis: γ mott	sured yel: ling and :	lowish brow recently ac	wn CLAY wi tive root	th s				
	F	PREPAR	ATION				Liquid L	mit					75	x
Method of Pre	paration	Specimen	from Natu:	ral Soil	- <u></u>		Plastic	Limit					26	*
Sample retain	ued 0.425 si	e ve (Assu	med)		0	x	Plastici	ty Index					49	*
Corrected moi	sture coste	nt for mater	ial passing	0 .425 mm		x	Liquidit	y Index					-0.	.06
Curing Time					27 1	Hours	Clay Con	itent	<u></u>		<u>20001</u> 2000 <u>0</u> 0000000	Not a	nalysed.	×
							Derived	Activity (PI	/α:)			Not a	nalysed.	
C = CL/	ιY	70				$\frac{1}{1}$								
		60									Í		tial	
		50										High	Potent	
													hange	
Plasti	city	40				1							D E	
Index	%	30				+	$\left \right $					lediun	C Volu	
יקיי		20				\measuredangle				; ; ;		2	NHB	
									 			Low		
		6			[MI] 		- <u>[MH</u>]	╪╼╌┥м∨┝╴ ╽╴╴╴╽	1	1E]	
M = SI	LT	0	0 20	<u>[ML</u>] 30	40	 50	60 7	0 80	 96 1	00 i	10 123	Liqui	id Limi	t %
METHOD O	F PREPARA	TION: BS 1	377:PART	1:1990	:7.4 &	PART	2:1990:4.	.2						
METHOD O	F TEST	: B\$ 1	377:PART	2:1990	:3.2, 4	.4,5	.3, 5.4							
TYPE OF	SAMPLE KE	= V : Y = C =	Undistur Core Cut	bed, B ter	= Bulk,	D =	Disturbe	d, J = Jan	r, W = Wa	ter, S	PT = Sp	lit Sp	ooon Sam	ple,
COMMENTS		: PLAS VOLU NOTE	TICITY CHA ME CHANGE ; Modified	ART BS59 POTENTIA Plastic	30:1999: AL; NHBC city Ind	Figure Stand lex I'f	18 ards Chap = Ip x (ter 4.2 Un % less tha	modified H n 425 mics	Plastic rons/10	ity Index 0)	¢		

Borehołe/ Pit No.	DETERMI Depth m.	ISSU DATE Cont Els NATION ID DERIN Sample	TI JED BY S OF ISSU TRACT WORTHY R OF MOIST ATION OF Muisture Content	EST F : SOIL JE : As pa oad	REPC PROPE ge 1 P TENT, L ITY IND Descrij	DRT. RTY TES AGE (^O C S IQUID LI EX AND ption	TING LT of (} s31447 MIT AND LIQUIDIT	D. o. PLASTI	C LIMIT C Remarks					
882	6.50	03	yellowish brown CLAY with rare calcareous pockets											
	PF	EPARAT	ION		Liquid L	imit				75 🖌				
Method of Pre	apration s	pecimen fro	m Natural Soi	1	Plastic	Límit				24 🗶				
Sample retair	red 0.425 sieve	(Assumed)	o x	Plastici	ty. Index				S1 X				
Corrected moi	isture content	for material	passing 0.425mm	ž	Liquidit	y Index				0.04				
Curing Time			-	26 Hours	Clavy Con	tent			Not analy	vsed. 🛪				
					Der i ved	Activity (PI/(α)		Not analy	∕sed.				
C = C1/	AY T		CL	CI		×	CE		High hange Potential					
Plasti Index (I _p)	city ⁶	0							Medium IHBC Volume C					
	1	0		MI	{MH	MV]			Low Low					
M = SII	.T	0 10	20 30	<u>40 50 </u>	<u> </u>	<u> </u>	90 100	110 120	Liquid	Limit %				
METHOD O	F PREPARATI	ON: BS 137	7:PART 1:1990	D:7.4 & PART	2:1990:4.	.2								
METHOD O	F TEST	: BS 1371	7:PART 2:1990	0:3.2, 4.4 , 5	5.3, 5.4									
TYPE OF	SAMPLE KEY	: U = Un C = Co	disturbed, B re Cutter	≕ Bulk, D =	Disturbe	d, J = Jar,	, W = Water	, SPT = Sp	olīt Spoor	Sample,				
COMMENTS		: PLASTIC VOLUME NOTE: M	ITY CHART BS59 CHANGE POTENT: odified Plast:	930:1999:Figur IAL: NHBC Stan icity Index I'	re 18 Mards Chap p = Ip x (ter 4.2 Umm % less than	odified Plas 425 microns	sticity Inde s/100)	×					

	ſ	ISSUED BY DATE OF IS Contract Elsworthy	TEST R : SOIL SSUE : As pag Road	EPORT. PROPERTY TEST ge 1 PAGE ((o Se	TING LTD. f } erial No. S31447	
Borehoie/	DETERN / Depth	INATION OF MO	ISTURE CON OF PLASTIC	TENT, LIQUID LII	VIT AND PL LIQUIDITY I	ASTIC LIMIT NDEX
Pit No. BH2	m. 13.00	D14 30	Stiff fissured	dark greyish brown C	LAY	
	F	REPARATION		Liquid Limit		78 🕻
Hethod of Pro	eparation	Specimen from Natural	Soil	Plastic Limit		28 X
Sample retain	ned 0.425 sie	We (Assumed)	o X	Plasticity Index		50 🐔
Corrected mo	isture conter	t for material passing 0.42	5mm 🗶	Liquidity Index		0.04
Curing Time	_		27 Hours	Clay Content		Not analysed. 🛪
				Derived Activity (PI/C	C)	Not analysed.
c = cL Plasti Index (Ip)	city %	70 60 60 50 50 60 30 60 20 60 10 6		CH CV	CE ME	Low Medium High NHBC Volume Change Potential
M = SI			<u>10 40 50 </u>	<u> </u>	90 100 110	Liquid Limit %
METHOD O METHOD O TYPE OF COMMENTS	F PREPARA F YEST Sample Ke	<pre>IION: BS 1377:PART 1: : BS 1377:PART 2: Y : U = Undisturbed C = Core Cutter : PLASTICITY CHART VOLUME CHANGE POT NOTE: Modified PL</pre>	1990:7.4 & PART 1990:3.2, 4.4, 5 , B = Buik, D = ES5930:1999:Figur ENTIAL: NHBC Stan asticity Index I	2:1990:4.2 3.3, 5.4 Disturbed, J = Jar, e 18 dards Chapter 4.2 Unmo p = Ip x (% less than	W ≃ Water, SP odified Plastici 425 microns/100	र = Split Spoon Sample, ty Index

	DETERMI	ISSU DATE Cont: Elsw NATION (ND DERIV	TE ED BY OF ISSUE ract orthy Roa DF MOISTU ATION OF I	ST R : SOIL : As pag .d RE CONT PLASTIC	EPORT. PROPERTY TESTIN 1 PAGE (2 of (Seri S: TENT, LIQUID LIMIT TY INDEX AND LIC	NG LTD. 	UKAS UKAS 0998 STIC LIMIT DEX
Barehole/ Pit No.	Depth m.	Sample	Mpisture Content X		Description		Remarks
WS01	2.90	D2.9	31 Sti wit	ff slightly h rare grey	fissured yellowish brown mottling	n CLAY	
	Pf	EPARATI	ON		Liquid Limit		80 X
Method of Pr	eparation J	Specimen from	Natural Soil		Plastic Limit		27 ¥
Sample retain	ned 0.425 siev	(Assumed)	· · · · · · · · · · · · · · · · · · ·	0 x	Plasticity Index		53 X
Corrected mo	isture content	for material pa	essing 0.425mm	×	Liquidity index		8 .08
Curing Time				26 Hours	Clay Content		Not analysed. X
		<u></u>			Derived Activity (P1/OC)		Not analysed.
c = c∟ Plasti Index (Ip)	сі ту : %	70 50 50 50 6			CH CV X	CE ME	Low Medium High NHBC Volume Change Potential
M = SI		0 10 10 0N: BS 1377:	20 30 PART 1:1990:7	40 <u>50</u> 48 PART	<u>60</u> 70 <u>8</u> 0 <u>90</u> 2:1990:4-2	100 110	Liquid Limit %
METHOD O	F TEST	: BS 1377:	PART 2:1990:3	5.2, 4.4, 5	.3, 5.4		
TYPE OF	SAMPLE KEY	: ប = Und	isturbed, B =	Bulk, D =	Disturbed, J = Jar, W	= Water, SPT	= Split Spoon Sample,
COMMENTS		: PLASTICI VOLUME C NOTE: Mo	TY CHART BS5930 HANGE POTENTIAL dified Plastici	:1999:Figur : NHBC Stan ty Index I'	e 18 dards Chapter 4.2 Unmodif p = Ip x (% less than 425	ied Plasticity microns/100)	Index



ME

TEST REPORT.

ISSUED BY : SOIL PROPERTY TESTING LTD.

DETERMINATION OF DENSITY, MOISTURE CONTENT AND UNDRAINED SHEAR STRENGTH

IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

DATE OF ISSUE : As page 1 PAGE (3 of (}



Contract Elsworthy Road Serial No. S31447

Borenole/	Depth		Moisture	Bulk	Dry	Lateral	Deviator	Shear	MOHRS Anal	CIRCLE YSIS	
Pit No.	т.	sample	Content (%)	(Mg/m ³)	(Mg/m ³)	Pressure (kPa)	Stress (kPa)	stress (kPa)	Cu (kPa)	Ø (degrees)	Description
811	10.00	U 4	22	1.89	1.55	199	243	122			Stiff (High strength) slightly fissured dark greyish brown CLAY
вні	12.00	U 5	20	1.99	1,66	240	457	228			Very stiff (Very high strength) slightly fissured dark greyish brown CLAY
BH2	6.50	U3	26	2.03	1.61	130	359	780			Stiff (High strength) slightly fissured dark yellowish brown CLAY with rare calcareous pockets

THOD OF PREPARATION : BS 1377:PART 1:1990:7.4.2 & 8 PART 2:1990:7.2 PART 7:1990:8.	3
--	---

METHOD OF TEST Type of Sample Key Comments	<pre>: BS 1377:PART 2:1990:3 Determination of Moisture Content 1990:7 Determination of Density</pre>
REMARKS TO INCLUDE	: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample. Oven drying temperature if not 105-110 deg C.

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TEST REPORT.

ISSUED BY :SOIL PROPERTY TESTING LTD.

DATE OF ISSUE : As page 1 PAGE 44 of 17

Serial No. S31447



Contract Elsworthy Road

DETERMINATION OF UNDRAINED SHEAR STRENGTH

IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole/ Pit No.	Depth m.	Sample			Description		_		Benar	rks
BH1	10.00	U4	Stiff (Hi brown CLA	gh strength) s Y	lightly fi	ssured d	lark greyis	sh Sa	mple locally so	oftened
Initial	Specimen			-					llat	
	Depth of Top of Specimen (n	n) Height		Diameter mm	Keig g	rt 	Conte	nt	Density Ng/m	Density Mg/m ³
	10.16	185.0		102.5	288)	22		1.89	1.55
TEST INFORMAT	ION	·	Rate of Stra	ain 1.0 X	pe r Min	Rubber He	ambrane Thick	ness		0.3 m
		250								
	Measured Deviator Stress (kPa)	0					1			
				5 T	STRAIN #	E5555.	15 	20	J	
	1	Measured Cell Pressure	Strain at	Stress Corre	ections (kPa)	Cor	rected Max. Jator Stress	Shear Stire	ss Mohrs Ci	rcle Analysis
Specimen at	Failure	03 (kPa)	(%)	Rubber Membrane	Piston Frictio	n	01-03 (kPs)	½(Ơ + - Ơ (kPa)	(3) _f Cu (kPa)	PHI
		199	15.5	0.9	/		243	122		
METHOD C	F PREPAR	ATION: BS 137	7:PART 1:1	990:						
METHOD C	F TEST	: BS 137	7:PART 7:1	990:8 Definit	ive Metho	d. 1990):9 Multī-	stage lo	ading	
TYPE OF	SAMPLE K	KEY : U = Ur C = Cc	disturbed, Fre Cutter	B ≃ Bulk, D	= Distur	oed, J =	= Jar, W	= Water,	SPT = Split S	Spoon Sample,
COMMENTS	3	: Tested UKAS Ca	în Vertic Libration -	al Orientatio loads from 0.	n. 2 to 10kN.					
REMARKS	TO INCLU	JDE : Sample of tes	e disturbar t specimer	nce, loss of m n within orig	noisture, inal samp	variat le. Over	ion from n drying	test proc temperatu	edure, locat [:] are if not 10	ion and origin 5-110 deg C.



TEST REPORT.

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DATE OF ISSUE : As page 1 PAGE (S of ()

- NS33333



Serial No. S31447

DETERMINATION OF UNDRAINED SHEAR STRENGTH ***********

Elsworthy Road

Contract

orehole/ it No.	Depth m.	Sample			Description			Remarks	5
BH1	12,00	U5	Very stif: greyish b	f (Very high s rown CLAY	trength) slight	ly fissured d	ark		
Initial	Specimen Depth of Top of		nt	Diameter nm	Height 9	Hoistur Conter X	re nt [Wet Density Mg/m ³	Dry Density Mg/m ³
	12.10	199.	1	103.5	3329	20		1.99	1.66
est informat		· · - - -	Rate of Stra	ain 1.0 🛪	per Min: Rubbe	r Membrane Thick	ness		0.3 mm
	Neasure Deviato Stress (kPa)	d							
	Measure Deviato Stress (kPa)	d 0 0		5	io Strain X	15	20		
	Measure Deviato Stress (kPa)	d r o 0 Measured Cell Pressure	Strain at	5 Stress Corre	iO STRAIN X ections (kPa)	15 Corrected Hos Deviator Stress	20 Sheer Stress Cu	* Hohrs Circ	le Analysis
Specimen at	Measure Deviato Stress (kPa) Failure	d r 0 0 Measured Cell Pressure <i>O</i> 3 (kPa)	Strain at Failure (X)	5 Stress Corre Rubber Membrane	10 STRAIN X ections (kPa) Piston Friction	15 Corrected Max. Deviator Stress $\sigma_1 = \sigma_3$ (KPa)	20 Sheer Stress $\sum_{k=\sigma_{1}}^{c_{1}} \sigma_{3}_{f}$ (kPa)	Hohrs Circ Cu (kPa)	le Analysis PHL [®]
Specimen at	Measure Deviato Stress (kPa) Failure	d Measured Cell Pressure σ_3 (kPa) 240	Strain at Failure (X) 12.1	5 Stress Corre Rubber Membrane 0.7	10 STRAIN X ections (kPa) Piston Friction /	15 Corrected Max. Deviator Stress O 1 = O 3 (kPa) 457	20 Sheer Stress $y_{e}(\sigma_{1} - \sigma_{3})_{f}$ (kPa) 228	Mohrs Circ Cu (kPs)	le Anatysts PNI °
Specimen at	Measure Deviato Stress (kPa) Failure DF PREPAI	d Measured Cell Pressure O'3 (kPa) 240 RATION: 85 13	Strain at Failure (X) 12.1 77:PART 1:1	5 Stress Corre Rubber Membrane 0.7 990:	10 STRAIN X ections (kPa) Piston Friction /	15 Corrected Max. Deviator Stress $\sigma_1 = \sigma_3$ (KPa) 457	20 Sheer Stress C_{u} C_{u	Hohrs Circ Cu (kPa)	le Analysis PHL®
Specimen at METHOD C METHOD C TYPE OF	Measure Deviato Stress (kPa) Failure DF PREPAI DF TEST SAMPLE	d Measured Cell Pressure O^3 (kPa) 240 RATION: 8S 13 : BS 13 KEY : U = U C = C	Strain at Failure (%) 12.1 77:PART 1:1 77:PART 7:1 ndisturbed, ore Cutter	5 Stress Corre Rubber Membrane 0.7 990: 990:8 Definit B = Bulk, D	iO STRAIN ≭ ections (kPa) Piston Friction / :ive Method. 1 = Disturbed,	15 Corrected Max. Deviator Stress Ø1∞Ø3 (KPa) 457 990:9 Multi- J = Jar, W =	20 Shear Stress Ve(σ1 σ3)f (kPa) 228 stage loadin Water, SPT	Hohrs Circ Cu (KPa) rg = Split Sp	le Analysis PHI con Sample,

of test specimen within original sample. Oven drying temperature if not 105-110 deg C.

		DAT: DAT: Con Els DETI	JED BY S OF IS tract worthy ERMINAT	FION OF UNITHO	REPOPERT Dage 1 PAG	RT. F TESTING D E (6 of () Serial S314 SHEAR STREM REMENT OF	LTD. No. 47 NGTH PORE PRESSU	
Borehole/	Depth	Sampie			Description		Rent	rks
BH2	6.50	U3	Stiff (Hi brown CLA	gh strength) s Y with rare ca	lightly fissured lcareous pocket:	i dark yellowish		
	Specimen Depth of Top of Specimen ()	Heigh	;	Diameter mn	Weight 9	Moisture Content X	Hjet Density Mg/m	Dry Density Mg/m ³
	6.55	199.4	: ;	100.7	3218	26	2.03	1.61
TEST INFORMAT	T ION		Rate of Stra		per Min Rubber	 Membrane Thickness) 0.3 mm
	Heasure Deviato Stress (kPa)			·				
		0		5	10 STRAIN X	15	20	· · · · · · · · · · · · · · · · · · ·
Specimen at	Failure	Measured Cell Pressure 073 (kPa)	Strain at Failure (%)	Stress Corro Rubber Membrane	ections (kPa) Piston Friction	Corrected Max. Shea Deviator Stress Of 1 - Of 3 %(O (kPa)	r Stress Cu (1 - 073); (kPa) CU (kPa	ircle Analysis) PHI
		130	7.3	0.5	/	359	180	
METHOD	DF PREPA	RATION: BS 137	7:PART 1:1	990:	• •·· •· •·			
METHOD (DF TEST	: BS 137	'7:PART 7:1	990:8 Definit	ive Method. 19	990:9 Multi-stag	e loading	Sanat Samala
TYPE OF	SAMPLE	(EY : U = UF C = C(ore Cutter	. 8 = Balk, D	= Disturbed,	J = Jar, w ≖ wa	ter, ser - spirit	spoon sample,
COMMENT	\$: Testec UKAS Ca	in Vertic Libration	al Orientatic - loads from 0.	n. 2 to 10kN.			
REMARKS	TO INCL	JDE : Sample	e disturbar at specimer	nce, loss of 1 1 Within orig	noisture, vari inal sample. O	ation from test ven drying temp	procedure, locat erature if not 10	ion and origin 5-110 deg C.

TEST REPORT.

ISSUED BY :SOIL PROPERTY TESTING LTD.

DATE OF ISSUE : As page 1 PAGE 17 of 17

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Contract Elsworthy Road Serial No. S31447







right chemistry to deliver results Chemtest Ltd. Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.co.uk

Report No.:	17-18788-1		
Initial Date of Issue:	26-Jul-2017		
Client	Soil Property Testing		
Client Address:	18 Halycon Court St Margarets Way Stukeley Meadows Huntingdon Cambridgeshire PE29 6DG		
Contact(s):	Jon Garner		
Project	S31447 - Elsworthy Road		
Quotation No.:		Date Received:	20-Jul-2017
Order No.:	S31447	Date Instructed:	20-Jul-2017
No. of Samples:	5		
Turnaround (Wkdays):	5	Results Due:	26-Jul-2017
Date Approved:	26-Jul-2017		
Approved By:			
107Doven			

Keith Jones, Technical Manager



Results - Soil

Client: Soil Property Testing		Cher	mtest Jo	No. qu	217 - 187883	17216788	17-18788	17418788	17,16788
Quotation No.:		:hemte	st Samj	ole ID.:	486296	486297	486298	486299	486300
Order No.: S31447		Clier	nt Samp	le Ref.:	BH1	BH1	BH2	BH2	BH2
		<u>Cl</u>	ent Sam	ple ID.	ŝ	U5	52	5	D14
			Sample	s Type:	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Dep	oth (m):	<u>6.00</u>	12.00	1.00	3.00	13.00
Déterminand	Accredit	30b	UNIG	COD:					
Moisture	z	2030	%	0.020	23	16	17	17	21
Hd	,⊃	2010		N/A	[A] 7.5	[A] 7.2	[A] 8.0	[A] 7.8	[A] 8.4
Magnesium (Water Soluble)	z	2120	l/6	0.010	0.072	0.038	< 0.010	0.034	0.024
Sulphate (2:1 Water Soluble) as SO4	n	2120	g/I	0.010	0.42	0.53	< 0.010	0.13	0.16
Total Sulphur	n	2175	%	0.010	[A] 0.30	[A] 0.67	[A] 0.069	[A] 0.058	[A] 0.23
Chloride (Water Soluble)	n	2220	1/6	0.010	[A] 0.064	[A] 0.12	[A] < 0.010	[A] 0.11	[A] 0.074
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ammonium (Water Soluble)	n	2120	g/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate (Acid Soluble)	n	2430	%	0.010	[A] 0.55	[A] 0.33	[A] 0.046	[A] 0.17	[A] 0.15



Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
486296	BH1	D9		A	Plastic Tub 500g
486297	BH1	U5		A	Plastic Bag
486298	BH2	D2		Ā	Plastic Tub 500g
486299	BH2	D4		A	Plastic Tub 500g
486300	BH2	D14		A	Plastic Tub 500g

Chemtest The right chemistry to deliver results

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	рН	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soits	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Chemtest

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry

weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenois

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.co.uk</u>

APPENDIX H

CHEMICAL TEST CERTIFICATES



Certificate Number 17-04690

Client Create Consulting Engineers LTD 15 Princess Street Norwich NR3 1AF 17-Jul-17

- Our Reference 17-04690
- Client Reference P17-1308
 - Order No PO2350
 - *Contract Title* 42 ELSWORTHY ROAD
 - Description 5 Soil samples, 1 Leachate sample.
 - Date Received 07-Jul-17
 - Date Started 07-Jul-17
- Date Completed 17-Jul-17
- Test Procedures Identified by prefix DETSn (details on request).
 - *Notes* Opinions and interpretations are outside the laboratory's scope of ISO 10725 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick Contracts Manager





Summary of Chemical Analysis Soil Samples

Our Ref 17-04690 Client Ref P17-1308 Contract Title 42 ELSWORTHY ROAD

			Lab No	1201139	1201140	1201141	1201142
		Sa	ample ID	WS01	WS01	WS02	BH01
			Depth	0.30	1.20	0.70	0.30
			Other ID				
		Sam	ple Type	SOIL	SOIL	SOIL	SOIL
		Sampl	ing Date	05/07/17	05/07/17	05/07/17	05/07/17
		Sampl	ing Time	n/s	n/s	n/s	n/s
Test	Method	LOD	Units				
Metals				r			
Arsenic mg/kg	DETSC 2301#	0.2	mg/kg	21	21	13	27
Barium mg/kg	DETSC 2301#	1.5	mg/kg	180	250	100	160
Beryllium mg/kg	DETSC 2301#	0.2	mg/kg	0.9	0.8	0.9	1.0
Boron, Water Soluble mg/kg	DETSC 2123#	0.2	mg/kg	0.8	1.1	1.0	1.0
Cadmium mg/kg	DETSC 2301#	0.1	mg/kg	0.2	1.2	0.2	0.3
Chromium mg/kg	DETSC 2301#	0.15	mg/kg	33	33	35	29
Chromium, Hexavalent mg/kg	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper mg/kg	DETSC 2301#	0.2	mg/kg	69	1200	66	210
Lead mg/kg	DETSC 2301#	0.3	mg/kg	530	1000	190	360
Mercury mg/kg	DETSC 2325#	0.05	mg/kg	3.8	27	0.64	1.3
Nickel mg/kg	DETSC 2301#	1	mg/kg	24	16	31	23
Selenium mg/kg	DETSC 2301#	0.5	mg/kg	< 0.5	1.3	< 0.5	< 0.5
Vanadium mg/kg	DETSC 2301	0.8	mg/kg	59	52	72	59
Zinc mg/kg	DETSC 2301#	1	mg/kg	99	1300	110	130
Inorganics			,				
рН	DETSC 2008#			9.4	8.1	8.2	6.6
Cyanide, Total mg/kg	DETSC 2130#	0.1	mg/kg	0.2	4.3	< 0.1	0.2
Cyanide, Free mg/kg	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter %	DETSC 2002#	0.1	%	2.3	3.6	0.9	2.3
Sulphate Aqueous Extract as SO4 mg/l	DETSC 2076#	10	mg/l	130	26	23	32
Sulphide mg/kg	DETSC 2024#	10	mg/kg	< 10	12	12	20
Sulphate as SO4, Total %	DETSC 2321#	0.01	%	0.12	0.07	0.04	0.07
Petroleum Hydrocarbons	l	L			1		
EPH (C10-C35) mg/kg	DETSC 3311	10	mg/kg	48	66	< 10	42
PAHs	l	L	0, 0,		1		
Naphthalene mg/kg	DETSC 3303#	0.03	mg/kg	0.05	0.21	< 0.03	< 0.03
Acenaphthylene mg/kg	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	< 0.03	< 0.03
Acenaphthene mg/kg	DETSC 3303#	0.03	mg/kg	< 0.03	0.11	< 0.03	< 0.03
Fluorene mg/kg	DETSC 3303	0.03	mg/kg	< 0.03	0.05	< 0.03	< 0.03
Phenanthrene mg/kg	DETSC 3303#	0.03	mg/kg	0.63	0.59	< 0.03	0.53
Anthracene mg/kg	DETSC 3303	0.03	mg/kg	0.10	0.11	< 0.03	0.11
Fluoranthene mg/kg	DETSC 3303#	0.03	mg/kg	1.0	0.33	0.06	1.3
Pyrene mg/kg	DETSC 3303#	0.03	mg/kg	0.85	0.25	0.05	1.1
Benzo(a)anthracene mg/kg	DETSC 3303#	0.03	mg/kg	0.48	0.09	< 0.03	0.54
Chrysene mg/kg	DETSC 3303	0.03	mg/kg	0.55	0.11	< 0.03	0.61
Benzo(b)fluoranthene mg/kg	DETSC 3303#	0.03	mg/kg	0.66	0.08	< 0.03	0.71
Benzo(k)fluoranthene mg/kg	DETSC 3303#	0.03	mg/kg	0.24	< 0.03	< 0.03	0.32
Benzo(a)pyrene mg/kg	DETSC 3303#	0.03	mg/kg	0.36	< 0.03	< 0.03	0.51
Indeno(1,2,3-c,d)pyrene mg/kg	DETSC 3303#	0.03	mg/kg	0.23	< 0.03	< 0.03	0.29
Dibenzo(a,h)anthracene mg/kg	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	< 0.03	0.08
Benzo(g,h,i)perylene mg/kg	DETSC 3303#	0.03	mg/kg	0.29	< 0.03	< 0.03	0.31



Summary of Chemical Analysis Soil Samples

Our Ref 17-04690 Client Ref P17-1308 Contract Title 42 ELSWORTHY ROAD

			Lab No	1201139	1201140	1201141	1201142
		Sa	ample ID	WS01	WS01	WS02	BH01
			Depth	0.30	1.20	0.70	0.30
			Other ID				
		Sam	ple Type	SOIL	SOIL	SOIL	SOIL
		Sampl	ing Date	05/07/17	05/07/17	05/07/17	05/07/17
		Sampl	ing Time	n/s	n/s	n/s	n/s
Test	Method	LOD	Units				
PAH - USEPA 16, Total mg/kg	DETSC 3303	0.1	mg/kg	5.6	1.9	0.11	6.4
Phenols							
Phenol - Monohydric mg/kg	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3

I DETS

Summary of Asbestos Analysis Soil Samples

Our Ref 17-04690 Client Ref P17-1308 Contract Title 42 ELSWORTHY ROAD

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1201139	WS01 0.30	SOIL	NAD	none	Colin Patrick
1201140	WS01 1.20	SOIL	NAD	none	Colin Patrick
1201141	WS02 0.70	SOIL	NAD	none	Colin Patrick
1201142	BH01 0.30	SOIL	NAD	none	Colin Patrick

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * not included in laboratory scope of accreditation.



WASTE ACCEPTANCE CRITERIA TESTING **ANALYTICAL REPORT**

Our Ref 17-04690 Client Ref P17-1308 Contract Title 42 ELSWORTHY ROAD Sample Id BH02 0.40

Sample Numbers 1201143 1201144 Date Analysed 15/07/2017

WAC Limit Values

Tast Basults On Wasta	w	WAC Limit Values			
	Inert		Hazardous		
Determinand and Method Reference	Waste	SINKIIV	Waste		
DETSC 2084* Total Organic Carbon	%	0.9	3	5	6
DETSC 2003# Loss On Ignition	%	54	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# TPH (C10 - C40)	mg/kg	26	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	8.0	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	n/a	TBE	TBE

Test Results On Leachate

Test Results On Leachate	Limit va	0 Leachate			
Determinand and Method Reference	Conc in Eluate ug/l	Amount Leached mg/kg	Inert		Hazardous
Determinand and Method Reference	10:1	LS10	Waste	SINKIIV	Waste
DETSC 2306 Arsenic as As	2.3	0.02	0.5	2	25
DETSC 2306 Barium as Ba	3.1	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.03	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.33	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	4.8	0.05	2	50	100
DETSC 2306 Mercury as Hg	0.04	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	6	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.5	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	7.2	0.07	0.5	10	50
DETSC 2306 Antimony as Sb	0.71	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.63	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	< 1.3	< 0.01	4	50	200
DETSC 2055 Chloride as Cl	2600	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	190	1.9	10	150	500
DETSC 2055 Sulphate as SO4	3000	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	66000	660	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 1	1	n/a	n/a
DETSC 2033* Dissolved Organic Carbon	11000	110	500	800	1000
Additional Information			TBE -	To Be Evalu	ated
DETSC 2008 pH	7.8	1	SNRHW -	Stable Non-	Reactive
DETSC 2009 Conductivity uS/cm	94.5			Hazardous \	Waste
* Temperature*	20				
Mass of Sample Kg	0.110				
Mass of dry Sample Kg	0.094				
Stage 1	_				
Volume of Leachant L2	0.924				
Volume of Eluate VE1	0.85				

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.



Information in Support of the Analytical Results

Our Ref 17-04690 *Client Ref* P17-1308 *Contract* 42 ELSWORTHY ROAD

Containers Received & Deviating Samples

		Date		ŀ	Holding time exceeded for	Inappropriate container for
Lab No	Sample ID	Sampled	Containers Received	t	ests	tests
1201139	WS01 0.30 SOIL	05/07/17	GJ 250ml, PT 1L			
1201140	WS01 1.20 SOIL	05/07/17	GJ 250ml, PT 1L			
1201141	WS02 0.70 SOIL	05/07/17	GJ 250ml, PT 1L			
1201142	BH01 0.30 SOIL	05/07/17	GJ 250ml, PT 1L			
1201143	BH02 0.40 SOIL	05/07/17	GJ 250ml, PT 1L			
1201144	BH02 0.40 LEACHATE	05/07/17	GJ 250ml, PT 1L			

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28° C +/- 2° C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

APPENDIX J

GROUND GAS MONITORING RESULTS

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS

Site: 42 Elsworthy Road Visit No: 1 **of** 3 Date: 13/07/2017 Operator: CB GAS CONCENTRATIONS FLOW DATA Carbon Hydrogen Carbon dioxide %LEL Methane (%v/v) Flow rate (l/hr) Monitoring Point Time Oxygen (%v/v) ulphide (ppm (%v/v) noxide (ppn

																(ppm)	(11111)	(mbgi)	(m)	
		Peak	Steady	Peak	Steady	Min.	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			,	. ,	
BH02	09:55		0.0		1.6		19.1	3.0	0.0		0.0				0.3			Dry	13.00	
WS02	10:05		0.0		2.1		17.7		1.0		1.0				0.5			4.61	4.73	
WS01	10:20		0.0		2.7		17.7	21.0	0.0		1.0				3.6			Dry	4.84	
BH01	10:35		0.0		1.3		18.4	5.0	1.0		0.0				0.3			11.16	14.52	
Max		ND	0.0	ND	2.7	ND	19.1	21	1	ND	1	ND	ND	ND	3.6	NR	ND	11.16	14.52	
Min		#REF!	#REF!	NR	#REF!	#REF!	#REF!													

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COMMENTS

VOLATILES WELL AND WATER DATA

Water level

Depth of well

PID

Peak

Product

thickness

ND - Not detected

NR - Not recorded

NA - Non applicable



Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS Site: Date: 42 Elsworthy Road 10/08/2017





			GAS CONCENTRATIONS											FLOW DATA VOLATILES WELL AND WATER DATA						COMMENTS
Monitoring Point	Time	Methane	e (%v/v)	Carbon (%)	dioxide v/v)	Oxygei	n (%v/v)	Ca monoxid	rbon de (ppmv)	Hydro sulphide	ogen e (ppmv)	%I	.EL	Flow r	ate (l/hr)	PID Peak (ppm)	Product thickness (mm)	Water level (mbgl)	Depth of well (m)	
		Peak	Steady	Peak	Steady	Min.	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady					
BH02	13:29		0.0		1.8		19.4	1.0	0.0		1.0				0.5			10.20	12.80	
WS02	13:20		0.0	3.3	3.2	18.0	18.1		1.0		0.0				0.5			4.33	4.77	
WS01	13:26		0.0		3.9		17.9		1.0		0.0				0.5			DRY	4.81	
BH01	13:37		0.0		3.9		17.5		1.0		0.0				0.5			8.40	14.66	
Max		ND	0.0	3.3	3.9	18.0	19.4	1	1	ND	1	ND	ND	ND	0.5	NR	ND	10.20	14.66	
Min		0.0	0.0	3.3	1.8	18.0	17.5	1	0	0	0	0.0	0.0	0.0	0.5	NR	0.0	DRY	4.77	

ND - Not detected

NR - Not recorded

NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:	 _		(Select correct box	with X	or enter data, as a	applicable)	_	 _
State of ground:	Dry		Moist	Х	Wet		Snow	Frozen
Wind:	Calm	х	Light		Moderate		Strong	-
Cloud cover:	None		Slight		Cloudy	Х	Overcast	
Precipitation:	None		Slight		Moderate	Х	Heavy	
Time monitoring performed:	 _	13:20	Start		-	13:37	End	
Barometric pressure (mbar):		1013	Start			1014	End	
Pressure trend (Daily):			Falling	х	Steady		Rising	
Source:			-		-			
Air Temperature (Deg. C):		20	Before			20	After	

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: Gas Range: Gas Flow range: Differential Pressure: Date of last calibration: Date of next calibration:	GA500 CH₄ +100/-5 (+/-) 10	0 0 - 100% 50 l/hour 000 Pa	CO ₂	0 - 100%	O ₂	0 - 25%
Ambient air check:	CH₄ H₂S	0.0	CO₂ Co	0.1	O ₂	21.1

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS

 Site:
 42 Elsworthy Road

 Date:
 20/09/2017

Visit No:	3	of	3
Operator:	СВ		



			GAS CONCENTRATIONS											FLOW DATA VOLATILES WELL AND				WELL AND V	VATER DATA	COMMENTS
Monitoring Point	Time	Methane	(%v/v)	Carbon (%)	dioxide v/v)	Oxyger	n (%v/v)	Ca monoxid	rbon de (ppmv)	Hydr sulphide	ogen e (ppmv)	%I	.EL	Flow r	ate (l/hr)	PID Peak (ppm)	Product thickness (mm)	Water level (mbgl)	Depth of well (m)	
		Peak	Steady	Peak	Steady	Min.	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady					
BH02	08:14		0.0		1.0		20.6		0.0		0.0				0.5			7.06	12.04	
WS02	08:05		0.0		2.4		19.6	3.0	0.0		0.0				0.5			3.74	4.71	
WS01	07:55		0.0		3.4		18.7		0.0		0.0				0.6			4.56	4.77	
BH01	07:42		0.0		3.2		18.8		0.0		0.0				0.5			5.32	14.53	
Max		ND	0.0	ND	3.4	ND	20.6	3	0	ND	0	ND	ND	ND	0.6	NR	ND	7.06	14.53	
Min		0.0	0.0	0.0	1.0	0.0	18.7	3	0	0	0	0.0	0.0	0.0	0.5	NR	0.0	3.74	4.71	

ND - Not detected

NR - Not recorded

NA - Non applicable



0.0

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:	GA5000	
Gas Range:	CH ₄ 0 - 100% CO ₂ 0 -	100% O ₂ 0 - 25%
Gas Flow range:	+100/-50 l/hour	
Differential Pressure:	(+/-) 1000 Pa	
Date of last calibration:		
Date of next calibration:		
Ambient air check:	CH ₄ 0.0 CO ₂	0.1 O ₂ 21.0

0.0

Co

H₂S

APPENDIX K

EXISTING AND PROPOSED ENGINEERING DRAWINGS (FORM S-D)