

From: LULHVpowerassets@tfl.gov.uk
To: [Keith Smith](#)
Subject: NRSWA Request Response - Your Reference 424990 The College of Haringey Enfield
Date: 10 January 2023 09:10:55
Attachments: [R8220.pdf](#)
[R8236.pdf](#)
[NRSWA Mapshot.png](#)

Our Ref: NSSCXCSO

Your Ref: **424990 The College of Haringey Enfield**

Date: **10 January 2023**

Name: **Keith Smith**

Company Name: **Apogee utility consultants**

Dear Sir/Madam .

We acknowledge receipt of your Letter / New Roads & Street Works Act Enquiry dated **09/01/23** relating to the following enquiry:

The College of Haringey Enfield Postcode: N15 4RU

O.S. Grid Ref.: 533626 , 189289

Road: Isobel Place

From Town Hall Approach Road To Portland Road

We do have apparatus in the immediate area in question, please see the attached drawings and map snapshot:

Drawing No(s):

R8220

R8236

Please note we only manage High Voltage, Pilot and Fibre Optic cables for London Underground distribution network.

Please ensure that any contractors or sub-contractors engaged by you for these works are made aware of this response and its contents. In some cases our cable ducts may be used by a third party, for which we have no information or drawing records.

Yours sincerely,

On Behalf of LU HV Power Assets

Title: NRSWA co-ordinator

Email: LULHVpowerassets@tfl.gov.uk

London Underground

HV Power Assets NRSWA

Power & Electrical

This message has been scanned for malware by Forcepoint. www.forcepoint.com



Legend

- Search result :
Road Cables
-  NRSWA
Location
- Road Cables
- Track Cables
- Road and Track
Cables



0 0.0425 0.085 Km

PRINTED BY:
WilliamPenny@ONELONDON

DATE:
10/01/2023

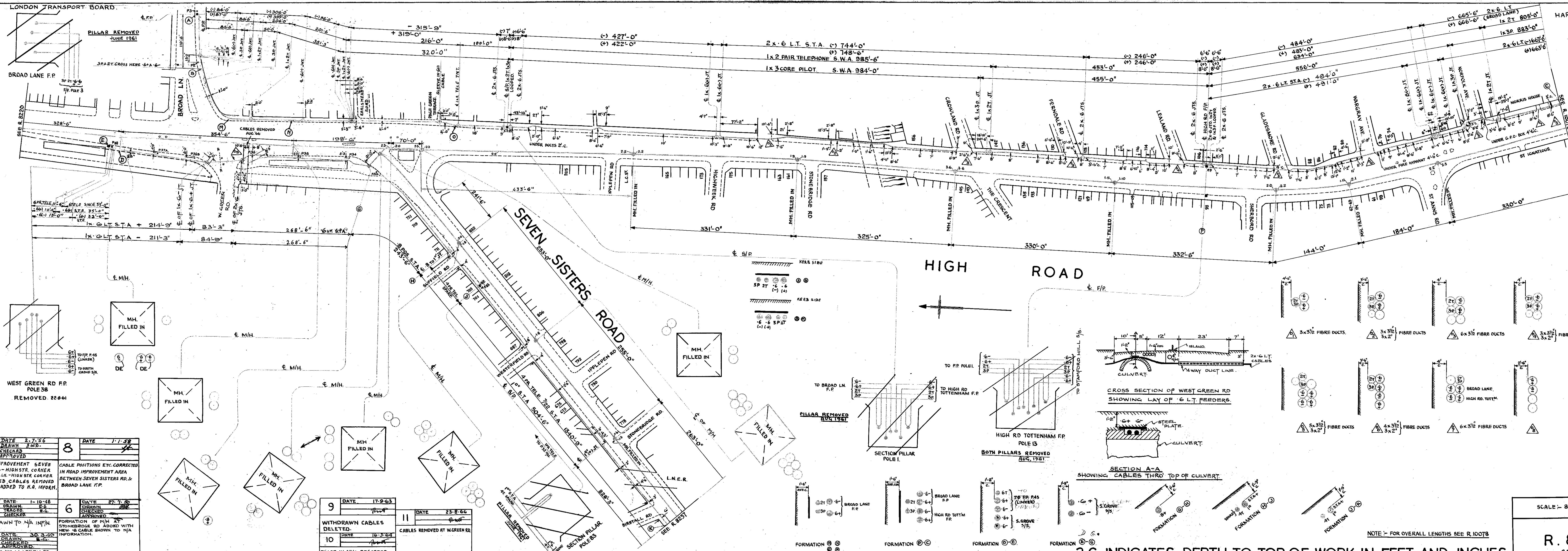




1	Date 14-2-58	2	Date 13-2-43	3	Date 5-10-45	4	Date 17-9-63	5	Date 16-3-64
	Traced P.G.B.		Traced E.G.		Traced [Signature]		[Signature]		[Signature]
	Checked		Checked		Checked		Checked		Checked
		RECORDED FROM W.A. INFORMATION.		LENGTHS ADDED		WITHDRAWN CABLES DELETED.		FILLED IN MMS. RECORDED	
						1/606/24 (500 7/37)			

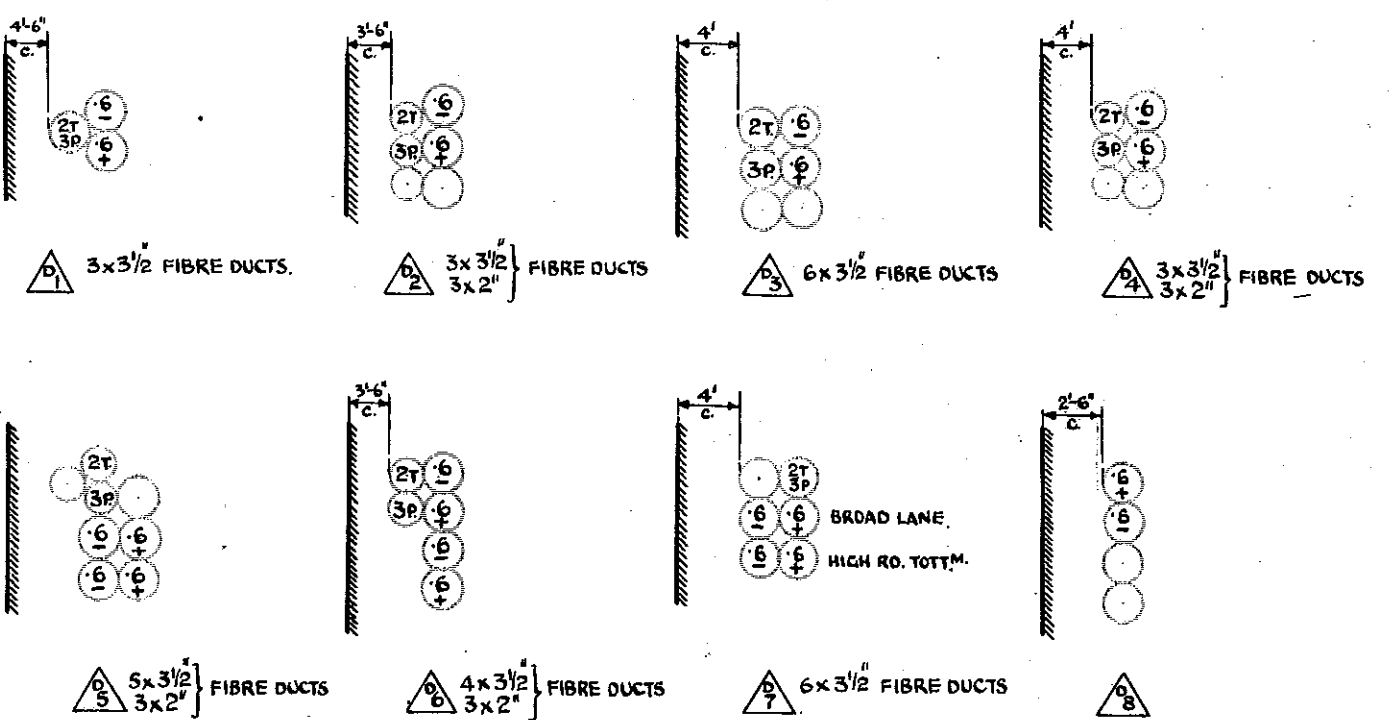
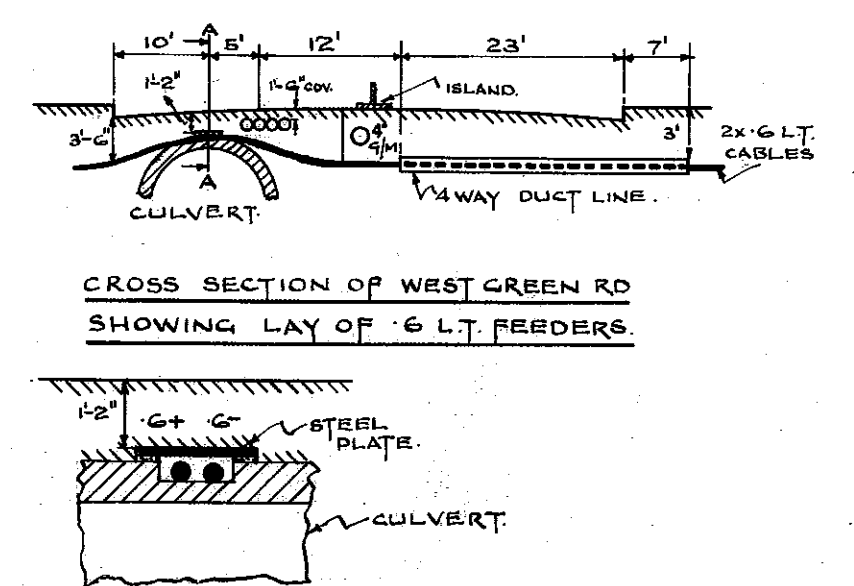
Scale - 88 feet to 1 inch

R 8220
CABLE



7	DATE 2.7.56 DRAWN F.W.D. CHECKED APPROVED	8	DATE 1.1.58 DRAWN CHECKED APPROVED
ROAD IMPROVEMENT SEVEN SISTERS-HIGHST. CORNER & BROAD LN. HIGHST. CORNER. RECORDED CABLES REMOVED & JNTS ADDED TO N.A. INFORM.		CABLE POSITIONS ETC. CORRECTED IN ROAD IMPROVEMENT AREA BETWEEN SEVEN SISTERS RD. & BROAD LANE F.P.	
4	DATE 1-10-48 DRAWN E.G. CHECKED E.G. APPROVED	6	DATE 27.7.50 DRAWN CHECKED APPROVED
REDRAWN TO N.A. INF/N.		FORMATION OF M/H AT STONEBRIDGE RD ADDED WITH NEW CABLE SHOWN TO N.A. INFORMATION.	
5	DATE 20.3.49 DRAWN CHECKED APPROVED	9	DATE 17.9.63 DRAWN CHECKED APPROVED
2x 6 LT. JTS W. GREEN RD ADDED TO N.A. INF/N.		WITHDRAWN CABLES DELETED.	

9	DATE 17.9.63 DRAWN CHECKED APPROVED	11	DATE 23.8.66 DRAWN CHECKED APPROVED
FORMATION OF M/H AT STONEBRIDGE RD ADDED WITH NEW CABLE SHOWN TO N.A. INFORMATION.		CABLES REMOVED AT W. GREEN RD FILLED IN MHS. RECORDED.	



.....3.6 INDICATES DEPTH TO TOP OF WORK IN FEET AND INCHES.

From: [Location Enquiries](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 08:52:47
Attachments: [image001.png](#)

Good morning

Thank you for your enquiry.

I can confirm that London Underground/DLR has no assets within 50 metres of your site as shown on the plan you have provided.

However we do have cable ducts in the area. Should you or your client intend undertaking highway works at this location, please contact:

NRSWA Enquiries

Power Delivery

LULHVpowerassets@tfl.gov.uk

Your works may also affect Transport for London Road Network. Please contact the following for advice if you are carrying out any highway/utility works:

Transport for London RSM Operations

Planned Interventions

Email: plantenquiries@tfl.gov.uk

Kind regards

Infrastructure Protection Safeguarding Team (LU/DLR)

Transport for London Engineering

7th Floor Zone B

5 Endeavour Square

Stratford E20 1JN

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>

Sent: 09 January 2023 16:39

To: Location Enquiries <SMBLocationEnquiries@tfl.gov.uk>

Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'

My client is considering a scheme involving major highway works as detailed below:

Scheme Number: 424990

Location of Works : The College of Haringey Enfield

Postcode: N15 4RU

O.S. Grid Ref.: 533626 , 189289

Road: Isobel Place

From Town Hall Approach Road

Our Ref: 28112323 424990

Monday, 09 January 2023

Keith Smith
Blount House Hall Court Hall Park Way

Shropshire
TF3 4NQ

National Grid House
Warwick Technology Park
Gallows Hill, Warwick
CV34 6DA

Electricity Emergency Number:
0800 40 40 90*
*Available 24 hours, 7 days/week.
Calls may be recorded and monitored.
www.nationalgrid.com

Asset Protection
Gas Transmission
National Grid
Warwick
Email: assetprotection@nationalgrid.com

National Grid Electricity – No Assets Affected

Dear Sir/ Madam,

An assessment has been carried out with respect to NGET apparatus and the proposed work location. Based on the search area entered in the LSBUD system for assessment the search area has been found to not affect any NGET apparatus.

Please note this response and any attached map(s) are valid for 28 days

Yours sincerely

Asset Protection Team

Your Responsibilities and Obligations

It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near National Grid Electricity Transmission plc's apparatus, as legally required including under the Construction (Design and Management) Regulations 2015.

The assessment solely relates to the physical apparatus of National Grid Electricity Transmission plc (NGET)
It does **NOT** cover:

- Apparatus owned by other people or organisations, e.g., Cadent, other gas distribution operators, local electricity companies, other utilities, landowners etc
- Apparatus owned by National Grid Gas plc.
- NGET's legal rights and interests (such as those contained in easements or wayleaves) in or concerning the land, which restrict activity in proximity to NGET's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and/or from HM Land Registry and/or you should seek legal advice. If in doubt, contact Asset Protection.

It is **YOUR** responsibility to consider whether any of the items or factors listed above may be present or relevant and if they could be affected by your proposed activities.

NGET or its agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability, which is prohibited by law, nor does it supersede the express terms of any related agreements.

ENQUIRY SUMMARY

Received Date

09/01/2023 15:38

Work Start Date

15/01/2023

Your Reference

424990

Location

Centre Point: 533626 189289

X Extent:

Y Extent:

Postcode: N15 4RU

Map Options

Paper Size: A4

Orientation: PORTRAIT

Scale: 1:2500

Real World Extents: 121m x 126m

Enquirer Details

Organisation Name: Apogee

Contact Name: Keith Smith

Email Address: keith.smith@apogeeutilityconsultants.co.uk

Telephone: 01952686572

Address: Blount House Hall Court Hall Park Way, , Shropshire, TF3 4NQ

Enquiry Type

Initial Enquiry

Activity Type

Utility Works

Work Types

Single excavations site (1.5m or shallower)

Notes/Works Description (if supplied)

Site Contact Name (if supplied)

Site Contact Number (if supplied)

From: assetrecords@utilityassets.co.uk
To: [Keith Smith](#)
Subject: Re: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 09 January 2023 16:35:50

Thank you for recently contacting Utility Assets plant record department. We will check whether we have any plant present at your site and contact you within 5 - 7 working days ONLY if we own any plant in the vicinity.

If you have sent an asset records enquiry to enquiries@utilityassets.co.uk please change to assetrecords@utilityassets.co.uk

If we do not reply, we do not have any apparatus in the area of your works. However, PLEASE TAKE CARE when excavating around electricity cables in the event that not all cables present may be accurately shown. We recommend you use detecting equipment to map the site before excavating and fully comply with HSG47. DO NOT assume that a cable is dead if you don't have a record of its presence. The cable must be treated as live unless PROVEN DEAD by the cable owner. In case of emergency please contact your local electricity distribution company.

This is an automated reply from our dedicated asset records email address. If you receive further correspondence from us it will be from asset.manager@utilityassets.co.uk quoting a site reference number.

Asset Manager - Utility Assets Ltd

From: [Network Enquiries](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 10:51:05
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)

Dear Sir/ Madam,

Thank you for your email. I can confirm that we have no present projects in the illustrated area as demonstrated in your email.

This response is valid for 3 months, after this time has commenced, we request you submit another email demonstrating the location of your plans.

If you have any further queries, do not hesitate to contact me.

Kindest regards,
Harry Constantine

Eclipse Power

Office: +44 (0) 1234 486487

www.eclipsepower.co.uk

<https://www.linkedin.com/company/eclipse-power-networks>



This e-mail is intended exclusively for the individual(s) to whom it is addressed and may contain information that is privileged, or confidential. If you are not the addressee, you must not read, use or disclose the contents of this e-mail. If you receive this e-mail in error, please notify enquiries@eclipsepower.co.uk giving the name of the sender and delete the e-mail immediately. Eclipse Power has taken every reasonable precaution to ensure that an attachment to this e-mail has been checked for any viruses. Eclipse Power cannot, however, accept liability for any damage sustained as a result of software viruses and would strongly advise that you carry out your own virus checks before opening any attachment.



Please don't print this e-mail unless you really need to!

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:36
To: Network Enquiries <networks.enquiries@eclipsepower.co.uk>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Dear Sir or Madam,

From: nrswa.uk@equans.com
To: [Aaron Nickless](#)
Subject: Automatic reply: [External] C2 ENQUIRY REQUEST 424308 Humberstone Road
Date: 02 August 2022 09:28:10

EQUANS

Thank you for your enquiry. This mail box is monitored constantly

EQUANS owns and operates district energy networks in the following areas and have buried pipework either inside or very close to the area codes listed below:

- Birmingham - B1-B9, B15-B19
- Coventry - CV1, CV2 & CV3
- Eastleigh - SO50
- Southampton - SO14, SO15 & SO17
- Hatfield - AL10
- Leicester - LE1-LE5
- Leeds - LS2
- London
 - Bloomsbury - W1, WC1, WC2, NW1 & N1C
 - Olympic Site - E3, E7, E9-E11, E13, E15 & E20
 - Whitehall -SW1A, SW1E, SW1H, SW1P, SW1V & SW1Y
 - Embassy Quarter - SW8, SW11
 - ExCel Exhibition Centre - E16
- Newcastle – NE4 5QB
- Edinburgh – EH1 3SS

Due to the volume of enquiries, EQUANS is only able to respond to enquiries which fall within the above Areas of Interest.

If your enquiry falls within these areas, EQUANS will respond with a further email containing details of buried assets which may or may not affect your work.



EQUANS Document Control

Urban Energy
UK & Ireland
NRSWA.UK@equans.com

Kings Yard,
1 Waterden Road,
Queen Elizabeth Olympic Park
London E15 2GP - UK

Please consider the environment before printing this message

EQUANS Mail Disclaimer: <https://www.equans.com/disclaimer/disclaimer-mail/en>

From: [Leep Electricity Networks](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 15:20:23
Attachments: [image001.png](#)

Good Afternoon,

Please note that Leep Electricity Networks Ltd & Leep Utilities (Holdings) have no apparatus in this area.

Kind regards,

Leep Electricity Networks
Take a look at our [website](#)

e: lenl@leeputilities.co.uk
w: www.leeputilities.co.uk
Privacy Notice



Leep Holdings (Utilities) Limited : Registered in England & Wales : Company Number 06729159 : Registered Office: Level 2, Metro, 33 Trafford Road, Manchester, Salford, M5 3NN

Please consider the environment before printing this email.

This message may contain confidential information. If you have received this message by mistake, please inform the sender by sending an e-mail reply. At the same time please delete the message and any attachments from your system without making, distributing or retaining any copies. Although all our e-mails messages and any attachments upon sending are automatically virus scanned we assume no responsibility for any loss or damage arising from the receipt and/or use.

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:36
To: Leep Electricity Networks <lenl@leeputilities.co.uk>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'

From: [Harshita K S](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 13:04:56
Attachments: [image001.png](#)
[image002.png](#)

Please accept this email as confirmation that Vodafone: Fixed **does not** have apparatus within the vicinity of your proposed works detailed below.

Many thanks.

Plant Enquiries Team (HK)
T: +44 (0)1454 662881
E: osm.enquiries@atkinsglobal.com

ATKINS working on behalf of Vodafone: Fixed



This response is made only in respect to electronic communications apparatus forming part of the Vodafone Limited electronic communications network formerly being part of the electronic communications networks of Cable & Wireless UK (now re-named Vodafone Enterprise UK), Energis Communications Limited, Thus Group Holdings Limited and Your Communications Limited.

PLEASE NOTE:

The information given is indicative only. No warranty is made as to its accuracy. This information must not be solely relied upon in the event of excavation or other works carried out in the vicinity of Vodafone plant. No liability of any kind whatsoever is accepted by Vodafone, its servants, or agents, for any error or omission in respect of information contained on this information. The actual position of underground services must be verified and established on site before any mechanical plant is used. Authorities and contractors will be held liable for the full cost of repairs to Vodafone's apparatus and all claims made against them by Third parties as a result of any interference or damage.

IMPORTANT - PLEASE READ:

Diversionary works may be necessary if the existing line of the highway/railway or its levels are altered, where apparatus is affected. Where apparatus is affected and requires diversion, you must submit draft details of the proposed scheme with a request for a 'C3 Budget Estimate' to c3requests@vodafone.com. These estimates should be provided by Vodafone normally within 20 working days from receipt of your request. Please include proof of this C2 response when requesting a C3 (using the 'forward' option).

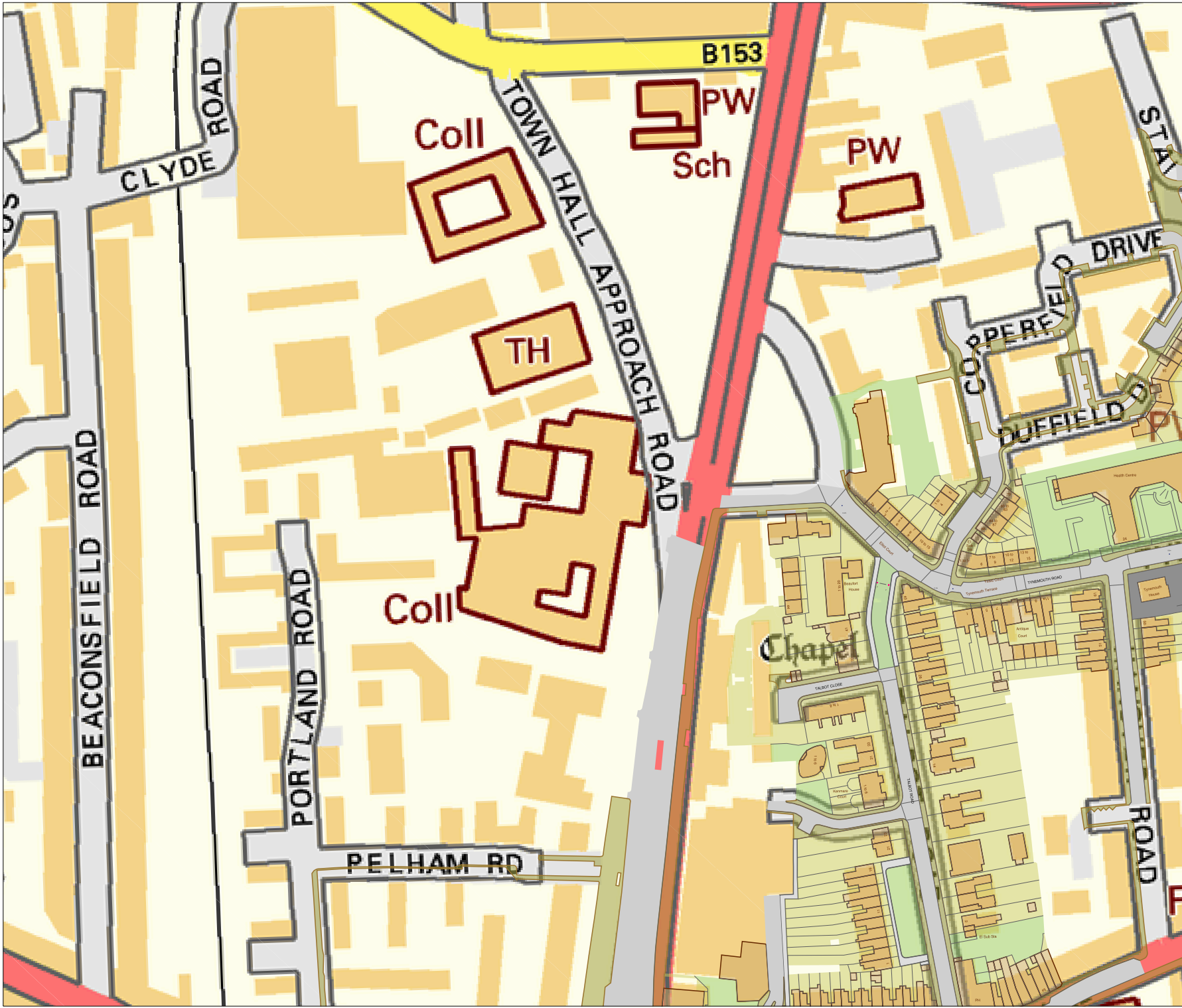


Please consider the environment before printing this e-mail

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 22:06
To: National Plant Enquiries <OSM.enquiries@atkinsglobal.com>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'



bitmap_layout select_raster

LEGEND

- EXISTING PLANT
- EXISTING PLANT

bitmap_layout select_raster

Head Office
CityFibre Holdings Ltd
15 Bedford Street,
London,
WC2E 9HE

Tel: 0845 293 0774
Web: www.cityfibre.com

Asset Office
CityFibre Holdings Ltd,
Rutherford House,
Birchwood,
Warrington,
WA3 6ZH
Email: asset.team@cityfibre.com

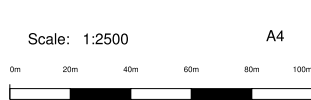
Disclaimer:
Information shown on this plan is for general guidance only.
No warranty is made as to its accuracy.
This plan must not be solely relied upon in the event of
excavation or other works being carried out in the vicinity
of Cityfibre plant.
No liability of any kind is accepted by Cityfibre, its agents or
servants for any error, omission, discrepancy or
deviation. This information is valid for the date printed.

Project
Plant Enquiry

Drawing
Existing Plant

Drawn by:
smallworld
Date: 16/01/2023

Drawing No. CFH_EP_000001
Revision 001



From: [Plantenquiries - CA Telecom](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 11 January 2023 14:32:23
Attachments: [image001.png](#)
[image002.png](#)
[image004.png](#)

Please Note: Our search criteria has changed. We previously searched for Colt Network which was within 200 metres, this has now changed to 50 metres. The negative response will be for all enquiries that the network is 50 metres or more away from the place of enquiry.

Dear Sir/Madam,

Thank you for your enquiry for the above reference.

We can confirm that Colt Technology Services do not have apparatus near the above location as presented on your submitted plan, if any development or scheme amendments fall outside the 50 metre perimeter new plans must be submitted for review.

Search is based on Overseeing Organisation Agent data supplied; we do not accept responsibility for O.O. Agent inaccurate data.

If we can be of any further assistance please do not hesitate to contact us.

Kind regards,

Plant Enquiry Team



Please consider the environment before printing this email.

This e-mail and any files transmitted with it are confidential and are intended solely for the use of the intended recipient(s). If you are not the intended recipient, you must not copy, distribute or take any action based on this communication. If you have received this communication in error please contact plantenquiries@catelecomuk.com and delete this communication and any copies of it. Any views or opinions presented are solely those of the author and do not necessarily represent those of C A Telecom LTD. C A Telecom LTD monitors e-mails to ensure that its systems operate effectively and to minimise the risk of viruses.

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:37
To: Plantenquiries - CA Telecom <plantenquiries@catelecomuk.com>

From: [Plantenquiries](#)
To: [Keith Smith](#)
Subject: RE: E02-23-2224 VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 11:49:49
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image005.png](#)

Dear Sir or Madam,

Thank you for your plant enquiry below.

We can confirm that Lumen Technologies (formerly CenturyLink Communications UK Limited, Level 3, Global Crossing (Uk) Ltd, Global Crossing PEC, Fibernet UK Ltd and Fibrespan Ltd) do not have any apparatus within the indicated works area.

Instalcom responds to plant enquiries for all of the above and therefore you only need send one plant enquiry to cover all of these companies.

Please note that this response is only valid for 3 months. If your works do not commence within this time period, please resubmit your plant enquiry for assessment before any works commence.

Regards

Plant Enquiries Dept
Instalcom Limited
Borehamwood Ind. Park
Rowley Lane
Borehamwood
WD6 5PZ

Office: +44 (0)208 731 4613
Fax: +44 (0)208 731 4601
Email: plantenquiries@instalcom.co.uk
Web: <http://www.instalcom.co.uk>



From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:37
To: Plantenquiries <Plantenquiries@instalcom.co.uk>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

From: [Lauren Knights](#)
To: [Keith Smith](#); [Ahmed Khawar](#); [Build Managers](#)
Subject: RE: [EXTERNAL] VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 09 January 2023 16:52:53
Attachments: [image001.png](#)

Afternoon,

We have no assets at this location.

Kind Regards,

Lauren Knights

Principal Build Manager

M: 07955819660

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:38
To: Ahmed Khawar <ahmed.khawar@g.network>; Lauren Knights <lauren.knights@g.network>; Build Managers <build.managers@g.network>
Subject: [EXTERNAL] VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

[EXTERNAL EMAIL] This email originated from outside of G.Network, please be careful clicking any links in this email or performing requested actions

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'

My client is considering a scheme involving major highway works as detailed below:

Scheme Number: 424990

Location of Works : The College of Haringey Enfield

Postcode: N15 4RU

O.S. Grid Ref.: 533626 , 189289

Road: Isobel Place

From Town Hall Approach Road

To Portland Road

Description of Works: Utility Work

Expected Start Date: 12th January 2023

Plans showing the area for the works are attached

In order that all reasonable precautions may be taken to avoid risk to health and safety through contact with any of your existing apparatus during execution of the proposed works, please indicate the position and depth of your apparatus in the locality of the proposed works and return the plan to this office.

From: [Nraswa](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 06:37:57
Attachments: [image001.png](#)
[image002.png](#)

KCOM Commercial in Confidence

Hello,

Location / Ref no :

Scheme Number: 424990

Location of Works : The College of Haringey Enfield

Postcode: N15 4RU

At this time the KCOM Group PLC has no apparatus or proposals for new apparatus in the vicinity of these works and will not be affected by them. Please note this reply is valid for 3 months from the date of this letter.

KCOM now offer this service free on-line, to register for this please contact Tony Ford at Tony.Ford@Kcom.com

Kind Regards

Pete McSherry

NRSWA Planner – Field Engineering

Mobile/Cell: +44 (0) 748 453 9186

Email: pete.mcsherry@kcom.com

Web: www.kcom.com

KCOM

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:37
To: Nraswa <nraswa@kcom.com>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Important: This mail was received from outside of KCOM; please treat its content with caution.

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of

From: [NRSWA](#)
To: [Keith Smith](#)
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 09 January 2023 16:56:23
Attachments: [image003.png](#)
[image001.png](#)
[image002.png](#)



Thank you for your enquiry.

Please be advised that Sky Telecommunications Services Ltd will not be affected by your proposal.

Best endeavours have been made to ensure accuracy, however if you require further information, please contact us by email at nrswa@sky.uk.

Regards



NRSWA Department
Sky UK - Technology - Operations

 nrswa@sky.uk  +44 2070323234

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:37
To: NRSWA <nrswa.nrswa@sky.uk>
Subject: [EXTERNAL] VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'

From: [SOTA Plant Enquiries](#)
To: [Keith Smith](#)
Subject: RE:S01-23- 1040 VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 15:21:51
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image006.png](#)
[image007.png](#)



Dear Sir or Madam,

With reference to your plant enquiry below, we can confirm that SOTA do not have any apparatus within the immediate proximity of your proposed works.

If you require any further information, please do not hesitate to contact us.

Please note that this response is only valid for 3 months. If your works do not commence within this time period, please resubmit your plant enquiry for assessment before any works commence.

Regards

Plant Enquiries Dept.
Instalcom Limited
Borehamwood Ind. Park
Rowley Lane
Borehamwood
WD6 5PZ

Office: +44 (0)208 731 4613
Fax: +44 (0)208 731 4601
Email: sota.plantenquiries@instalcom.co.uk
Web: <http://www.instalcom.co.uk>



From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:37
To: SOTA Plant Enquiries <SOTA.PlantEnquiries@instalcom.co.uk>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Public

Date
2020-06-10

Page
1 (2)

Contact

Telia Carrier
Infrastructure Team

check-network@teliacompany.com

Your reference: 424990 The College of Haringey, Enfield, Isobel Place

Our reference: LPENQ0000140411

Dear Sir/Madam,

Telia Carrier Line Plant Enquiry.

Thank you for your correspondence enclosing details of your proposals as per your reference above.

Our client's apparatus, Telia Carrier, is not located within the vicinity of the above reference and we therefore have no further interest in this current location.

We kindly inform you that from the 1st September, 2020 Telia's enquiries handling process has changed. The new contact email is check-network@teliacompany.com. Please note that the contact postal address has changed as well, please find below.

The entire Telia network in the UK is shown on the map below.

Our team is seeking opportunity to co-operate with Enquirers whose enquiries are targeting locations far away from our network. Our intention is to reduce the number of out-of-area requests and save time and manpower on both sides. If you can utilize our network KMZ map to see where our network is located and to pre-filter the enquiries which are far from our network, please contact us at check-network@teliacompany.com and we will provide you a KMZ network map.

Public

Date
2020-06-10

Page
2 (2)



Please note that all enquiries relating to the Telia Carrier line plant should be forwarded to:

By post – to, Telia Carrier U.K Ltd
69-77 Paul Street
3rd Floor
London
EC2A 4NW
By email – to, check-network@teliacompany.com
By phone – to, 08000287406
003618089955

Yours faithfully

Telent Technology Services CCO (responding on behalf of Telia Carrier)
Basildon

From: [UK OSP-Team.](#)
To: [Keith Smith](#); [UK OSP-Team](#)
Subject: Re: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 07:29:30
Attachments: [image654749.png](#)

Dear Sir/Madam

Verizon is a licensed Statutory Undertaker.

We have reviewed your plans and have determined that Verizon (Formally known as MCI WorldCom, MFS) has no apparatus in the areas concerned.

If you have any further queries please do not hesitate to get in touch.

Yours faithfully

Plant Protection Officer (GB) Email osp-team@uk.verizon.com

On Mon, 9 Jan 2023 at 16:38, Keith Smith <keith.smith@apogeeutilityconsultants.co.uk> wrote:

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'

My client is considering a scheme involving major highway works as detailed below:

Scheme Number: 424990

Location of Works : The College of Haringey Enfield

From: [CRL_Safeguarding](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 10 January 2023 09:22:38
Attachments: [image001.png](#)

Please note,

The Elizabeth line (Crossrail) is not affected by these works.

Best regards,

Will Orlik
Safeguarding Officer (Crossrail)
CRL_Safeguarding@tfl.gov.uk

Infrastructure Protection Team
Floor 7 B5 : 5 Endeavour Square : London : E20 1JN

From: Keith Smith <keith.smith@apogeeutilityconsultants.co.uk>
Sent: 09 January 2023 16:39
To: CRL_Safeguarding <CRL_Safeguarding@tfl.gov.uk>
Subject: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield

Dear Sir or Madam,

ROADS AND STREET WORKS ACT 1991 PRELIMINARY ENQUIRY Appendix C2 of the Code of Practice (CoP) 'Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works)'

My client is considering a scheme involving major highway works as detailed below:

Scheme Number: 424990

Location of Works : The College of Haringey Enfield

Postcode: N15 4RU

O.S. Grid Ref.: 533626 , 189289

Road: Isobel Place

From Town Hall Approach Road

To Portland Road

Description of Works: Utility Work

Expected Start Date: 12th January 2023

Plans showing the area for the works are attached

In order that all reasonable precautions may be taken to avoid risk to health and safety through contact with any of your existing apparatus during execution of the proposed works, please indicate the position and depth of your apparatus in the locality of the proposed works and return the plan to this office.

Notice under The Street Works (Registers, Notices, Directions and Designations) Regulations will

From: [Andy Key \(Distribution Administrator\)](#) on behalf of [OP Buried Services Enquiries](#)
To: [Keith Smith](#)
Subject: RE: VERY URGENT C2 ENQUIRY REQUEST 424990 The College of Haringey Enfield
Date: 09 January 2023 16:57:23
Attachments: [image001.png](#)
[image002.png](#)

OFFICIAL

Dear Sir/Madam,

With regards to your enquiry, Network Rail does not believe there is any Network Rail owned apparatus or underground services within the area you have defined. As there is always the possibility that new works could be planned and undertaken in this area by Network Rail this information is valid as at today's date and is supplied for general guidance only.

Please be aware that this response is based on Network Rail's records and knowledge and no guarantee can be given regarding accuracy or completeness. CAT scans, safe digging practices (as contained in HSE publications) and other appropriate investigative techniques should always be carried out.

There may be other apparatus or underground services owned or operated by Utility Companies and accordingly you should contact individual utilities for information.

If, in connection with your investigations and/or work, you become aware of Network Rail apparatus or underground services within your area of work, please ensure these are notified to our Asset Protection team via the following link as a matter of urgency so that appropriate measures for avoidance of risk and damage can be put in place.

Contact details can be found in the following link: [Network Rail Asset Protection Teams](#)

If you require any further clarification on any of the information please contact opburiedservicesenquiries@networkrail.co.uk.

Regards,

Andy Key

Distribution Administrator



Worksite Survey | Asset Information Services
National Records Centre | Audax Road | York YO30 4US
E: andy.key2@networkrail.co.uk
W: www.networkrail.co.uk

Advanced notice of absence:

Definition of Report Terms

Affected Plant – Where plant records indicate that the utility has plant in or near to the site.

Not Affected – Where the utility or we (using our maps and resources) have determined that there is no plant in or near the site.

No Response Received – Despite our chasing we are still to receive a response from the utility, you will get further reiterations of the report until it is complete, with the exception of the Council where in some cases they never respond.

Vodafone & Virgin Media

Virgin Media Option: We find that Virgin are affected by a lot of our searches particularly in urban areas you should only not search Virgin where you are happy with the risk or have certainty they are not in the site area.

Vodafone Option: We find that Vodafone are affected in less than 10% of enquires but this increases in urban area and the South East particularly in London.

NB. Should you change your mind and require us to search any or all of these three after you have received your report or within 90 days of receiving your report we will process any or all of the above with you only paying the disbursement charge levied by the relevant utility. In the event that you have not received your Invoice then the additional costs will be added. In cases where your Invoice has been issued then a new one will be issued at the point at which you instruct us to complete the additional search.

Acronyms Key

Electric			
DNO	Distribution Network Operator	KVA	Kilo Volt Amperes
IDNO	Independent Distribution Network Operator	MVA	Mega Volt Amperes
ICP	Independent Connections Provider	AC	Alternating Current
LV	Low Voltage	S/S	Substation
HV	High Voltage	PMT	Pole Mounted Transformer
EHV	Extra High Voltage		
Water			
SLO	Self Lay Organisation	WRAS	Water Regulation Advisory Scheme
Incumbent	Local Water or Water & Sewerage Company		
Gas			
GT	Gas Transporter	LP	Low Pressure
IGT	Independent Gas Transporter	MP	Medium Pressure
UIP	Utility Infrastructure Provider	IP	Intermediate Pressure
PRS	Pressure Reducing Station (Governor)	HP	High Pressure
Others			
AP	Apogee Property & Utility Consultants	CATV	Cable Television
PE	Polyethylene	FTTP	Fibre to the premise
DI	Ductile Iron	FTTC	Fibre to the cabinet
ST	Steel	l/min	Litres per minute
CI	Cast Iron	H&S	Health & Safety
SI	Spun Iron	HBF	House Builders Federation
HPPE	High Performance Polyethylene	TPO	Tree Preservation Order
MDPE	Medium Density Polyethylene	TBC	To be confirmed
GRP	Glass Reinforced Plastic	N/A	Not Applicable

Important Information

Relevant Documents

The following documents must be referred to before work commences in the vicinity of existing services:

- Health and Safety Booklet HS (GS) 6 Avoidance of Danger from Overhead Electric Lines.
- General Safety Measures to Avoid Injury and Damage to Gas Apparatus.
- HSE Guidance Note HS (G) 47 Avoiding Danger from Underground Services.
- National Joint Utilities Group (NJUG) Publications Vol. 1.
- CDM Regulations 2015.
- PAS 128:2014 Specification for Underground Utility Detection, Verification and Location.

Basic Risk Assumption for all Services

When dealing with existing services the following assumptions must always be accepted:

- All existing buildings have gas, water electric and telecoms supplies to them until proven otherwise.
- Any supply to an existing building, no matter how old the building is or how deteriorated the supply may appear, is taken to be 'live' until proven otherwise.
- All open land, vacant lots and derelict sites are deemed to have services beneath them until proven otherwise.
- The only acceptable proof that a service is 'dead' and can be removed is written confirmation from the owner of the service.
- The quality and accuracy of information provided by utilities about their existing plant is indicative and no warranty is made as to its accuracy. Therefore, any utility asset maps and/or marked up drawings provided by each utility must only be used as a guide and the actual location of plant should be verified by CAT Scan GPR survey or trial holes before construction works commence.

Please note not all service connections are shown on the utility asset maps.

Plant Found Within Site Boundaries

Where utility plant is found within the site boundary, it is recommended for the client to check for legal easements or wayleaves a Wayleave search service is available from us please ask for a quotation.

Diversions of plant within site boundaries can be expensive and time consuming to relocate. Further investigation of costs and timescales are recommended. Please ask us for further details.

APPENDIX I EXPLORATORY LOGS

BOREHOLE LOG

Contract: Tottenham Centre			Client: Capital City College Group		Borehole: BH1
Contract Ref: 1922791	Start: 04.04.23 End: 04.04.23	Ground Level: ---	National Grid Co-ordinate: ---	Sheet: 1 of 3	

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						MADE GROUND: Asphalt	0.20	
						MADE GROUND: Soft brown black sandy gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, asphalt, concrete, flint.	0.40	
1.20-1.65	S1	SPT	N=6			MADE GROUND: Soft brown black slightly sandy slightly gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, asphalt, concrete, flint.	(2.40)	
2.00-2.45	S2	SPT	N=8					
							2.80	
3.00-3.45	U1	U ₍₁₀₀₎	37 blows 78% recovery			Firm brown silty CLAY. Relic rootlets. Occasional random pockets of sand. Sand is fine to coarse. (LONDON CLAY FORMATION)		
3.50-4.00	B1	B						
4.00-4.45	S3	SPT	N=9				(3.20)	
4.50-5.00	B2	B						
5.00-5.45	U2	U ₍₁₀₀₎	41 blows 89% recovery					
5.50-6.00	B3	B						
6.00-6.45	S4	SPT	N=12			Firm dark grey CLAY with selenite crystals. (LONDON CLAY FORMATION)	6.00	
6.50-7.00	B4	B						
7.00-7.50	B5	B						
7.00-7.45	U3	U ₍₁₀₀₎	49 blows 100% recovery					
7.50-8.00	B6	B						
8.00-8.45	S5	SPT	N=13					
8.50-9.00	B7	B						

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	
									1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.2m depth. 3. Cable percussion borehole terminated at 25m depth. 4. Water seepage at 3m depth. 5. Checks for buried ferrous objects carried out
Method Used: Inspection pit + Cable percussion						All dimensions in metres			Scale: 1:50
Plant Used: Dando 3000						Drilled By: Luke Halls	Logged By: MJackaman	Checked By: AL	

BOREHOLE LOG

Contract: Tottenham Centre			Client: Capital City College Group		Borehole: BH1
Contract Ref: 1922791	Start: 04.04.23 End: 04.04.23	Ground Level: ---	National Grid Co-ordinate: ---	Sheet: 2 of 3	

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.00-9.45	U4	U ₍₁₀₀₎	58 blows 44% recovery			Firm dark grey CLAY with selenite crystals. (LONDON CLAY FORMATION) (stratum copied from 6.00m from previous sheet)		
9.50-10.00	B8	B						
10.00-10.45	S6	SPT	N=17				(8.50)	
11.00-11.50	B9	B						
11.50-12.00	B10	B						
12.00-12.50	B11	B						
13.00-13.45	S7	SPT	N=18					
13.50-14.00	B12	B						
14.00-14.50	B13	B						
14.50-15.00	B14	B					14.50	
14.50-14.95	U5	U ₍₁₀₀₎	72 blows 0% recovery			Firm dark grey CLAY with selenite crystals and rare black incusions. (LONDON CLAY FORMATION)		
15.50-16.00	B15	B						
16.00-16.45	S8	SPT	N=25				(3.00)	
16.50-17.00	B16	B						
17.50-18.00	B17	B				Stiff dark grey CLAY with selenite crystals. (LONDON CLAY FORMATION)	17.50	
17.50-17.95	U6	U ₍₁₀₀₎	82 blows 89% recovery					

Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)	
									during excavation by specialist unexploded ordnance (UXO) officer using magnetometer. 6. On completion, borehole backfilled with arisings to 3m bgl. 7. Borehole constructed with shallow gas / perched water monitoring pipe.
									All dimensions in metres
									Scale: 1:50
Method Used: Inspection pit + Cable percussion			Plant Used: Dando 3000			Drilled By: Luke Halls	Logged By: MJackaman	Checked By: AL	

Contract:		Client:		Borehole:
Tottenham Centre		Capital City College Group		BH1
Contract Ref:	Start: 04.04.23	Ground Level:	National Grid Co-ordinate:	Sheet:
1922791	End: 04.04.23	---	---	3 of 3

Samples and In-situ Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
18.50-18.95 18.50-19.00	S9 B18	SPT B	N=29			Stiff dark grey CLAY with selenite crystals. (LONDON CLAY FORMATION) <i>(stratum copied from 17.50m from previous sheet)</i>	(2.00)	
19.50-20.00	B19	B	92 blows 89% recovery			Stiff dark grey CLAY with selenite crystals and rare black inclusions. (LONDON CLAY FORMATION)	19.50	
20.00-20.50	B20	B						
20.50-20.95	U7	U ₍₁₀₀₎						
21.50-22.00	B21	B						
22.00-22.45	S10	SPT	N=37			Stiff dark grey slightly sandy CLAY with selenite crystals. (LONDON CLAY FORMATION)	22.50	
22.50-23.00	B22	B						
23.00-23.45	U8	U ₍₁₀₀₎	100 blows 67% recovery				(2.50)	
23.50-24.00	B23	B						
24.00-24.50	B24	B						
24.50-24.95	S11	SPT				N=44		
25.00-25.00	B25	B						

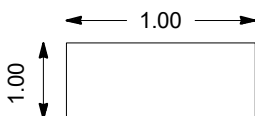
Boring Progress and Water Observations						Chiselling / Slow Progress			General Remarks					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth	From	To	Duration (hh:mm)						
									All dimensions in metres	Scale: 1:50				
Method Used:	Inspection pit + Cable percussion			Plant Used:	Dando 3000			Drilled By:	Luke Halls	Logged By:	MJackaman	Checked By:	<i>AL</i>	

TRIAL PIT LOG

Contract: Tottenham Centre		Client: Capital City College Group		Trial Pit: TP1
Contract Ref: 1922791	Start: 03.04.23 End: 03.04.23	Ground Level: ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.30 0.35-0.35	ES1	V ES	$c_u=44/54/46$ $1xT+1xJ+1xV$			MADE GROUND: Asphalt	0.15	
0.60-0.60 0.60-0.60 0.60	D1 ES2	D ES V	$1xT+1xJ+1xV$ $c_u=42/44/54$			MADE GROUND: Soft brown black sandy gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, asphalt, concrete, flint. Brick foundations present on the southern side of the trial pit at 0.15m depth	0.30 (0.40)	
0.90-0.90 0.90-0.90	D2 ES3	D ES	$1xT+1xJ+1xV$			MADE GROUND: Soft brown black silty slightly sandy slightly gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, asphalt, concrete, flint. Foundations stop at 0.50m depth	0.70 (0.50)	
1.20-1.20	D3	D				MADE GROUND: Soft brown silty slightly gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, concrete, flint. Perched water at 0.85m depth	1.20	

Plan (Not to Scale)



General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Inspection pit hand dug to 1.2m depth.
3. Trial pit backfilled with arisings in reverse order upon completion.
4. Inspection pit remained dry and stable during excavation.

All dimensions in metres

Scale: **1:25**Method Used: **Inspection pit + Hand dug**

Plant Used:

Hand tools

Logged By:

MJackaman

Checked By:

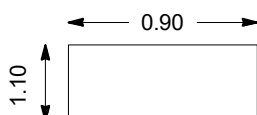
AL

TRIAL PIT LOG

Contract: Tottenham Centre		Client: Capital City College Group		Trial Pit: TP2
Contract Ref: 1922791	Start: 04.04.23 End: 04.04.23	Ground Level: ---	National Grid Co-ordinate: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.35-0.35	1	ES	1xT+1xJ+1xV			MADE GROUND: Asphalt	0.20	
0.60-0.60	2	ES	1xT+1xJ+1xV			MADE GROUND: Brown black sandy slightly clayey fine to coarse angular to subangular GRAVEL of brick, asphalt, concrete, flint. Sand is fine to coarse. Brick cobbles.	0.40	
0.60-0.60	D1	D	$c_u=56/63/58$			Building foundations 23cm wide encountered at 0.20m depth along west side of pit next to the building.	(0.35)	
0.90-0.90	3	ES	1xT+1xJ+1xV			MADE GROUND: Soft black dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, asphalt, concrete, ceramic, flint.	0.75	
0.90-0.90	D2	D	$c_u=70/80/66$			MADE GROUND: Soft mottled brown orange grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse angular to subangular brick, concrete, flint.	(0.45)	
0.90		V					1.20	
1.20-1.20	4	ES	1xT+1xJ+1xV			Foundations of building stop at 0.75m depth.		
1.20-1.20	D3	D						

Plan (Not to Scale)



General Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation.
2. Inspection pit hand dug to 1.2m depth.
3. Trial pit backfilled with arisings in reverse order upon completion.
4. Inspection pit remained dry and stable during excavation.

All dimensions in metres

Scale: **1:25**Method Used: **Inspection pit + Hand dug**

Plant Used:

Hand tools

Logged By:

MJackaman

Checked By:

AL

APPENDIX J GAS DATA SHEETS

WATER MONITORING RESULTS

Client Organisation:	RSK
Project Manager:	Louisa Wilmott

Site Name	Tottenham Centre
Project/ Reference Number:	1922791

Pre-Testing Remarks:	Site Conditions/Weather				Equipment Used: Dip tape	Samples taken /
Measurement datum:	Offset to GL (m):	Ground Conditions:	Wind:	Air Temperature:		

Exploratory Position ID	Pipe ref / Pipe diameter	Monitoring Round /Test Number	Time of Monitoring (hh:mm:ss)	Offset to GL (m)	Water Depth (m)	Well Depth (m)	pH	Redox (mV)	Conductivity (uS/cm)	Temperature (degC)	Dissolved Oxygen	Total Dissolved Solids (ppm)	Comments
N/A	50	1	13:32	0.000	0.590	2.960							Name of location not provided. Gas reading not taken due to high level of water

Date of Monitoring	Compiled By:	Checked By:	Page: 1 of 1
12/05/2023	AB		



APPENDIX K CHEMICAL LABORATORY ANALYSIS

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 23/03402/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 23/03402
Issue Number: 2

Date: 04 May, 2023

Client: RSK Environment Ltd Hemel
18 Frogmore Road
Hemel Hempstead
Hertfordshire
UK
HP3 9RT

Project Manager: Alena Landers/Callum Vickers/Matthew Jackaman
Project Name: Tottenham Centre
Project Ref: 1922791
Order No: N/A
Date Samples Received: 11/04/23
Date Instructions Received: 11/04/23
Date Analysis Completed: 04/05/23

Approved by:



Gemma Berrisford
Client Manager

Envirolab Job Number: 23/03402

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03402/1	23/03402/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2								
Depth to Top	0.35	0.35								
Depth To Bottom										
Date Sampled	03-Apr-23	04-Apr-23								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5A	4A								
% Moisture at <40C _A	20.3	-						% w/w	0.1	A-T-044
% Stones >10mm _A	2.2	<0.1						% w/w	0.1	A-T-044
pH _D ^{M#}	8.44	8.93						pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03	0.01						g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	280	650						mg/kg	200	A-T-028s
Organic Matter _D ^{M#}	1.2	-						% w/w	0.1	A-T-032s
Arsenic _D ^{M#}	6	18						mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.9	0.8						mg/kg	0.5	A-T-024s
Copper _D ^{M#}	26	19						mg/kg	1	A-T-024s
Chromium _D ^{M#}	41	18						mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	-						mg/kg	1	A-T-040s
Lead _D ^{M#}	21	81						mg/kg	1	A-T-024s
Mercury _D	0.78	0.83						mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	32	36						mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1						mg/kg	1	A-T-024s
Zinc _D ^{M#}	59	131						mg/kg	5	A-T-024s

Envirolab Job Number: 23/03402

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03402/1	23/03402/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2								
Depth to Top	0.35	0.35								
Depth To Bottom										
Date Sampled	03-Apr-23	04-Apr-23								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5A	4A								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	Chrysotile								A-T-045
Asbestos Matrix (visual) ₀	-	-								A-T-045
Asbestos Matrix (microscope) ₀	-	Loose Fibres								A-T-045
Asbestos ACM - Suitable for Water Absorption Test? ₀	N/A	N/A								A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) ₀	-	<0.001						% w/w	0.001	A-T-054

Envirolab Job Number: 23/03402

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03402/1	23/03402/2								
Client Sample No										
Client Sample ID	TP1	TP2								
Depth to Top	0.35	0.35								
Depth To Bottom										
Date Sampled	03-Apr-23	04-Apr-23								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5A	4A								
PAH-16MS										
Acenaphthene _A ^{M#}	0.01	0.14						mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.05						mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.05	1.24						mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.18	4.80						mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.16	4.39						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.20	5.47						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.13	2.66						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.09	1.93						mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.22	5.06						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.57						mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.43	10.5						mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.01	0.15						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.13	3.28						mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03						mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.22	2.99						mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.38	8.16						mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	2.21	51.4						mg/kg	0.01	A-T-019s
TPH Total with ID + GC Trace										
TPH total (>C6-C40) _A ^{M#}	123	-						mg/kg	10	A-T-007s
TPH FID Chromatogram _A	Appended	-								A-T-007s
TPH ID Interpretation _A	C12-C44 with some PAHs and other unknown hydrocarbons	-								A-T-007s

Envirolab Job Number: 23/03402

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03402/1	23/03402/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2								
Depth to Top	0.35	0.35								
Depth To Bottom										
Date Sampled	03-Apr-23	04-Apr-23								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5A	4A								
VOC										
Dichlorodifluoromethane _A	<1	-						µg/kg	1	A-T-006s
Chloromethane _A	<10	-						µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene) _A [#]	<1	-						µg/kg	1	A-T-006s
Bromomethane _A [#]	<1	-						µg/kg	1	A-T-006s
Chloroethane _A [#]	<1	-						µg/kg	1	A-T-006s
Trichlorofluoromethane _A [#]	<1	-						µg/kg	1	A-T-006s
1,1-Dichloroethene _A [#]	<1	-						µg/kg	1	A-T-006s
Carbon Disulphide _A [#]	<1	-						µg/kg	1	A-T-006s
Dichloromethane _A	<5	-						µg/kg	5	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	-						µg/kg	1	A-T-006s
1,1-Dichloroethane _A [#]	<1	-						µg/kg	1	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	-						µg/kg	1	A-T-006s
2,2-Dichloropropane _A [#]	<1	-						µg/kg	1	A-T-006s
Bromochloromethane _A [#]	<5	-						µg/kg	5	A-T-006s
Chloroform _A [#]	<1	-						µg/kg	1	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	-						µg/kg	1	A-T-006s
1,1-Dichloropropene _A [#]	<1	-						µg/kg	1	A-T-006s
Carbon Tetrachloride _A [#]	<1	-						µg/kg	1	A-T-006s
1,2-Dichloroethane _A [#]	<2	-						µg/kg	2	A-T-006s
Benzene _A [#]	<1	-						µg/kg	1	A-T-006s
Trichloroethene _A [#]	<1	-						µg/kg	1	A-T-006s
1,2-Dichloropropane _A [#]	<1	-						µg/kg	1	A-T-006s
Dibromomethane _A [#]	<1	-						µg/kg	1	A-T-006s
Bromodichloromethane _A [#]	<10	-						µg/kg	10	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	-						µg/kg	1	A-T-006s
Toluene _A [#]	<1	-						µg/kg	1	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	-						µg/kg	1	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	-						µg/kg	1	A-T-006s
1,3-Dichloropropane _A [#]	<1	-						µg/kg	1	A-T-006s
Tetrachloroethene _A [#]	<1	-						µg/kg	1	A-T-006s
Dibromochloromethane _A [#]	<3	-						µg/kg	3	A-T-006s
1,2-Dibromoethane _A [#]	<1	-						µg/kg	1	A-T-006s

Envirolab Job Number: 23/03402

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03402/1	23/03402/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2								
Depth to Top	0.35	0.35								
Depth To Bottom										
Date Sampled	03-Apr-23	04-Apr-23								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5A	4A								
Chlorobenzene _A [#]	<1	-						µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	-						µg/kg	1	A-T-006s
Ethylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
m & p Xylene _A [#]	<1	-						µg/kg	1	A-T-006s
o-Xylene _A [#]	<1	-						µg/kg	1	A-T-006s
Styrene _A [#]	<1	-						µg/kg	1	A-T-006s
Bromoform _A [#]	<1	-						µg/kg	1	A-T-006s
Isopropylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	-						µg/kg	1	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	-						µg/kg	1	A-T-006s
Bromobenzene _A [#]	<1	-						µg/kg	1	A-T-006s
n-Propylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
2-Chlorotoluene _A [#]	<1	-						µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
4-Chlorotoluene _A [#]	<1	-						µg/kg	1	A-T-006s
tert-Butylbenzene _A [#]	<2	-						µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
sec-Butylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
4-Isopropyltoluene _A [#]	<1	-						µg/kg	1	A-T-006s
1,3-Dichlorobenzene _A	<1	-						µg/kg	1	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	-						µg/kg	1	A-T-006s
n-Butylbenzene _A [#]	<1	-						µg/kg	1	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	-						µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP) _A	<2	-						µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene _A	<3	-						µg/kg	3	A-T-006s
Hexachlorobutadiene _A [#]	<1	-						µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene _A	<3	-						µg/kg	3	A-T-006s

Envirolab Job Number: 23/03402

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03402/1	23/03402/2								
Client Sample No										
Client Sample ID	TP1	TP2								
Depth to Top	0.35	0.35								
Depth To Bottom										
Date Sampled	03-Apr-23	04-Apr-23								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5A	4A								
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1						mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1						mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	2						mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	2	16						mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	27	84						mg/kg	1	A-T-055s
Total Aliphatics _A	29	102						mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	1	<1						mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1						mg/kg	1	A-T-055s
Aro >C12-C16 _A	2	10						mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	17	112						mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	69	455						mg/kg	1	A-T-055s
Total Aromatics _A	90	577						mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	119	679						mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01						mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: RSK Environment Ltd Hemel, 18 Frogmore Road, Hemel Hempstead,
Hertfordshire, UK, HP3 9RT

Project: Tottenham Centre

Clients Project No: 1922791

Project No: 23/03402

Date Received: 11/04/2023 (am)

Cool Box Temperatures (°C): 7.7

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/03402/1	23/03402/2
Client Sample No		
Client Sample ID/Depth	TP1 0.35m	TP2 0.35m
Date Sampled	03/04/23	04/04/23
A-T-006s	17/04/2023	
A-T-007s	17/04/2023	
A-T-019s	17/04/2023	17/04/2023
A-T-022s	18/04/2023	18/04/2023
A-T-024s	21/04/2023	21/04/2023
A-T-026s	21/04/2023	21/04/2023
A-T-028s	20/04/2023	25/04/2023
A-T-031s	20/04/2023	20/04/2023
A-T-032s	21/04/2023	
A-T-040s	21/04/2023	
A-T-044	19/04/2023	19/04/2023
A-T-045	13/04/2023	13/04/2023
A-T-054		04/05/2023
A-T-055s	17/04/2023	17/04/2023
Calc-As Recd	18/04/2023	18/04/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX L GEOTECHNICAL LABORATORY ANALYSIS



STRUCTURAL SOILS LTD

TEST REPORT



Report No. 584981-01 (00)

1774

Date 24-April-2023 Contract Tottenham Centre

Client RSK
Address 18 Frogmore Rd
Apsley
Hemel Hempstead
Hertfordshire
HP3 9RT

For the Attention of Matthew Jackman

Samples submitted by client	06-April-2023	Client Reference	1922791
Method of sampling	Unknown	Client Order No.	n/a
Testing Started	06-April-2023	Instruction Type	Written
Testing Completed	24-April-2023		

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

P105	Water Content BS EN ISO 17892-1:2014
P112	UU Triaxial BS EN ISO 17892-8:2018
P114	Liquid and plastic limits BS EN ISO 17892-12:2018

Undertaken by subcontractor

2.06	Sulphate content (acid extract) in accordance with BRE Special Digest 1:2005
2.04	Sulphate content (water extract) in accordance with BRE Special Digest 1:2005
2.07	pH value in accordance with BRE Special Digest 1:2005
2.05	Total sulphur in accordance with BRE Special Digest 1:2005

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of .

Test were undertaken on samples 'as received' unless otherwise stated.

Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Results relate only to items tested

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Structural Soils Ltd 18 Frogmore Rd Hemel Hempstead HP3 9RT Tel.01442 416661 e-mail dimitris.xirouchakis@soils.co.uk

TESTING VERIFICATION CERTIFICATE



1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **24/04/2023 15:58:28**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Sharon Cairns (Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

Tottenham Centre

Job No:

584981

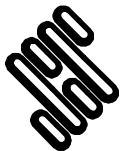


SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH01	1	U	3.00	28.6	50	27	23	99	Brown slightly sandy CLAY with gypsum
BH01	2	U	5.00	26.5	50	28	22	99	Brown mottled orange slightly sandy CLAY with gypsum
BH01	3	U	7.00	27.9	63	28	35	100	Dark brown CLAY. Sample has wax intrusion
BH01	4	U	9.00	28.3	70	30	40	100	Dark brown mottled light brown slightly sandy CLAY
BH01	5	U	11.00	27.5	63	25	38	100	Dark brown slightly sandy CLAY
BH01	6	U	17.50	24.7	63	31	32	100	Grey mottled brown slightly sandy CLAY
BH01	7	U	20.50	22.3	63	24	39	100	Dark brown sandy CLAY
BH01	8	U	23.00	22.0	51	28	23	100	Dark brown sandy silty CLAY. Sample has wax intrusion

SYMBOLS: * denotes BS 1377



**STRUCTURAL
SOILS LTD**

Contract:

Tottenham Centre

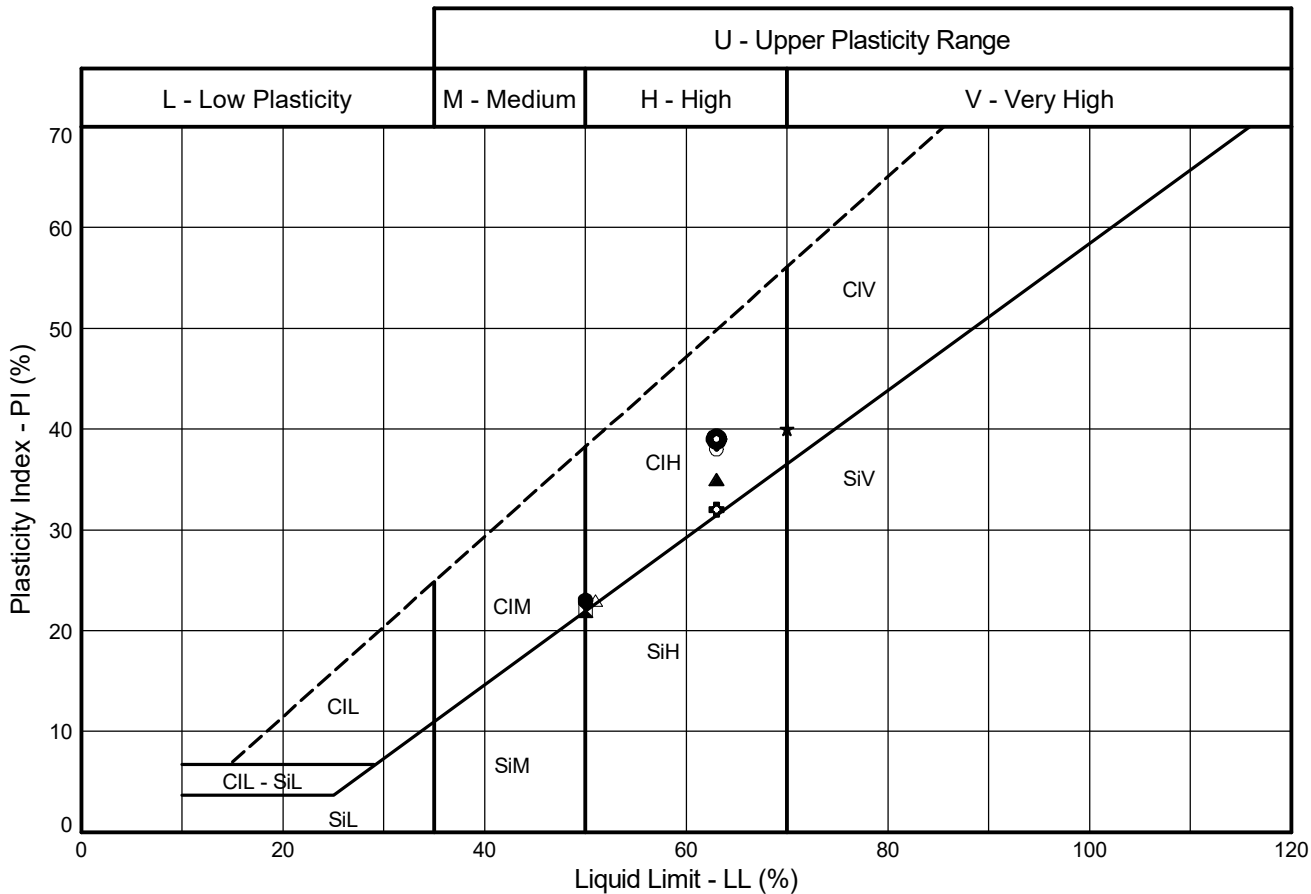
Contract Ref:

584981



PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC %	LL %	PL %	PI %	<425µm %	Lab location	Notes
Exploratory Position ID	Sample	Depth (m)										
●	BH01	1U	3.00	5.3/5.5/6.5	5.2.7	28.6	50	27	23	99	H	
⊠	BH01	2U	5.00	5.3/5.5/6.5	5.2.7	26.5	50	28	22	99	H	
▲	BH01	3U	7.00	5.3/5.5/6.5	5.2.1	27.9	63	28	35	100	H	
★	BH01	4U	9.00	5.3/5.5/6.5	5.2.1	28.3	70	30	40	100	H	
⊙	BH01	5U	11.00	5.3/5.5/6.5	5.2.1	27.5	63	25	38	100	H	
⊕	BH01	6U	17.50	5.3/5.5/6.5	5.2.1	24.7	63	31	32	100	H	
⊗	BH01	7U	20.50	5.3/5.5/6.5	5.2.1	22.3	63	24	39	100	H	
△	BH01	8U	23.00	5.3/5.5/6.5	5.2.7	22.0	51	28	23	100	H	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By

SC

SHARON CAIRNS

Date

24/04/23

Contract

Tottenham Centre

Contract Ref:

584981



UNCONSOLIDATED UNDRAINED (QUICK) TRIAXIAL COMPRESSION TEST

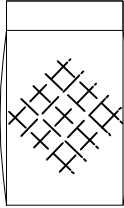
In accordance with BS EN ISO 17892 Part 8

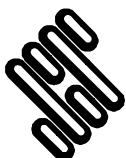
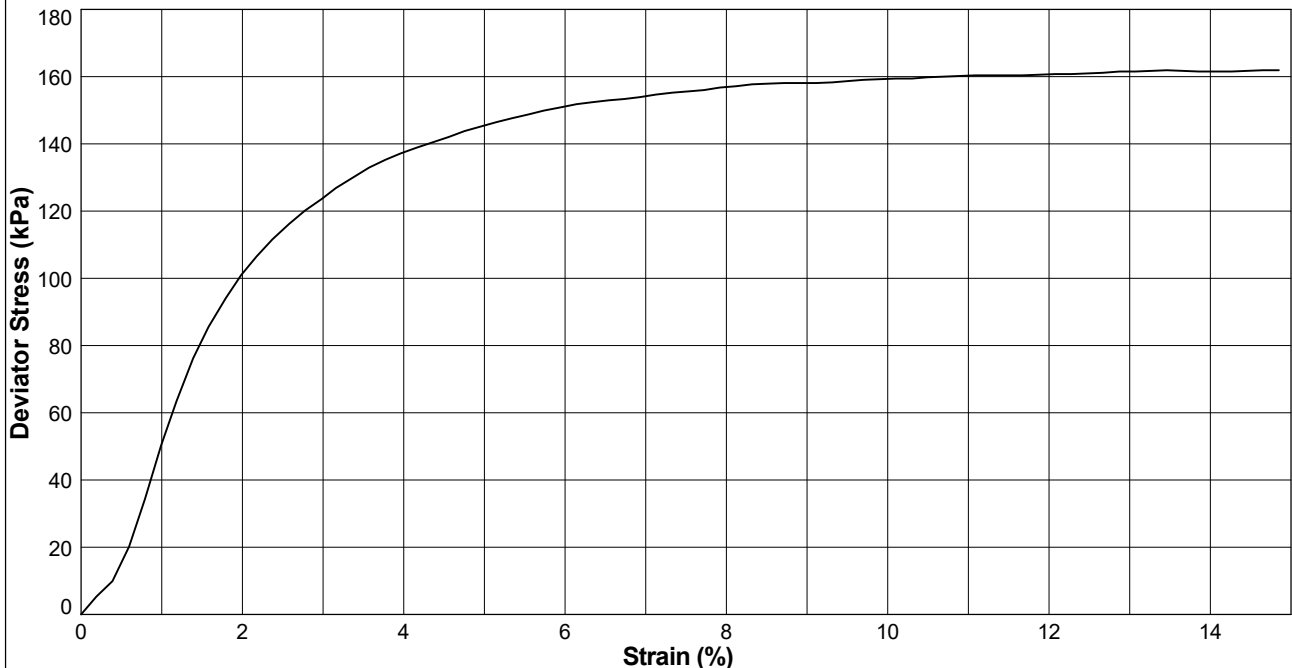
Borehole: **BH01** Sample Ref: **1** Sample Type: **U** Depth (m): **3.00**

Description : **Brown slightly sandy CLAY with gypsum**

Remarks : **Wax intrusion**

Non-standard notes : **Failed flatness check**

STAGE/SPECIMEN NUMBER		1	2	3
SPECIMEN DETAILS	Sample Condition	Undisturbed		
	Orientation of sample	Vertical		
	Diameter (mm)	102.37		
	Height (mm)	207.64		
	Water Content (%)	27.5		
	Bulk Density (Mg/m ³)	1.97		
	Dry Density (Mg/m ³)	1.55		
	Void Ratio	0.7151		
TEST DETAILS	Membrane Type	Rubber		
	Membrane Thickness (mm)	0.70		
	Rate of Axial Displacement (%/min)	1.83		
	Cell Pressure (kPa)	60		
	Membrane Correction (kPa)	2.06		
	Corrected Deviator Stress (kPa)	162		
	Undrained Shear Strength (kPa)	81		
FAILURE DETAILS	Strain at Failure (%)	14.6		
	Mode of Failure			



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By

SC

SHARON CAIRNS

Date

24/04/23

Contract

Tottenham Centre

Contract Ref:

584981



UNCONSOLIDATED UNDRAINED (QUICK) TRIAXIAL COMPRESSION TEST

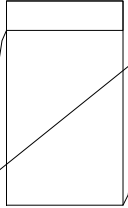
In accordance with BS EN ISO 17892 Part 8

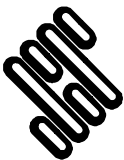
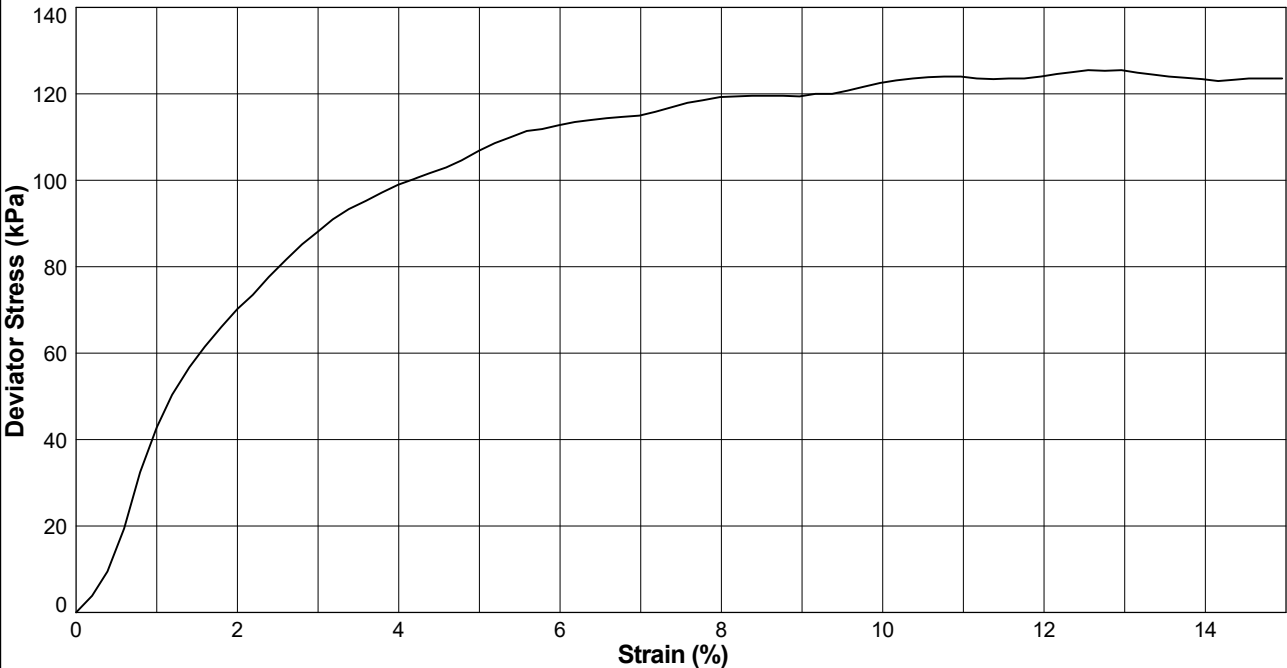
Borehole: **BH01** Sample Ref: **2** Sample Type: **U** Depth (m): **5.00**

Description : **Brown mottled orange slightly sandy CLAY with gypsum**

Remarks : **Fissures and small voids present pre-test**

Non-standard notes : **Failed flatness check**

STAGE/SPECIMEN NUMBER		1	2	3
SPECIMEN DETAILS	Sample Condition	Undisturbed		
	Orientation of sample	Vertical		
	Diameter (mm)	102.23		
	Height (mm)	207.96		
	Water Content (%)	26.4		
	Bulk Density (Mg/m ³)	1.93		
	Dry Density (Mg/m ³)	1.53		
	Void Ratio	0.7353		
TEST DETAILS	Membrane Type	Rubber		
	Membrane Thickness (mm)	0.60		
	Rate of Axial Displacement (%/min)	1.49		
	Cell Pressure (kPa)	100		
	Membrane Correction (kPa)	1.58		
	Corrected Deviator Stress (kPa)	125		
	Undrained Shear Strength (kPa)	63		
FAILURE DETAILS	Strain at Failure (%)	12.6		
	Mode of Failure			
	1 : Brittle (shear plane)			



STRUCTURAL SOILS
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SHARON CAIRNS

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Contract Ref:

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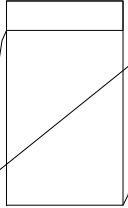


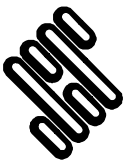
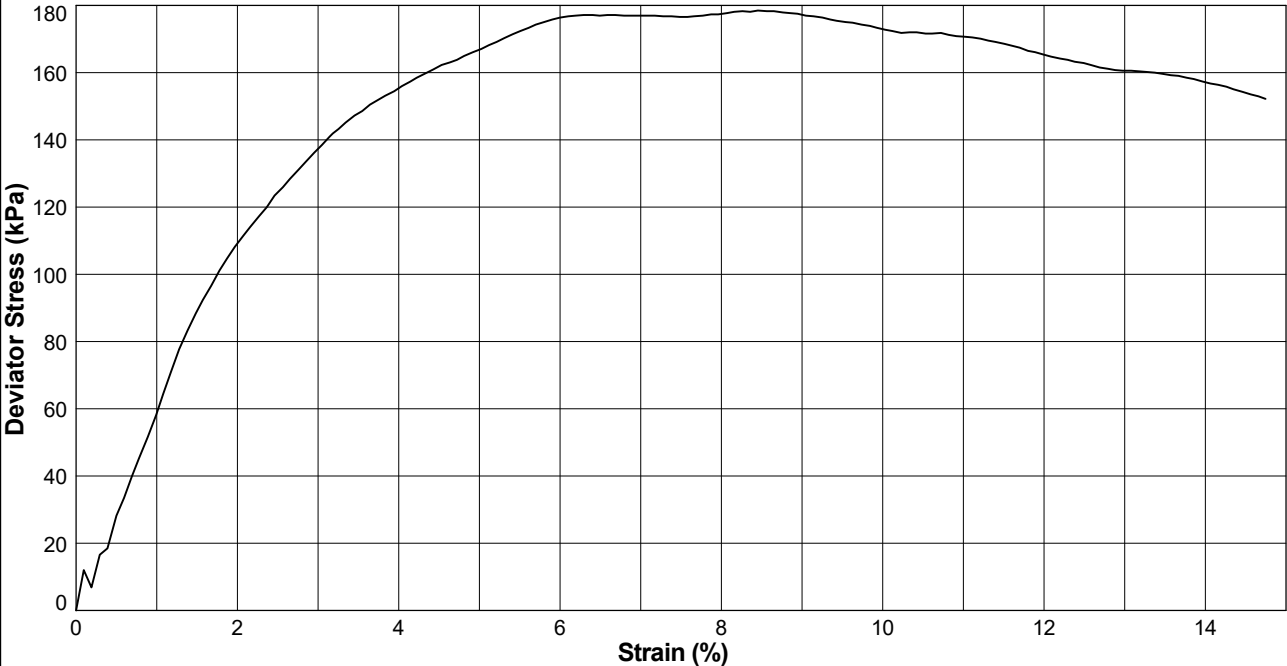
UNCONSOLIDATED UNDRAINED (QUICK) TRIAXIAL COMPRESSION TEST

In accordance with BS EN ISO 17892 Part 8

Borehole: **BH01** Sample Ref: **4** Sample Type: **U** Depth (m): **9.00**

Description : **Dark brown mottled light brown slightly sandy CLAY**
Non-standard notes : **Failed flatness check**

STAGE/SPECIMEN NUMBER		1	2	3
SPECIMEN DETAILS	Sample Condition	Undisturbed		
	Orientation of sample	Vertical		
	Diameter (mm)	102.47		
	Height (mm)	186.30		
	Water Content (%)	28.0		
	Bulk Density (Mg/m ³)	1.97		
	Dry Density (Mg/m ³)	1.54		
	Void Ratio	0.7241		
TEST DETAILS	Membrane Type	Rubber		
	Membrane Thickness (mm)	0.68		
	Rate of Axial Displacement (%/min)	2.15		
	Cell Pressure (kPa)	180		
	Membrane Correction (kPa)	1.33		
	Corrected Deviator Stress (kPa)	178		
	Undrained Shear Strength (kPa)	89		
FAILURE DETAILS	Strain at Failure (%)	8.4		
	Mode of Failure			
1 : Brittle (shear plane)				



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
		24/04/23
Contract		Contract Ref:
Tottenham Centre		584981

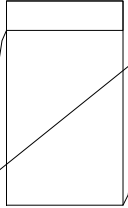


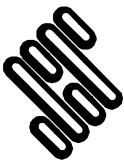
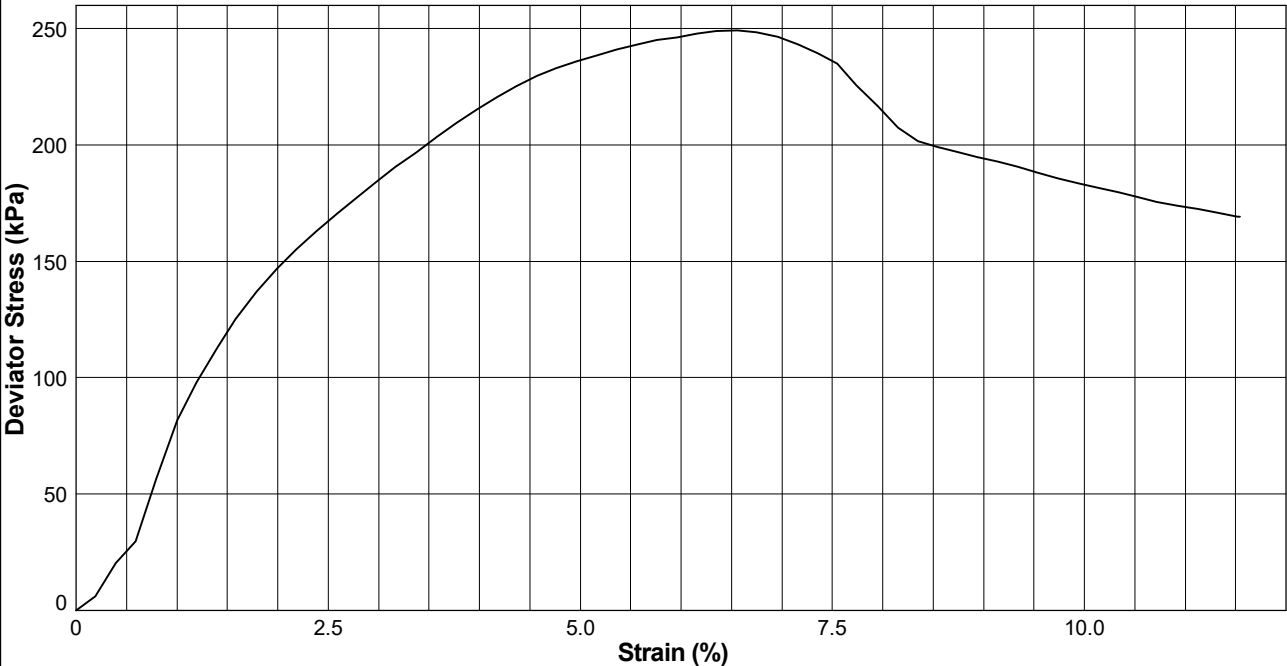
UNCONSOLIDATED UNDRAINED (QUICK) TRIAXIAL COMPRESSION TEST

In accordance with BS EN ISO 17892 Part 8

Borehole: **BH01** Sample Ref: **5** Sample Type: **U** Depth (m): **11.00**

Description : **Dark brown slightly sandy CLAY**

STAGE/SPECIMEN NUMBER		1	2	3
SPECIMEN DETAILS	Sample Condition	Undisturbed		
	Orientation of sample	Vertical		
	Diameter (mm)	102.26		
	Height (mm)	192.82		
	Water Content (%)	29.0		
	Bulk Density (Mg/m ³)	1.97		
	Dry Density (Mg/m ³)	1.53		
	Void Ratio	0.7343		
TEST DETAILS	Membrane Type	Rubber		
	Membrane Thickness (mm)	0.77		
	Rate of Axial Displacement (%/min)	1.87		
	Cell Pressure (kPa)	220		
	Membrane Correction (kPa)	1.24		
	Corrected Deviator Stress (kPa)	249		
	Undrained Shear Strength (kPa)	125		
FAILURE DETAILS	Strain at Failure (%)	6.6		
	Mode of Failure			
	1 : Brittle (shear plane)			



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By		Date
		24/04/23
Contract		Contract Ref:
Tottenham Centre		584981

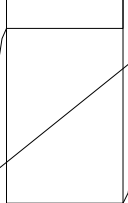


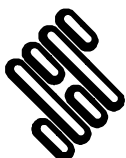
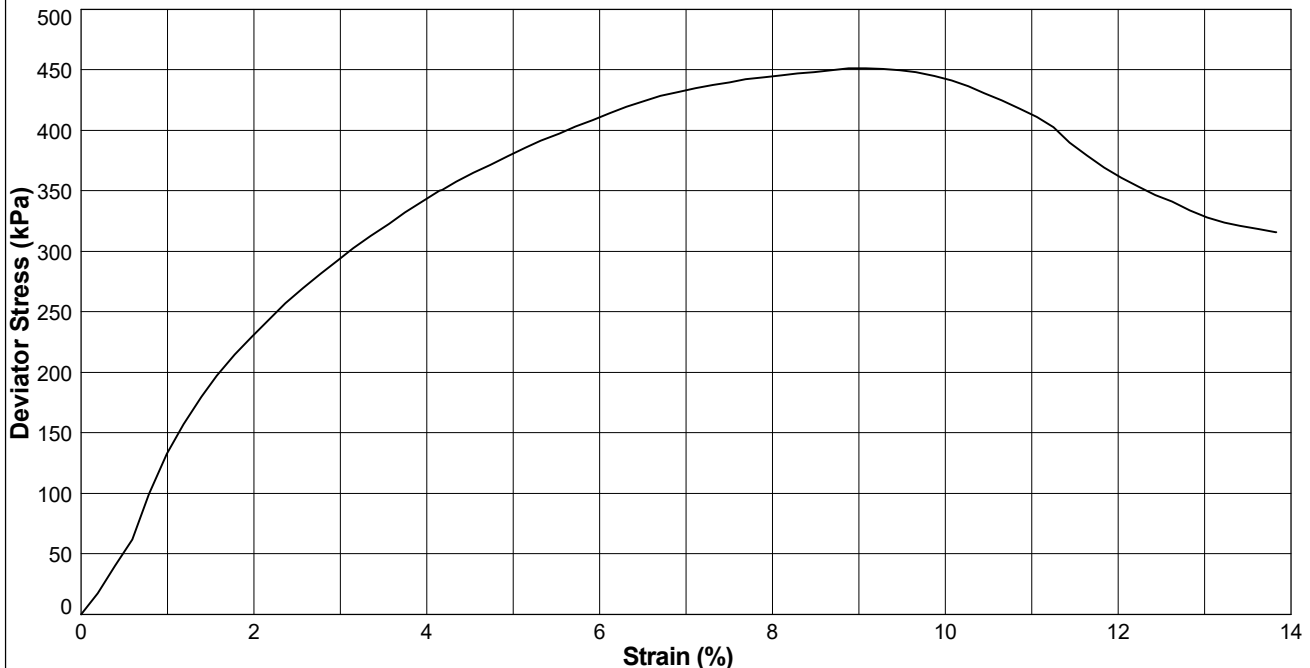
UNCONSOLIDATED UNDRAINED (QUICK) TRIAXIAL COMPRESSION TEST

In accordance with BS EN ISO 17892 Part 8

Borehole: **BH01** Sample Ref: **6** Sample Type: **U** Depth (m): **17.50**

Description : **Grey mottled brown slightly sandy CLAY**

STAGE/SPECIMEN NUMBER		1	2	3
SPECIMEN DETAILS	Sample Condition	Undisturbed		
	Orientation of sample	Vertical		
	Diameter (mm)	101.99		
	Height (mm)	199.85		
	Water Content (%)	25.9		
	Bulk Density (Mg/m ³)	2.03		
	Dry Density (Mg/m ³)	1.61		
	Void Ratio	0.6413		
TEST DETAILS	Membrane Type	Rubber		
	Membrane Thickness (mm)	0.77		
	Rate of Axial Displacement (%/min)	2.00		
	Cell Pressure (kPa)	350		
	Membrane Correction (kPa)	1.58		
	Corrected Deviator Stress (kPa)	451		
	Undrained Shear Strength (kPa)	226		
FAILURE DETAILS	Strain at Failure (%)	8.9		
	Mode of Failure			
	1 : Brittle (shear plane)			



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By

SC

SHARON CAIRNS

Date

24/04/23

Contract

Tottenham Centre

Contract Ref:

584981

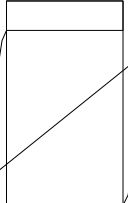


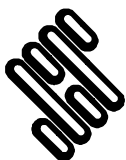
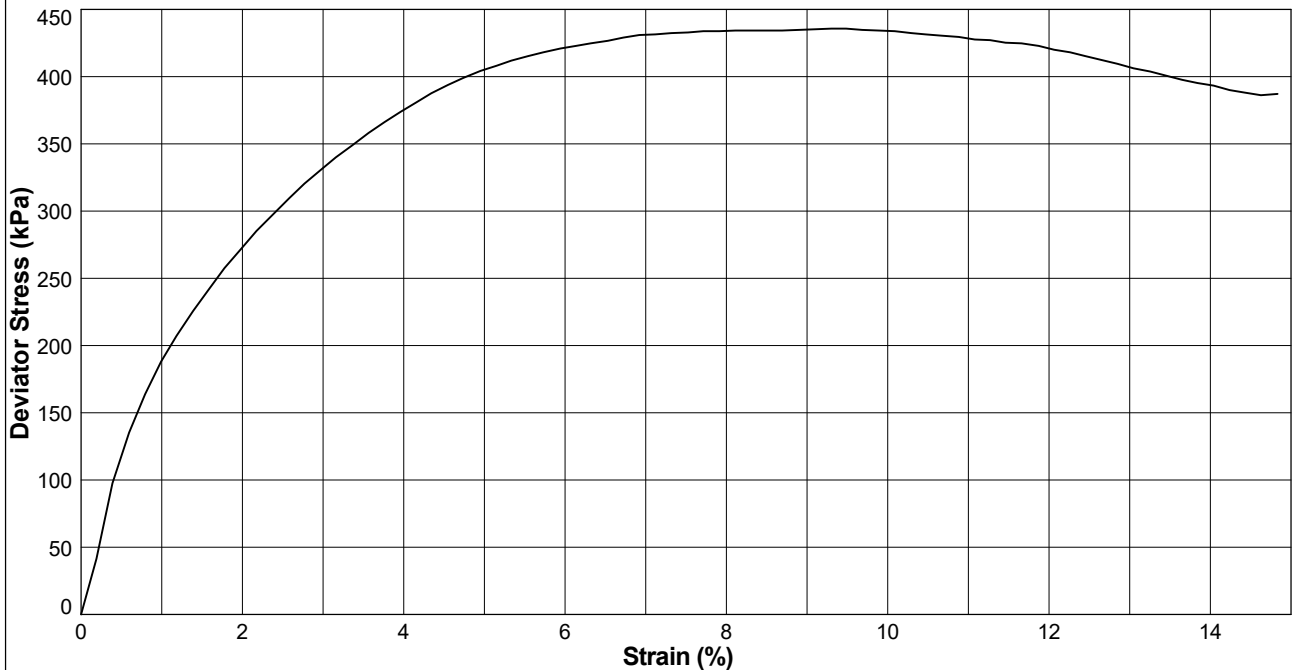
UNCONSOLIDATED UNDRAINED (QUICK) TRIAXIAL COMPRESSION TEST

In accordance with BS EN ISO 17892 Part 8

Borehole: **BH01** Sample Ref: **7** Sample Type: **U** Depth (m): **20.50**

Description : **Dark brown sandy CLAY**

STAGE/SPECIMEN NUMBER		1	2	3
SPECIMEN DETAILS	Sample Condition	Undisturbed		
	Orientation of sample	Vertical		
	Diameter (mm)	102.74		
	Height (mm)	207.47		
	Water Content (%)	24.0		
	Bulk Density (Mg/m ³)	2.00		
	Dry Density (Mg/m ³)	1.61		
	Void Ratio	0.6409		
TEST DETAILS	Membrane Type	Rubber		
	Membrane Thickness (mm)	0.77		
	Rate of Axial Displacement (%/min)	1.88		
	Cell Pressure (kPa)	410		
	Membrane Correction (kPa)	1.63		
	Corrected Deviator Stress (kPa)	436		
	Undrained Shear Strength (kPa)	218		
FAILURE DETAILS	Strain at Failure (%)	9.3		
	Mode of Failure			
	1 : Brittle (shear plane)			



STRUCTURAL SOILS
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Compiled By

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SHARON CAIRNS

Date

24/04/23

Contract

Tottenham Centre

Contract Ref:

584981



FINAL ANALYTICAL TEST REPORT

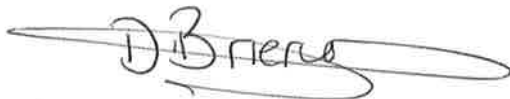
Envirolab Job Number: 23/03454
Issue Number: 1

Date: 19 April, 2023

Client: Structural Soils Limited (Hemel Hempstead Lab)
18 Frogmore Road
Hemel Hempstead
UK
HP3 9RT

Project Manager: Hemel Lab/Jonathan Baker
Project Name: Tottenham Centre
Project Ref: 1922791
Order No: N/A
Date Samples Received: 12/04/23
Date Instructions Received: 12/04/23
Date Analysis Completed: 19/04/23

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 23/03454

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03454/1	23/03454/2	23/03454/3	23/03454/4				Units	Limit of Detection	Method ref
Client Sample No	1	2	1	2						
Client Sample ID	TP1	TP1	TP2	TP2						
Depth to Top	0.60	0.90	0.60	0.90						
Depth To Bottom										
Date Sampled	03-Apr-23	03-Apr-23	04-Apr-23	04-Apr-23						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	5A	5A	5A	5A						
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1				% w/w	0.1	A-T-044
pH BRE _D ^{M#}	8.13	8.17	7.98	7.83				pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1) _D ^{M#}	<10	11	<10	24				mg/l	10	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	<0.02	<0.02	<0.02	<0.02				% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	<0.01	<0.01	<0.01	<0.01				% w/w	0.01	A-T-024s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client:	Structural Soils Limited (Hemel Hempstead Lab), 18 Frogmore Road, Hemel Hempstead, UK, HP3 9RT	Project No:	23/03454
Project:	Tottenham Centre	Date Received:	12/04/2023 (am)
Clients Project No:	1922791	Cool Box Temperatures (°C):	6.0

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/03454/1	23/03454/2	23/03454/3	23/03454/4
Client Sample No	1	2	1	2
Client Sample ID/Depth	TP1 0.60m	TP1 0.90m	TP2 0.60m	TP2 0.90m
Date Sampled	03/04/23	03/04/23	04/04/23	04/04/23
A-T-024s	19/04/2023	19/04/2023	19/04/2023	19/04/2023
A-T-026s	18/04/2023	18/04/2023	18/04/2023	18/04/2023
A-T-028s	18/04/2023	18/04/2023	18/04/2023	18/04/2023
A-T-031s	18/04/2023	18/04/2023	18/04/2023	18/04/2023
A-T-044	18/04/2023	18/04/2023	18/04/2023	18/04/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/03562
Issue Number: 1

Date: 24 April, 2023

Client: Structural Soils Limited (Hemel Hempstead Lab)
18 Frogmore Road
Hemel Hempstead
UK
HP3 9RT

Project Manager: Hemel Lab/Max Battle
Project Name: Tottenham Centre
Project Ref: 1922791
Order No: N/A
Date Samples Received: 14/04/23
Date Instructions Received: 14/04/23
Date Analysis Completed: 24/04/23

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 23/03562

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03562/1	23/03562/2	23/03562/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH1	BH1	BH1							
Depth to Top	3.00	20.50	11.00							
Depth To Bottom	3.45	20.95	11.45							
Date Sampled										
Sample Type	Soil - U	Soil - U	Soil - U							
Sample Matrix Code	3	3	3							
% Stones >10mm _A	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH BRE _D ^{M#}	8.05	8.25	8.24					pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1) _D ^{M#}	1100	699	587					mg/l	10	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.24	0.15	0.12					% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	0.08	0.50	0.35					% w/w	0.01	A-T-024s

REPORT NOTES

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The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

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NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

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Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Structural Soils Limited (Hemel Hempstead Lab), 18 Frogmore Road, Hemel Hempstead, UK, HP3 9RT

Project: Tottenham Centre

Clients Project No: 1922791

Project No: 23/03562

Date Received: 14/04/2023 (am)

Cool Box Temperatures (°C): 9.0

Lab Sample ID	23/03562/1	23/03562/2	23/03562/3
Client Sample No			
Client Sample ID/Depth	BH1 3.00-3.45m	BH1 20.50-20.95m	BH1 11.00-11.45m
Date Sampled			
Deviation Code			
E (no date)	✓	✓	✓

Key

E (no date) No sampling date provided (all results affected if not provided)

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/03562/1	23/03562/2	23/03562/3
Client Sample No			
Client Sample ID/Depth	BH1 3.00-3.45m	BH1 20.50-20.95m	BH1 11.00-11.45m
Date Sampled			
A-T-024s	24/04/2023	24/04/2023	24/04/2023
A-T-026s	22/04/2023	22/04/2023	22/04/2023
A-T-028s	24/04/2023	21/04/2023	21/04/2023
A-T-031s	20/04/2023	20/04/2023	20/04/2023
A-T-044	19/04/2023	19/04/2023	19/04/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/03563
Issue Number: 1

Date: 24 April, 2023

Client: Structural Soils Limited (Hemel Hempstead Lab)
18 Frogmore Road
Hemel Hempstead
UK
HP3 9RT

Project Manager: Hemel Lab/Max Battle
Project Name: Tottenham Centre
Project Ref: 1922791
Order No: N/A
Date Samples Received: 14/04/23
Date Instructions Received: 14/04/23
Date Analysis Completed: 24/04/23

Approved by:



Gemma Berrisford
Client Manager

Envirolab Job Number: 23/03563

Client Project Name: Tottenham Centre

Client Project Ref: 1922791

Lab Sample ID	23/03563/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH1									
Depth to Top	7.00									
Depth To Bottom	7.45									
Date Sampled										
Sample Type	Soil - U									
Sample Matrix Code	3									
% Stones >10mm _A	<0.1							% w/w	0.1	A-T-044
pH BRE _D ^{M#}	7.99							pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1) _D ^{M#}	527							mg/l	10	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.16							% w/w	0.02	A-T-028s
Sulphur BRE (total) _D	0.46							% w/w	0.01	A-T-024s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Structural Soils Limited (Hemel Hempstead Lab), 18 Frogmore Road, Hemel Hempstead, UK, HP3 9RT

Project: Tottenham Centre

Clients Project No: 1922791

Project No: 23/03563

Date Received: 14/04/2023 (am)

Cool Box Temperatures (°C): 9.0

Lab Sample ID	23/03563/1
Client Sample No	
Client Sample ID/Depth	BH1 7.00-7.45m
Date Sampled	
Deviation Code	
E (no date)	✓

Key

E (no date) No sampling date provided (all results affected if not provided)

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/03563/1
Client Sample No	
Client Sample ID/Depth	BH1 7.00-7.45m
Date Sampled	
A-T-024s	24/04/2023
A-T-026s	22/04/2023
A-T-028s	24/04/2023
A-T-031s	20/04/2023
A-T-044	19/04/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX M
GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH:
SECONDARY SCHOOLS

Generic assessment criteria for human health: secondary school

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009⁽¹⁾. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009⁽²⁾. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC: 2015

In 2014, the publication of Category 4 Screening Levels (C4SL)^(3,4), as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)⁽⁵⁾ used in the generation of SGVs.

C4SL were initially published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010⁽³⁾). Further C4SL were published in 2021 for vinyl chloride, tetrachloroethene (PCE) and trichloroethene (TCE). Where a C4SL has been published, the RSK GAC duplicates the C4SL using all input parameters within the SP1010 final project report⁽³⁾ and associated chemical specific reports⁽⁶⁾, and adopts them as GAC for these substances for the published land uses. Due to the use of decimal places rather than significant figures applied to the Contaminated Land Exposure Assessment (CLEA) tool outputs, the GAC presented may be marginally differently to the C4SL values, however any differences between the values are minimal and would not equate to an unacceptable risk. The current RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015⁽⁷⁾, where a C4SL has not been published.

GAC for a secondary school land use have not been published previously, and RSK has used available reference documents, experience and professional judgement to provide suitable exposure assumptions to characterise this land use.

This GAC appendix therefore presents RSK GAC that may be used in the GQRA stage for a secondary school. **It should be noted that all schools (irrespective of age of pupils) fall within Use Class F1 Learning and non-residential institutions, sub-part F1(a) Provision of education, under The Town and Country Planning (Use Classes) Order 1987 (as amended). A separate Use Class E(f) covers creche, day nursery or day centre (not including a residential use). Therefore consideration should be given to the most sensitive potential school land use within Use Class F1(a), when undertaking a GQRA for a proposed secondary school development. The most sensitive school land use out of a primary and secondary school is considered to be a primary school, for which RSK has published GAC.**

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the CLEA tool v1.071 and supporting EA guidance^(5,8,9). As the SAC are calculated using generic assumptions with respect to a particular scenario, they will be referred to as generic assessment criteria (GAC).

Conceptual model

This scenario considers the risk to a female child from the age of 11 to 16 years, which is the typical age range within a UK secondary school without a sixth form. Whilst the number of attendance days is prescribed by the Department of Education⁽¹⁰⁾, the length of the school day is determined by the school governing body⁽¹¹⁾. The consumption of home-grown produce has not been included in this scenario, as the amount of produce grown by a school (if grown) is typically very small and often in raised planters. The consumption of any produce is usually overseen by a teacher or parent and therefore likely to have been thoroughly washed. The pathways considered for the production of SAC in the secondary school are

- direct soil and dust ingestion
- dermal contact with soil and indoor dust
- inhalation of indoor and outdoor dust and vapours.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium⁽¹⁾, the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure (to AC18). Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the TDI_{oral} and TDI_{inh} , are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

The CLEA model only considers the risk of volatile compounds from the soils and not groundwater. Groundwater assessment criteria (GrAC) have not been produced by RSK for this land use scenario, so site-specific assessment criteria should be derived if required.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase⁽⁹⁾. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached⁽⁹⁾. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required⁽⁹⁾.

- Free phase contamination may be present.
- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits

- Where the vapour pathway is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible, as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, vapour exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook⁽⁹⁾, this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook⁽⁹⁾, which explains how to calculate an effective assessment criterion manually.

SR3⁽⁵⁾ states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical correction factor of 10 into the CLEA chemical database for all petroleum hydrocarbons (including BTEX, trimethylbenzenes and total petroleum hydrocarbons (TPH) fraction) and the polycyclic aromatic hydrocarbons (PAH), naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7⁽¹²⁾, the EA TOX⁽¹⁾ reports, the C4SL SP1010 project report and associated chemical specific reports^(3,6) or the 2015 LQM/CIEH report⁽⁷⁾.

Following the methodology in the C4SL SP1010 project report and associated reports^(3,6), receptor-specific (AC12 to 16) inhalation or oral LLTCs were calculated for arsenic, benzene, chromium VI, benzo(a)pyrene and vinyl chloride. This reflects the average bodyweight and inhalation rate for these age classes.

Toxicological and specific chemical parameters for aromatic hydrocarbon C₈–C₉ (styrene), 1,2,4-trimethylbenzene, barium and methyl tertiary-butyl ether (MTBE) were obtained from the CL:AIRE Soil Generic Assessment Criteria report⁽¹³⁾.

For TPH, aromatic hydrocarbons C₅–C₈ were not modelled, as this range comprises benzene and toluene, which are modelled separately. The aromatic C₈–C₉ hydrocarbon fraction comprises ethylbenzene, xylene and styrene. As ethylbenzene and xylene are being modelled separately, the physical, chemical and toxicological data for aromatic C₈–C₉ have been taken from styrene.

Physical parameters

The building type has been based on best practice guidance for the construction of new secondary schools as set out in 'Building Bulletin 98: Briefing Framework for Secondary School Projects'⁽¹⁴⁾, published by the Department for Education and Skills. The site area has been

calculated using the methodology in Building Bulletin 98⁽¹⁴⁾, for a single-storey building with 915 pupils based on the 2013 Department for Education statistical release for schools, pupils and their characteristics in England⁽¹⁴⁾. This equates to a total net site area of 63,985m² and a building footprint of 7981m². A total area of 46,228m² has been classed as soft landscaping (pitches, habitat areas and soft landscaped areas), with 50% of this assumed to be disturbed ground. Fifty percent is considered highly conservative as most of this area is likely to be covered by grass, which is classed as not available for dust generation in the CLEA model. The building parameters are given in Table 1.

The parameters for a sandy loam soil type were used in line with SR3⁽⁵⁾. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for this parameter, RSK has produced SAC for an SOM of 1%, 2.5% and 6%.

The SAC were produced using the input parameters in Tables 1 to 5. The final selected GAC are presented by pathway in Table 6 and the combined GAC in Table 7.

Figure 1: Conceptual model for secondary school scenario

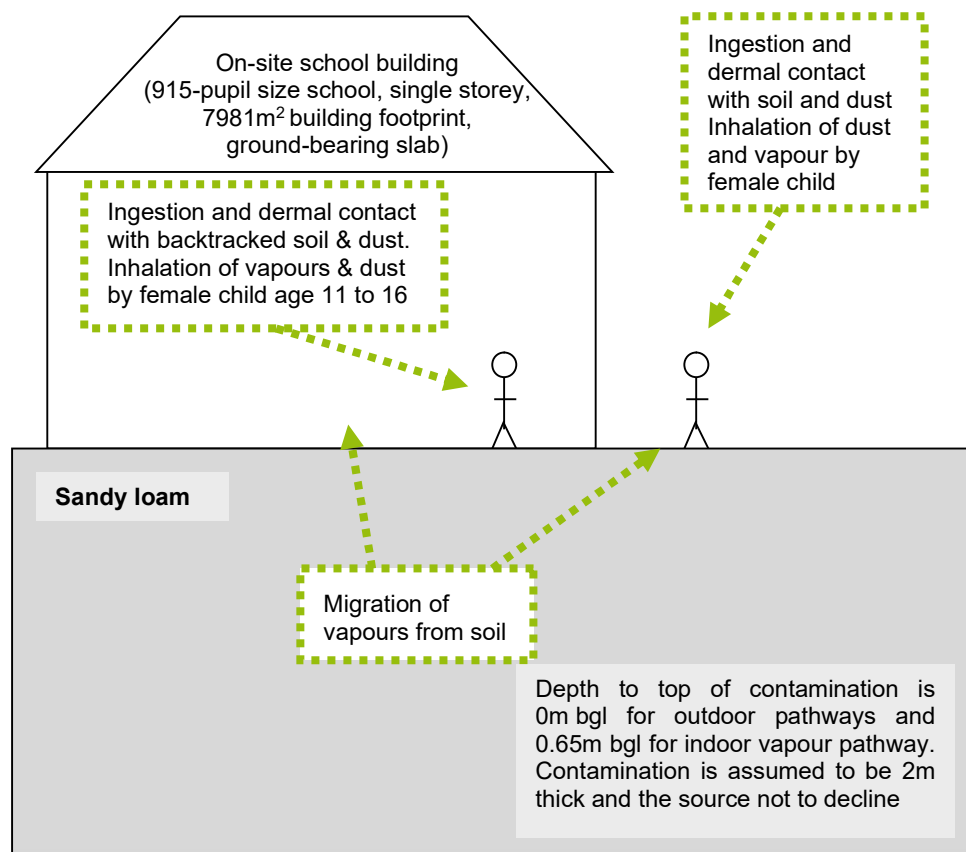


Table 1: Exposure assessment parameters for primary school scenario – inputs for CLEA model

Parameter	Value	Justification
Land use	Secondary school – RSK-derived land use	Chosen land use. It has been assumed that the amount of produce grown and consumed by the pupils is negligible. The assumed secondary school characteristics are presented in Table 2.
Receptor	Female child age 11 to 16	Typical age range of secondary schools without a sixth form attached.
Building	Secondary school	Building type varies significantly depending on age of school and location. Therefore, typical building type scenario was created for a 915-pupil size school, using guidance set out in 'Building Bulletin 98: Briefing Framework for Secondary School Projects' ⁽¹³⁾ . It has been assumed that the building is single storey with a ground-bearing floor slab.
Soil type	Sandy loam	Most common UK soil type (Section 4.3.1, from Table 3.1, report SC050021/SR3) ⁽⁵⁾
Start AC (age class)	12	Range of age classes corresponding to key generic assumption that the critical receptor is a young female child aged 11 to 16. AC12 is the age range 11-12; AC16 is 15–16. For lifetime exposure (cadmium) AC12 to AC18 is considered.
End AC (age class)	16	
SOM (%)	6	Representative of sandy loamy soil according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' ⁽¹⁶⁾
	1	To provide SAC for sites where SOM <6% as often observed by RSK
	2.5	
pH	7	Model default

Table 2: Secondary school characteristics

Parameter	Unit	Value	Justification
Number of pupils	No	915	Considered reasonable assumption based on Dept. of Education statistics for the average number of pupils aged 11 to 16 at a state secondary school in England ⁽¹⁵⁾
Number of storeys	No	1	Assumed school is one storey
Building area			
Likely gross building (usable) area	m ²	7981	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Site area			
Pitches (assumed to be soft cover)	m ²	42025	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Soft play (informal and social)	m ²	3088	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Games courts (hard surfaced)	m ²	2430	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Hard play (informal and social)	m ²	1773	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Habitat (soft landscaped areas)	m ²	1115	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Float (any of the above assumed to be soft)	m ²	5575	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Total net ^(A) site area	m ²	56005	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Area of soft cover	m ²	46228	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Total site area ^(B)	m ²	63986	Calculated using the formula in BB98 ⁽¹⁴⁾ , in Appendix 3
Note: BB98⁽¹⁴⁾ stipulates best practice for new build secondary schools. ^A Net site area is the total of five categories of space (sports pitches, games courts (hard surfaces), soft play (informal and social), hard play, habitat areas), as defined in figure D.1 of BB98⁽¹⁴⁾ ^B Total site area is the sum of the net area plus buildings and access, as calculated using the formula in Appendix 3 of BB98⁽¹⁴⁾			

Table 3: Secondary school – land use data for CLEA model

Parameter	Unit	Age class						
		12	13	14	15	16	17	18
EF (soil and dust ingestion)	day yr ⁻¹	190	190	190	190	190	190	190
EF (consumption of home-grown produce)	day yr ⁻¹	0	0	0	0	0	0	0
EF (skin contact, indoor)	day yr ⁻¹	190	190	190	190	190	190	190
EF (skin contact, outdoor)	day yr ⁻¹	190	190	190	190	190	190	190
EF (inhalation of dust and vapour, indoor)	day yr ⁻¹	190	190	190	190	190	190	190
EF (inhalation of dust and vapour, outdoor)	day yr ⁻¹	190	190	190	190	190	190	190
Justification	Based on 190 days for secondary school education ⁽¹⁰⁾							
Occupancy period (indoor)	hr day ⁻¹	6	6	6	6	6	6	6
Occupancy period (outdoor)	hr day ⁻¹	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Justification	Based on a typical school day of 7h (08:30 to 15:30) including a 1h lunch break and an average of 12 mins of extracurricular activity per day (1 hour per week), totaling a 7.2h school day. The school day assumes 2hr of exercise per week (voluntary target set by Department for Education ⁽¹⁷⁾), 1hr of which is indoors to account for inclement weather and forms part of the 7h school day; and 1hr of extracurricular (additional to the school day) outdoor activity a week outside of school hours. It is assumed that all of the 1h lunch break is outside, equating to 1.2h of outdoor occupancy per week. The occupancy period does not include for daily use of after-school clubs or activities, as this is not a statutory requirement and not all schools provide these.							
Soil to skin adherence factor (indoor)	mg cm ⁻² day ⁻¹	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Soil to skin adherence factor (outdoor)	mg cm ⁻² day ⁻¹	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Justification	Indoor: Table 8.1, SR3 ⁽⁶⁾ ; Outdoor: Table 3.5, SP1010 ⁽³⁾ . Outdoor adherence factors are based on a limited number of studies and are summarised in the USEPA Exposure Factor Handbook ⁽¹⁸⁾ Table 7-4. Of the activities relevant to behaviours at a secondary school the highest adherence was for hands, and for outdoor sports, with a mean adherence factor of 0.11 mg cm ⁻² . Therefore applying the value of 0.1 in Table 3.5, SP1010 ⁽³⁾ used for AC1-12. Default values for AC13 to AC16 (older children) and, AC17 and 18 (lifetime exposure) from Table 4.1, SR4 ⁽⁹⁾ have been used.							

Parameter	Unit					Age class		
		12	13	14	15	16	17	18
Soil and dust ingestion rate	g day ⁻¹	0.1	0.05	0.05	0.05	0.05	0.05	0.05
Justification	Table 6.2, SR3 ⁽⁵⁾ and Table 4.1 (lifetime), SR4 ⁽⁹⁾ .							
Note: For cadmium , the exposure assessment for the secondary school land use is based on estimates representative of <u>lifetime</u> exposure to AC18. This is because the TDI _{oral} and TDI _{inh} are based on considerations of the kidney burden accumulated over 50 years. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer time period. See the Environment Agency Science Report SC050021/TOX 3 ⁽¹⁾ and Science Report SC050021/Cadmium SGV ⁽¹⁾ .								

Table 4: Secondary school – receptor data for CLEA model

Parameter	Unit	Age class						
		12	13	14	15	16	17	18
Body weight	kg	41.3	47.2	51.2	56.7	59.0	70.0	70.9
Body height	m	1.4	1.5	1.6	1.6	1.6	1.6	1.6
Justification	Table 4.6, SR3 ⁽³⁾ . See Table 4.8 SR3 ⁽³⁾ for AC12 to 18							
Inhalation rate	m ³ day ⁻¹	25.20	25.20	25.20	25.20	25.20	24.54	23.58
Justification	USEPA Exposure Factor Handbook ⁽¹⁸⁾ Table 6.2, short-term mean exposure values (males and female combined). Mean inhalation rates calculated for the occupancy period and factored up to assume an hourly rate for a 24hr period in accordance with SR3 ⁽⁵⁾ . Assumed: 0.9h (54 mins) high-intensity activity (i.e. football, running during 24 mins of sport/PE per day and 30 mins of the lunch break); 6.3 h light intensity (i.e. time in classroom, eating, light activity during half of the lunch break over 6h 18 mins).							
Max exposed skin fraction (indoor)	m ² m ⁻²	0.22	0.22	0.22	0.21	0.21	0.33	0.33
Max exposed skin fraction (outdoor)	m ² m ⁻²	0.14	0.14	0.14	0.14	0.14	0.27	0.27
Justification	Data in Table 4.8, SR3 ⁽⁵⁾ . See Table 4.8 of SR(3) ⁽⁵⁾ for AC12 to 18.							

Table 5: Secondary school – default soil and building inputs for CLEA model

Parameter	Unit	Value	Justification
Soil properties for sandy loam			
Porosity, total	cm ³ cm ⁻³	0.53	Default soil type is sandy loam, Section 4.3.1, SR3 ⁽⁵⁾ Parameters for sandy loam from Table 4.4, SR3 ⁽⁵⁾
Porosity, air filled	cm ³ cm ⁻³	0.20	
Porosity, water filled	cm ³ cm ⁻³	0.33	
Residual soil water content	cm ³ cm ⁻³	0.12	
Saturated hydraulic conductivity	cm s ⁻¹	3.56E-03	
van Genuchten shape parameter (m)	-	3.20E-01	
Bulk density	g cm ⁻³	1.21	Default value taken from Section 9.2.2, SR3 ⁽⁵⁾
Threshold value of wind speed at 10m	m s ⁻¹	7.20	
Empirical function (F _x) for dust model	-	1.22	
Ambient soil temperature	K	283	Annual average soil temperature representative of UK surface soils. Section 4.3.1, SR3 ⁽⁵⁾
Air dispersion model			
Mean annual wind speed (10m)	m s ⁻¹	5.00	Default value taken from Section 9.2.2, SR3 ⁽⁵⁾
Air dispersion factor at height of 0.8m	g m ⁻² s ⁻¹ per kg m ⁻³	68	Values for a 2ha site, appropriate to land use in Newcastle (considered the most representative city for the UK as its data is close to the 10 th percentile value for mean values of all 13 cites modelled in SR3; Table 9.1, SR3 ⁽⁵⁾)
Air dispersion factor at height of 1.6m	g m ⁻² s ⁻¹ per kg m ⁻³	120	
Fraction of site with hard or vegetative cover	m ² m ⁻²	0.587	Total site area calculated from BB98 ⁽¹⁴⁾ less the building footprint ⁽⁵⁾ . It has been assumed that 50% of the soft cover is vegetative cover such as grass. The remaining 50% of soft cover is assumed to be disturbed in some way, either by gardening or sports/ playtime activities.
Building properties for secondary school with ground-bearing floor slab			
Building footprint	m ²	7981	Calculated from BB 98 ⁽¹⁴⁾ . See Table 2.
Living space air exchange rate	hr ⁻¹	2	The Building Regulations 2000, Approved Document F ⁽¹⁹⁾ states that ventilation should be designed in accordance with 'Building Bulletin 101: Ventilation for School Buildings' ⁽²⁰⁾ . The School Premises Regulations 1999 ⁽²¹⁾ apply to existing buildings and state that all occupied areas in a school building shall have controllable ventilation at a minimum rate of three litres of fresh air per second for each of the maximum number of persons the area will accommodate. BB101 ⁽¹⁸⁾ states that in a special school, the minimum air exchange rate should be 2.5 air changes per hour. CIBSE Guide B2:2001 ⁽²²⁾ , states that for schoolrooms, there should be a

Parameter	Unit	Value	Justification
			minimum of 4–6 air changes per hour. A conservative rate of 2 has been used.
Living space (i.e. classroom) height (above ground)	m	2.4	Minimum height requirement for a school sports hall is 7.6m and an activity studio is 3.5m (BB98 ⁽¹⁴⁾). It is assumed that the school is single storey. A minimum classroom height of 2.4m has been assumed in order to be conservative.
Living space height (below ground)	m	0.0	Assumed no basement
Pressure difference (soil to enclosed space)	Pa	5.1	From Table 4.21, SR3 ⁽⁵⁾ . Based on the negative pressure of an office of similar dimensions and construction, most conservative value assumed.
Foundation thickness	m	0.15	Assumed reasonable
Floor crack area	cm ²	25687	From Table 4.21, SR3 ⁽⁵⁾ . Based on an office of similar construction, scaled up to the size of the generic school building (office post 1970 x 13).
Dust loading factor (indoors)	µg m ⁻³	100	Default value for a commercial property taken from Section 9.3, SR3 ⁽⁵⁾ . Oatway & Mobbs 2003 (cited in SR3 ⁽⁵⁾) suggest a value of 500 µg m ⁻³ for residential and school use, during surface disturbances. Surface disturbances are considered unlikely and Oomen & Lijzen 2004 (cited in SR3 ⁽⁵⁾) recommend mean fine particulate (PM ₁₀) concentrations 100 µg m ⁻³ for very crowded places such as classrooms.
Vapour model			
Default soil gas ingress rate	cm ³ s ⁻¹	150	Generic flow rate for commercial property, Section 10.3, SR3 ⁽⁵⁾ , based on a worst-case building type and therefore considered suitable for a secondary school building. The value also lies at the top end of soil ingress rate observed by Hers et al ⁽²³⁾ .
Depth to top of source (beneath building)	cm	65	Section 3.2.6, SR3 ⁽⁵⁾ states source is 50cm below building or 65cm below ground surface
Depth to top of source (no building)	cm	0	Section 10.2, SR3 ⁽⁵⁾ assumes impact from 0m to 1m for outdoor inhalation pathway
Thickness of contaminant layer	cm	200	Model default for indoor air, Section 4.9, SR4 ⁽⁹⁾
Time average period for surface emissions	years	5	Time period of AC 12-16 year old, Box 3.5, SR3 ⁽⁵⁾ ; time period of AC 12–18 (64 years) for lifetime exposure.
User-defined effective air permeability	cm ²	3.05E-08	Calculated for sandy loam using equations in Appendix 1, SR3 ⁽⁵⁾

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GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - SECONDARY SCHOOL



Table 6

Human Health Generic Assessment Criteria by Pathway for Secondary School

Compound	Notes	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Metals													
Arsenic	(a,b)	4.23E+02	1.25E+03	NR	NR	4.23E+02	1.25E+03	NR	NR	4.23E+02	1.25E+03	NR	NR
Barium	(b)	1.54E+04	NR	NR	NR	1.54E+04	NR	NR	NR	1.54E+04	NR	NR	NR
Beryllium		2.72E+03	6.07E+00	NR	NR	2.72E+03	6.07E+00	NR	NR	2.72E+03	6.07E+00	NR	NR
Boron		1.54E+05	1.65E+07	NR	NR	1.54E+05	1.65E+07	NR	NR	1.54E+05	1.65E+07	NR	NR
Cadmium	(a)	8.75E+02	7.06E+02	4.06E+02	NR	8.75E+02	7.06E+02	4.06E+02	NR	8.75E+02	7.06E+02	4.06E+02	NR
Chromium (III) - trivalent	(c)	2.31E+05	4.88E+03	NR	NR	2.31E+05	4.88E+03	NR	NR	2.31E+05	4.88E+03	NR	NR
Chromium (VI) - hexavalent	(a,d)	6.61E+02	4.94E+01	NR	NR	6.61E+02	4.94E+01	NR	NR	6.61E+02	4.94E+01	NR	NR
Copper		1.24E+05	5.21E+04	4.16E+04	NR	1.24E+05	5.21E+04	4.16E+04	NR	1.24E+05	5.21E+04	4.16E+04	NR
Lead	(a)	3.59E+03	NR	NR	NR	3.59E+03	NR	NR	NR	3.59E+03	NR	NR	NR
Elemental Mercury (Hg ⁰)	(d)	NR	2.89E+01	NR	4.31E+00	NR	4.70E+01	NR	1.07E+01	NR	6.33E+01	NR	2.58E+01
Inorganic Mercury (Hg ²⁺)		8.19E+02	1.15E+04	7.65E+02	NR	8.19E+02	1.15E+04	7.65E+02	NR	8.19E+02	1.15E+04	7.65E+02	NR
Methyl Mercury (Hg ⁴⁺)		2.04E+02	8.71E+02	1.65E+02	7.33E+01	2.04E+02	1.23E+03	1.75E+02	1.42E+02	2.04E+02	1.80E+03	1.83E+02	3.04E+02
Nickel	(d)	2.12E+03	5.76E+02	NR	NR	2.12E+03	5.76E+02	NR	NR	2.12E+03	5.76E+02	NR	NR
Selenium	(b)	8.44E+03	NR	NR	NR	8.44E+03	NR	NR	NR	8.44E+03	NR	NR	NR
Vanadium		1.49E+04	5.26E+03	NR	NR	1.49E+04	5.26E+03	NR	NR	1.49E+04	5.26E+03	NR	NR
Zinc	(b)	4.66E+05	1.15E+08	NR	NR	4.66E+05	1.15E+08	NR	NR	4.66E+05	1.15E+08	NR	NR
Cyanide (free)		4.50E+02	4.40E+04	4.48E+02	NR	4.50E+02	4.40E+04	4.48E+02	NR	4.50E+02	4.40E+04	4.48E+02	NR
Volatile Organic Compounds													
Benzene	(a)	6.62E+02	1.40E+02	1.15E+02	1.22E+03	6.62E+02	2.45E+02	1.79E+02	2.26E+03	6.62E+02	4.64E+02	2.73E+02	4.71E+03
Toluene		2.58E+05	1.62E+05	9.97E+04	8.69E+02	2.58E+05	3.23E+05	1.44E+05	1.92E+03	2.58E+05	6.37E+05	1.84E+05	4.36E+03
Ethylbenzene		1.16E+05	1.34E+04	1.20E+04	5.18E+02	1.16E+05	2.75E+04	2.22E+04	1.22E+03	1.16E+05	5.42E+04	3.70E+04	2.84E+03
Xylene - m		2.09E+05	1.36E+04	1.28E+04	6.25E+02	2.09E+05	2.77E+04	2.45E+04	1.47E+03	2.09E+05	5.39E+04	4.29E+04	3.46E+03
Xylene - o		2.09E+05	1.44E+04	1.35E+04	4.78E+02	2.09E+05	2.92E+04	2.56E+04	1.12E+03	2.09E+05	5.65E+04	4.45E+04	2.62E+03
Xylene - p		2.09E+05	1.32E+04	1.24E+04	5.76E+02	2.09E+05	2.68E+04	2.37E+04	1.35E+03	2.09E+05	5.21E+04	4.17E+04	3.17E+03
Total xylene		2.09E+05	1.32E+04	1.24E+04	6.25E+02	2.09E+05	2.68E+04	2.37E+04	1.47E+03	2.09E+05	5.21E+04	4.17E+04	3.46E+03
Methyl tertiary-Butyl ether (MTBE)		3.48E+05	2.36E+04	2.21E+04	2.04E+04	3.48E+05	3.79E+04	3.42E+04	3.31E+04	3.48E+05	7.05E+04	5.86E+04	6.27E+04
Trichloroethene (TCE)		2.20E+00	8.22E+00	NR	1.54E+03	4.54E+00	1.71E+01	NR	3.22E+03	9.80E+00	3.74E+01	NR	7.14E+03
Tetrachloroethene (PCE)		1.62E+04	7.32E+01	7.29E+01	4.24E+02	1.62E+04	1.63E+02	1.61E+02	9.51E+02	1.62E+04	3.68E+02	3.60E+02	2.19E+03
1,1,1-Trichloroethane		6.97E+05	2.08E+03	2.08E+03	1.43E+03	6.97E+05	4.23E+03	4.21E+03	2.92E+03	6.97E+05	9.20E+03	9.08E+03	6.39E+03
1,1,1,2-Tetrachloroethane		6.70E+03	3.13E+02	2.99E+02	2.60E+03	6.70E+03	7.08E+02	6.40E+02	6.02E+03	6.70E+03	1.58E+03	1.28E+03	1.40E+04
1,1,2,2-Tetrachloroethane		6.70E+03	7.97E+02	7.12E+02	2.67E+03	6.70E+03	1.58E+03	1.28E+03	5.46E+03	6.70E+03	3.28E+03	2.20E+03	1.20E+04
Carbon Tetrachloride		4.64E+03	8.55E+00	8.54E+00	1.52E+03	4.64E+03	1.86E+01	1.85E+01	3.32E+03	4.64E+03	4.18E+01	4.14E+01	7.54E+03
1,2-Dichloroethane		1.39E+02	2.21E+00	2.18E+00	3.41E+03	1.39E+02	3.17E+00	3.10E+00	4.91E+03	1.39E+02	5.37E+00	5.17E+00	8.43E+03
Vinyl Chloride (chloroethene)		2.28E+01	4.27E+00	3.59E+00	1.36E+03	2.28E+01	5.51E+00	4.44E+00	1.76E+03	2.28E+01	8.41E+00	6.14E+00	2.96E+03
1,2,4-Trimethylbenzene		NR	4.26E+02	NR	4.74E+02	NR	6.19E+02	NR	1.16E+03	NR	7.86E+02	NR	2.76E+03
1,3,5-Trimethylbenzene	(e)	NR	NR	NR	2.30E+02	NR	NR	NR	5.52E+02	NR	NR	NR	1.30E+03
Semi-Volatile Organic Compounds													
Acenaphthene		6.48E+04	9.25E+05	6.05E+04	5.70E+01	6.48E+04	1.43E+06	6.20E+04	1.41E+02	6.48E+04	2.10E+06	6.28E+04	3.36E+02
Acenaphthylene		6.48E+04	8.91E+05	6.04E+04	8.61E+01	6.48E+04	1.37E+06	6.19E+04	2.12E+02	6.48E+04	2.02E+06	6.28E+04	5.06E+02
Anthracene		3.24E+05	8.66E+06	3.12E+05	1.17E+00	3.24E+05	1.32E+07	3.16E+05	2.91E+00	3.24E+05	1.87E+07	3.18E+05	6.96E+00
Benzo(a)anthracene		1.67E+02	1.41E+02	7.65E+01	1.71E+00	1.67E+02	1.74E+02	8.53E+01	4.28E+00	1.67E+02	2.02E+02	9.16E+01	1.03E+01
Benzo(a)pyrene	(a)	4.49E+01	5.37E+01	NR	9.11E-01	4.50E+01	6.39E+01	NR	2.28E+00	4.50E+01	7.22E+01	NR	5.46E+02
Benzo(b)fluoranthene		4.21E+01	3.96E+01	2.04E+01	1.22E+00	4.21E+01	4.76E+01	2.24E+01	3.04E+00	4.21E+01	5.43E+01	2.37E+01	7.29E+00
Benzo(g,h,i)perylene		3.72E+03	4.47E+03	2.03E+03	1.54E-02	3.72E+03	5.01E+03	2.13E+03	3.85E-02	3.72E+03	5.41E+03	2.20E+03	9.23E-02
Benzo(k)fluoranthene		1.11E+03	1.12E+03	5.59E+02	6.87E-01	1.11E+03	1.33E+03	6.05E+02	1.72E+00	1.11E+03	1.49E+03	6.37E+02	4.12E+00
Chrysene		3.35E+02	2.63E+02	1.47E+02	4.40E-01	3.35E+02	3.29E+02	1.66E+02	1.10E+00	3.35E+02	3.88E+02	1.80E+02	2.64E+00
Dibenzo(a,h)anthracene		3.35E+00	3.57E+00	1.73E+00	3.93E-03	3.35E+00	4.15E+00	1.85E+00	9.84E-03	3.35E+00	4.61E+00	1.94E+00	2.36E-02
Fluoranthene		1.35E+04	7.08E+05	1.32E+04	1.89E+01	1.35E+04	9.64E+05	1.33E+04	4.73E+01	1.35E+04	1.23E+06	1.33E+04	1.13E+02

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - SECONDARY SCHOOL



Table 6

Human Health Generic Assessment Criteria by Pathway for Secondary School

Compound	Notes	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Fluorene		4.32E+04	5.87E+05	4.02E+04	3.09E+01	4.32E+04	9.96E+05	4.14E+04	7.65E+01	4.32E+04	1.55E+06	4.20E+04	1.83E+02
Indeno(1,2,3-cd)pyrene		4.78E+02	4.33E+02	2.27E+02	6.13E-02	4.78E+02	5.25E+02	2.50E+02	1.53E-01	4.78E+02	6.03E+02	2.67E+02	3.68E-01
Naphthalene		2.15E+04	1.99E+03	1.82E+03	7.64E+01	2.15E+04	3.49E+03	3.00E+03	1.83E+02	2.15E+04	5.79E+03	4.56E+03	4.32E+02
Phenanthrene		1.35E+04	3.77E+05	1.30E+04	3.60E+01	1.35E+04	5.68E+05	1.32E+04	8.96E+01	1.35E+04	7.97E+05	1.32E+04	2.14E+02
Pyrene		3.24E+04	1.64E+06	3.18E+04	2.20E+00	3.24E+04	2.24E+06	3.19E+04	5.49E+00	3.24E+04	2.87E+06	3.20E+04	1.32E+01
Phenol		7.67E+05	1.04E+04	1.03E+04	2.42E+04	7.67E+05	1.10E+04	1.09E+04	3.81E+04	7.67E+05	1.18E+04	1.16E+04	7.03E+04
Total Petroleum Hydrocarbons													
Aliphatic hydrocarbons EC ₅ -EC ₆		2.90E+06	1.09E+04	1.09E+04	3.04E+02	2.90E+06	1.97E+04	1.97E+04	5.58E+02	2.90E+06	3.94E+04	3.93E+04	1.15E+03
Aliphatic hydrocarbons >EC ₆ -EC ₈		2.90E+06	2.59E+04	2.59E+04	1.44E+02	2.90E+06	5.56E+04	5.54E+04	3.22E+02	2.90E+06	1.20E+05	1.19E+05	7.36E+02
Aliphatic hydrocarbons >EC ₈ -EC ₁₀		5.81E+04	6.16E+03	5.99E+03	7.77E+01	5.81E+04	1.38E+04	1.29E+04	1.90E+02	5.81E+04	2.92E+04	2.47E+04	4.51E+02
Aliphatic hydrocarbons >EC ₁₀ -EC ₁₂		5.81E+04	2.56E+04	2.22E+04	4.75E+01	5.81E+04	5.44E+04	3.74E+04	1.18E+02	5.81E+04	1.07E+05	4.82E+04	2.83E+02
Aliphatic hydrocarbons >EC ₁₂ -EC ₁₆		5.81E+04	1.37E+05	5.07E+04	2.37E+01	5.81E+04	2.59E+05	5.45E+04	5.91E+01	5.81E+04	4.53E+05	5.61E+04	1.42E+02
Aliphatic hydrocarbons >EC ₁₆ -EC ₃₅	(b)	9.68E+05	NR	NR	8.48E+00	1.04E+06	NR	NR	2.12E+01	1.08E+06	NR	NR	5.09E+01
Aliphatic hydrocarbons >EC ₃₅ -EC ₄₄	(b)	9.68E+05	NR	NR	8.48E+00	1.04E+06	NR	NR	2.12E+01	1.08E+06	NR	NR	5.09E+01
Aromatic hydrocarbons >EC ₈ -EC ₁₀		2.32E+04	8.35E+03	7.47E+03	6.13E+02	2.32E+04	1.70E+04	1.30E+04	1.50E+03	2.32E+04	3.23E+04	1.78E+04	3.58E+03
Aromatic hydrocarbons >EC ₁₀ -EC ₁₂		2.32E+04	3.09E+04	1.75E+04	3.64E+02	2.32E+04	5.74E+04	2.04E+04	8.99E+02	2.32E+04	9.98E+04	2.17E+04	2.15E+03
Aromatic hydrocarbons >EC ₁₂ -EC ₁₆		2.32E+04	1.45E+05	2.22E+04	1.69E+02	2.32E+04	2.41E+05	2.26E+04	4.19E+02	2.32E+04	3.81E+05	2.29E+04	1.00E+03
Aromatic hydrocarbons >EC ₁₆ -EC ₂₁	(b)	1.67E+04	NR	NR	5.37E+01	1.69E+04	NR	NR	1.34E+02	1.71E+04	NR	NR	3.21E+02
Aromatic hydrocarbons >EC ₂₁ -EC ₃₅	(b)	1.72E+04	NR	NR	4.83E+00	1.72E+04	NR	NR	1.21E+01	1.73E+04	NR	NR	2.90E+01
Aromatic hydrocarbons >EC ₃₅ -EC ₄₄	(b)	1.72E+04	NR	NR	4.83E+00	1.72E+04	NR	NR	1.21E+01	1.73E+04	NR	NR	2.90E+01

Notes:

EC - equivalent carbon. SAC - soil assessment criteria.

The CLEA model output is colour coded depending upon whether the soil saturation limit has been exceeded.

	Calculated SAC exceeds soil saturation limit and may significantly effect the interpretation of any exceedances since the contribution of the indoor and outdoor vapour pathway to total exposure is >10%.
	Calculated SAC exceeds soil saturation limit but will not effect the SAC significantly since the contribution of the indoor and outdoor vapour pathway to total exposure is <10%.
	Calculated SAC does not exceed the soil saturation limit.

For consistency where the theoretical solubility limit within RBCA has been exceeded in production of the GrAC, these cells have also been hatched red.

The SAC for organic compounds are dependant upon soil organic matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, PAHs naphthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway (Section 10.1.1, SR3)

- (a) SAC for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead are derived using the C4SL toxicology data.
- (b) SAC for barium and selenium should not include the inhalation pathway as no expert group HCV has been derived; aliphatic and aromatic hydrocarbons >EC16 should not include inhalation pathway due to their non-volatile nature and inhalation exposure being minimal (oral, dermal and inhalation exposure is compared to the oral HCV); arsenic should only be based on oral contribution (rather than combined) owing to the relative small contribution from inhalation in accordance with the SGV report. The Oral SAC should be adopted for zinc and benzo(a)pyrene.
- (c) SAC for CrIII should be based on the lower of the oral and inhalation SAC (see LQM/CIEH 2015 Section 6.8)
- (d) SAC for elemental mercury, chromium VI and nickel should be based on the inhalation pathway only.
- (e) SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used.

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - SECONDARY SCHOOL



Table 7
Human Health Generic Assessment Criteria for Secondary School

Compound	SAC for Soil SOM 1% (mg/kg)	SAC for Soil SOM 2.5% (mg/kg)	SAC for Soil SOM 6% (mg/kg)
Metals			
Arsenic	423	423	423
Barium	15,400	15,400	15,400
Beryllium	6.1	6.1	6.1
Boron	154,000	154,000	154,000
Cadmium	406	406	406
Chromium (III) - trivalent	4,880	4,880	4,880
Chromium (VI) - hexavalent	49	49	49
Copper	41,600	41,600	41,600
Lead	3,590	3,590	3,590
Elemental Mercury (Hg ⁰)	28.9 (4.3)	47.0 (10.7)	63.3 (25.8)
Inorganic Mercury (Hg ²⁺)	760	760	760
Methyl Mercury (Hg ⁴⁺)	165 (73)	175 (142)	183
Nickel	580	580	580
Selenium	8,440	8,440	8,440
Vanadium	5,300	5,300	5,300
Zinc	465,700	465,700	465,700
Cyanide (free)	450	450	450
Volatile Organic Compounds			
Benzene	115	179	273
Toluene	100,000 (869)	144,000 (1,920)	184,000 (4,360)
Ethylbenzene	12,000 (518)	22,000 (1,220)	37,000 (2,840)
Xylene - m	12,800 (625)	24,500 (1,470)	42,900 (3,460)
Xylene - o	13,500 (478)	25,600 (1,120)	44,500 (2,620)
Xylene - p	12,400 (576)	23,700 (1,350)	41,700 (3,170)
Total xylene	12,400 (625)	23,700 (1,470)	41,700 (3,460)
Methyl tertiary-Butyl ether (MTBE)	22,100 (20,400)	34,200 (33,075)	58,600
Trichloroethene (TCE)	2.20	4.54	9.80
Tetrachloroethene (PCE)	73	161	360
1,1,1-Trichloroethane	2,080 (1,430)	4,210 (2,920)	9,080 (6,390)
1,1,1,2 Tetrachloroethane	300	640	1,280
1,1,2,2-Tetrachloroethane	710	1,280	2,200
Carbon Tetrachloride	8.54	18.54	41.43
1,2-Dichloroethane	2.18	3.10	5.17
Vinyl Chloride (chloroethene)	3.59	4.44	6.14
1,2,4-Trimethylbenzene	426	619	786
1,3,5-Trimethylbenzene	NR	NR	NR
Semi-Volatile Organic Compounds			
Acenaphthene	60,500	62,000	62,800
Acenaphthylene	60,400	61,900	62,800
Anthracene	312,000	316,000	318,000
Benzo(a)anthracene	77	85	92
Benzo(a)pyrene	44.9	45.0	45.0
Benzo(b)fluoranthene	20	22	24
Benzo(g,h,i)perylene	2,030	2,130	2,200
Benzo(k)fluoranthene	560	610	640
Chrysene	147	166	180
Dibenzo(a,h)anthracene	1.73	1.85	1.94
Fluoranthene	13,200	13,300	13,300
Fluorene	40,000	41,000	42,000
Indeno(1,2,3-cd)pyrene	230	250	270
Naphthalene	1,820 (76)	3,000 (183)	4,560 (432)
Phenanthrene	13,000	13,200	13,200
Pyrene	32,000	32,000	32,000
Phenol	440*	690*	1,300*
Total Petroleum Hydrocarbons			
Aliphatic hydrocarbons EC ₅ -EC ₆	10,900 (304)	19,700 (558)	39,300 (1,151)
Aliphatic hydrocarbons >EC ₆ -EC ₈	26,000 (144)	55,000 (322)	119,000 (736)
Aliphatic hydrocarbons >EC ₈ -EC ₁₀	6,000 (78)	12,900 (190)	24,700 (451)
Aliphatic hydrocarbons >EC ₁₀ -EC ₁₂	22,200 (48)	37,400 (118)	48,200 (283)
Aliphatic hydrocarbons >EC ₁₂ -EC ₁₆	51,000 (24)	54,000 (59)	56,000 (142)
Aliphatic hydrocarbons >EC ₁₆ -EC ₃₅	968,000	1,000,000**	1,000,000**
Aliphatic hydrocarbons >EC ₃₅ -EC ₄₄	968,000	1,000,000**	1,000,000**
Aromatic hydrocarbons >EC ₈ -EC ₁₀	7,500 (613)	13,000 (1,500)	17,800 (3,580)
Aromatic hydrocarbons >EC ₁₀ -EC ₁₂	17,500 (364)	20,400 (899)	21,700 (2,150)
Aromatic hydrocarbons >EC ₁₂ -EC ₁₆	22,200	22,600	22,900
Aromatic hydrocarbons >EC ₁₆ -EC ₂₁	16,700	16,900	17,100
Aromatic hydrocarbons >EC ₂₁ -EC ₃₅	17,200	17,200	17,300
Aromatic hydrocarbons >EC ₃₅ -EC ₄₄	17,200	17,200	17,300
Minerals			
Asbestos	Stage 1 test – No asbestos detected with ID; Stage 2 test - <0.001% dry weight (exceedance of either equates to an exceedance of the GAC) ¹		
Notes: ¹ Generic assessment criteria not calculated owing to low volatility of substance and therefore no pathway, or an absence of toxicological data. NR - SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used EC - equivalent carbon. GrAC - groundwater assessment criteria. SAC - soil assessment criteria. * The GAC for Phenol is based on a threshold which is protective of direct contact (SC050021/Phenol SGV report) ** Denoted SAC calculated exceeds 100% contaminant, hence 100% (1,000,000mg/kg) has been taken as SAC The SAC for organic compounds are dependent on Soil Organic Matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994. SAC for TPH fractions, PAHs naphthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway, section 10.1.1, SR3. (VALUE IN BRACKETS) The SAC has been set as the model calculated SAC with the saturation limit shown in brackets. RSK has adopted an approach for petroleum hydrocarbons in accordance with LQM/CI/EH whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the SAC with the corresponding solubility or vapour saturation limits given in brackets.			

APPENDIX N GENERIC ASSESSMENT CRITERIA POTABLE WATER SUPPLY PIPES

A range of pipe materials is available and careful selection, design and installation is required to ensure that water supply pipes are satisfactorily installed and meet the requirements of the Water Supply (Water Fittings) Regulations 1999 in England and Wales, the Byelaws 2000 in Scotland and the Northern Ireland Water Regulations. The regulations include a requirement to use only suitable materials when laying water pipes and laying water pipes without protection is not permitted at contaminated sites. The water supply company has a statutory duty to enforce the regulations.

Contaminants in the ground can pose a risk to human health by permeating potable water supply pipes. To fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or in specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies.

The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

The report concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for polyethylene (PE) and polyvinyl chloride (PVC) pipes for the organic contaminants of concern. The report also makes recommendations for the procedures to be adopted in the design of site investigations and sampling strategies, and the assessment of data, to ensure that the ground through which water supply pipes will be laid is adequately characterised.

Risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC for this linkage and are reproduced in Table A3 below.

Since water supply pipes are typically laid at a minimum depth of 0.75 m below finished ground levels, sample results from depths between 0.5 m and 1.5 m below finished level are generally considered suitable for assessing risks to water supply. Samples outside these depths can be used, providing the stratum is the same as that in which water supply pipes are likely to be located. The report specifies that sampling should characterise the ground conditions to a minimum of 0.5 m below the proposed depth of the pipe.

It should be noted that the assessment provided in this report is a guide and the method of assessment and recommendations should be checked with the relevant water supply company.

Table M1: Generic assessment criteria for water supply pipes

		Pipe material	
		GAC (mg/kg)	
	Parameter group	PE	PVC
1	Extended VOC suite by purge and trap or head space and GC-MS with TIC (Not including compounds within group 1a)	0.5	0.125
1a	BTEX + MTBE	0.1	0.03
2	SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C ₅ –C ₁₀) (Not including compounds within group 2e and 2f)	2	1.4
2e	Phenols	2	0.4
2f	Cresols and chlorinated phenols	2	0.04
3	Mineral oil C ₁₁ –C ₂₀	10	Suitable
4	Mineral oil C ₂₁ –C ₄₀	500	Suitable
5	Corrosive (conductivity, redox and pH)	Suitable	Suitable
Specific suite identified as relevant following site investigation			
2a	Ethers	0.5	1
2b	Nitrobenzene	0.5	0.4
2c	Ketones	0.5	0.02
2d	Aldehydes	0.5	0.02
6	Amines	Not suitable	Suitable
Notes: where indicated as 'suitable', the material is considered resistant to permeation or degradation and no threshold concentration has been specified by UKWIR.			

APPENDIX O GQRA DATA SCREENING TABLES - SOILS

Project name	Tottenham Centre	Notes	
Project code	1922791		
Client name	Capital City Collect Group		
Address			
NGR			
Land use	Secondary School		
SOM	1%		
GAC version	2021_00		

									Lab sample ID	23/03402/1	23/03402/2							
									Client sample ID	TP1	TP2							
									Depth to top	0.35	0.35							
									Depth to bottom									
									Date sampled	03/04/23	04/04/23							
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Metals and Inorganics																		
Arsenic	mg/kg	423		18	6	2	2	0	6	18								
Cadmium	mg/kg	406		0.9	0.8	2	2	0	0.9	0.8								
Chromium	mg/kg	4880	49	41	18	2	2	0	41	18								
Chromium (hexavalent)	mg/kg	49		<1		1	0	1	<1									
Copper	mg/kg	41600		26	19	2	2	0	26	19								
Lead	mg/kg	3590		81	21	2	2	0	21	81								
Mercury	mg/kg	760	28.9	0.83	0.78	2	2	0	0.78	0.83								
Nickel	mg/kg	580		36	32	2	2	0	32	36								
Selenium	mg/kg	8440		<1		2	0	2	<1	<1								
Zinc	mg/kg	465700		131	59	2	2	0	59	131								
Asbestos																		
Asbestos in soil		Detect				2	1	1	NAD	Chrysotile								
Asbestos Matrix (microscope)		Detect				2	1	1	-	Loose Fibres								
Asbestos in soil % composition (hand picking and weighing)	% w/w	0.001			<0.001	1	0	1		<0.001								
Petroleum Hydrocarbons																		
Ali >C5-C6	mg/kg	10900	304		<0.01	2	0	2	<0.01	<0.01								
Ali >C6-C8	mg/kg	26000	144		<0.01	2	0	2	<0.01	<0.01								
Ali >C8-C10	mg/kg	6000	78		<1	2	0	2	<1	<1								
Ali >C10-C12	mg/kg	22200	48		<1	2	0	2	<1	<1								
Ali >C12-C16	mg/kg	51000	24	2	<1	2	1	1	<1	2								
Ali >C16-C21	mg/kg			16	2	2	2	0	2	16								
Ali >C21-C35	mg/kg			84	27	2	2	0	27	84								
Ali >C16-C35 calculated	mg/kg	968000		100	29	2	2	0	29	100								
Total Aliphatics	mg/kg			102	29	2	2	0	29	102								
Aro >C5-C7	mg/kg				<0.01	2	0	2	<0.01	<0.01								
Aro >C7-C8	mg/kg				<0.01	2	0	2	<0.01	<0.01								
Aro >C8-C10	mg/kg	7500	613	1	<1	2	1	1	1	<1								
Aro >C10-C12	mg/kg	17500	364		<1	2	0	2	<1	<1								
Aro >C12-C16	mg/kg	22200		10	2	2	2	0	2	10								
Aro >C16-C21	mg/kg	16700		112	17	2	2	0	17	112								
Aro >C21-C35	mg/kg	17200		455	69	2	2	0	69	455								
Total Aromatics	mg/kg			577	90	2	2	0	90	577								
TPH (Ali & Aro)	mg/kg			679	119	2	2	0	119	679								
BTEX - Benzene	mg/kg	115			<0.01	2	0	2	<0.01	<0.01								
BTEX - Toluene	mg/kg	100000	869		<0.01	2	0	2	<0.01	<0.01								
BTEX - Ethyl Benzene	mg/kg	12000	518		<0.01	2	0	2	<0.01	<0.01								
BTEX - o Xylene	mg/kg	13500	478		<0.01	2	0	2	<0.01	<0.01								
BTEX - m & p Xylene	mg/kg	12400	576		<0.01	2	0	2	<0.01	<0.01								
TPH total (>C6-C40)	mg/kg			123	123	1	1	0	123									
TPH ID (for FID characterisations)						1			C12-C44 with some PAHs and other unknown hydrocarbons									
TPH FID Chromatogram						1			Appended									

										Lab sample ID	23/03402/1	23/03402/2							
										Client sample ID	TP1	TP2							
										Depth to top	0.35	0.35							
										Depth to bottom									
										Date sampled	03/04/23	04/04/23							
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects											
Fuel oxygenates																			
MTBE	mg/kg	22100	20400		<0.01	2	0	2	<0.01	<0.01									
Polycyclic aromatic hydrocarbons																			
Acenaphthene	mg/kg	60500		0.14	0.01	2	2	0	0.01	0.14									
Acenaphthylene	mg/kg	60400		0.05	<0.01	2	1	1	<0.01	0.05									
Anthracene	mg/kg	312000		1.24	0.05	2	2	0	0.05	1.24									
Benzo(a)anthracene	mg/kg	77		4.8	0.18	2	2	0	0.18	4.8									
Benzo(a)pyrene	mg/kg	44.9		4.39	0.16	2	2	0	0.16	4.39									
Benzo(b)fluoranthene	mg/kg	20		5.47	0.2	2	2	0	0.2	5.47									
Benzo(ghi)perylene	mg/kg	2030		2.66	0.13	2	2	0	0.13	2.66									
Benzo(k)fluoranthene	mg/kg	560		1.93	0.09	2	2	0	0.09	1.93									
Chrysene	mg/kg	147		5.06	0.22	2	2	0	0.22	5.06									
Dibenzo(ah)anthracene	mg/kg	1.73		0.57	<0.04	2	1	1	<0.04	0.57									
Fluoranthene	mg/kg	13200		10.5	0.43	2	2	0	0.43	10.5									
Fluorene	mg/kg	40000		0.15	0.01	2	2	0	0.01	0.15									
Indeno(123-cd)pyrene	mg/kg	230		3.28	0.13	2	2	0	0.13	3.28									
Naphthalene	mg/kg	1820	76		<0.03	2	0	2	<0.03	<0.03									
Phenanthrene	mg/kg	13000		2.99	0.22	2	2	0	0.22	2.99									
Pyrene	mg/kg	32000		8.16	0.38	2	2	0	0.38	8.16									
Total PAH-16MS	mg/kg			51.4	2.21	2	2	0	2.21	51.4									
Volatile Organic Compounds (VOC)																			
1,1,1,2-Tetrachloroethane	mg/kg				<0.001	1	0	1	<0.001										
1,1,1-Trichloroethane	mg/kg	2080	1430		<0.001	1	0	1	<0.001										
1,1,2,2-Tetrachloroethane	mg/kg	710			<0.001	1	0	1	<0.001										
1,1,2-Trichloroethane	mg/kg				<0.001	1	0	1	<0.001										
1,1-Dichloroethane	mg/kg				<0.001	1	0	1	<0.001										
1,1-Dichloroethene	mg/kg				<0.001	1	0	1	<0.001										
1,1-Dichloropropene	mg/kg				<0.001	1	0	1	<0.001										
1,2,3-Trichlorobenzene	mg/kg				<0.003	1	0	1	<0.003										
1,2,3-Trichloropropane	mg/kg				<0.001	1	0	1	<0.001										
1,2,4-Trichlorobenzene	mg/kg				<0.003	1	0	1	<0.003										
1,2,4-Trimethylbenzene	mg/kg	426			<0.001	1	0	1	<0.001										
1,2-Dibromo-3-chloropropane	mg/kg				<0.002	1	0	1	<0.002										
1,2-Dibromoethane	mg/kg				<0.001	1	0	1	<0.001										
1,2-Dichlorobenzene	mg/kg				<0.001	1	0	1	<0.001										
1,2-Dichloroethane	mg/kg	2.18			<0.002	1	0	1	<0.002										
1,2-Dichloropropane	mg/kg				<0.001	1	0	1	<0.001										
1,3,5-Trimethylbenzene	mg/kg	426			<0.001	1	0	1	<0.001										
1,3-Dichlorobenzene	mg/kg				<0.001	1	0	1	<0.001										
1,3-Dichloropropane	mg/kg				<0.001	1	0	1	<0.001										
1,4-Dichlorobenzene	mg/kg				<0.001	1	0	1	<0.001										
2,2-Dichloropropane	mg/kg				<0.001	1	0	1	<0.001										
2-Chlorotoluene	mg/kg				<0.001	1	0	1	<0.001										
4-Chlorotoluene	mg/kg				<0.001	1	0	1	<0.001										
4-Isopropyltoluene	mg/kg				<0.001	1	0	1	<0.001										
Benzene	mg/kg	115			<0.001	1	0	1	<0.001										
Bromobenzene	mg/kg				<0.001	1	0	1	<0.001										
Bromochloromethane	mg/kg				<0.005	1	0	1	<0.005										
Bromodichloromethane	mg/kg				<0.01	1	0	1	<0.01										
Bromoform	mg/kg				<0.001	1	0	1	<0.001										
Bromomethane	mg/kg				<0.001	1	0	1	<0.001										
Carbon Disulphide	mg/kg				<0.001	1	0	1	<0.001										
Carbon Tetrachloride	mg/kg	8.54			<0.001	1	0	1	<0.001										
Chlorobenzene	mg/kg				<0.001	1	0	1	<0.001										

										Lab sample ID	23/03402/1	23/03402/2							
										Client sample ID	TP1	TP2							
										Depth to top	0.35	0.35							
										Depth to bottom									
										Date sampled	03/04/23	04/04/23							
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects											
Chloroethane	mg/kg				<0.001	1	0	1	<0.001										
Chloroform	mg/kg				<0.001	1	0	1	<0.001										
Chloromethane	mg/kg				<0.01	1	0	1	<0.01										
cis 1,2-Dichloroethene	mg/kg				<0.001	1	0	1	<0.001										
cis 1,3-Dichloropropene	mg/kg				<0.001	1	0	1	<0.001										
Dibromochloromethane	mg/kg				<0.003	1	0	1	<0.003										
Dibromomethane	mg/kg				<0.001	1	0	1	<0.001										
Dichlorodifluoromethane	mg/kg				<0.001	1	0	1	<0.001										
Dichloromethane	mg/kg				<0.005	1	0	1	<0.005										
Ethylbenzene	mg/kg	12000	518		<0.001	1	0	1	<0.001										
Hexachlorobutadiene	mg/kg				<0.001	1	0	1	<0.001										
Isopropylbenzene	mg/kg				<0.001	1	0	1	<0.001										
m & p Xylene	mg/kg	12400	576		<0.001	1	0	1	<0.001										
n-Butylbenzene	mg/kg				<0.001	1	0	1	<0.001										
n-Propylbenzene	mg/kg				<0.001	1	0	1	<0.001										
o-Xylene	mg/kg	13500	478		<0.001	1	0	1	<0.001										
sec-Butylbenzene	mg/kg				<0.001	1	0	1	<0.001										
Styrene	mg/kg				<0.001	1	0	1	<0.001										
tert-Butylbenzene	mg/kg				<0.002	1	0	1	<0.002										
Tetrachloroethene	mg/kg	73			<0.001	1	0	1	<0.001										
Toluene	mg/kg	100000	869		<0.001	1	0	1	<0.001										
trans 1,2-Dichloroethene	mg/kg				<0.001	1	0	1	<0.001										
trans 1,3-Dichloropropene	mg/kg				<0.001	1	0	1	<0.001										
Trichloroethene	mg/kg	2.2			<0.001	1	0	1	<0.001										
Trichlorofluoromethane	mg/kg				<0.001	1	0	1	<0.001										
Vinyl Chloride	mg/kg	3.59			<0.001	1	0	1	<0.001										
Other analytes																			
% Moisture	% w/w			20.3	20.3	1	1	0	20.3										
% Stones >10mm	% w/w			2.2	<0.1	2	1	1	2.2	<0.1									
Organic matter	% w/w			1.2	1.2	1	1	0	1.2										
pH	pH			8.93	8.44	2	2	0	8.44	8.93									
Sulphate (acid soluble)	mg/kg			650	280	2	2	0	280	650									
Sulphate (water sol 2:1)	g/l			0.03	0.01	2	2	0	0.03	0.01									

APPENDIX P HAZ WASTE SCREENING



Date

TP1	TP2							
0.35	0.35							
03-Apr-23	04-Apr-23							

2,3,7,8-TeCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TeCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
2,3,4,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8,9-HpCDF
OCDF
Total Dioxins and Furans

[illegible]

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Aldrin
α Hexachlorocyclohexane (alpha-HCH) <i>(leave empty if total HCH results used)</i>
β Hexachlorocyclohexane (beta-HCH) <i>(leave empty if total HCH results used)</i>
α Cis-Chlordane (alpha) OR Total Chlordane
δ Hexachlorocyclohexane (delta-HCH) <i>(leave empty if total HCH results used)</i>
Dieldrin
Endrin
γ Hexachlorocyclohexane (gamma-HCH) (lindane) OR Total HCH
Heptachlor
Hexachlorobenzene
o,p'-DDT <i>(leave empty if total DDT results used)</i>
p,p'-DDT OR Total DDT
γ Trans-Chlordane (gamma) <i>(leave empty if total Chlordane results used)</i>
Chlordecone (kepone)
Chlorchlorobenzene
Mirex
Toxaphene (campechlor)

[illegible][illegible]

Tin (leave empty if Organotin and Tin excl Organotin results used)

mg/kg

--	--	--	--	--	--	--	--	--

Dibutyltin; DiBT
Tributyltin; TriBT
Triphenyltin; TriPT
Tetrabutyltin; TeBT

mg/kg

mg/kg

mg/kg

mg/kg

Tin excl Organotin

mg/kg

--	--	--	--	--	--	--	--	--



Haswaste, developed by Dr. Iain Haslock.

Ref. 1

Ref. 2

Date

Asbestos in Soil

Asbestos detected in Soil (enter Y or N)

Thresholds

Y

Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)

see "Carc HP7 % Asbestos in Soil (Fibres)" below

Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces)

Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.

≥0.1%

Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)

Y

TP1

0.35

03-Apr-23

TP2

0.35

04-Apr-23

N

Y

If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7

0.00100

0.00000

0.00100

0.00000

0.00000

0.00000

0.00000

0.00000

0.00000

0.00000

If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.

If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.

Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.
All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value
Corrosive HP8	≥5%	<1%
Irritant HP4	≥10%	<1%
Irritant HP4	≥20%	<1%
Specifc Target Organ Toxicity HP5	≥1%	
Specifc Target Organ Toxicity HP5	≥20%	
Specifc Target Organ Toxicity HP5	≥1%	
Specifc Target Organ Toxicity HP5	≥10%	
Aspiration Toxicity HP5	≥10%	
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥5%	<0.1%
Acute Toxicity HP6	≥25%	<1%
Acute Toxicity HP6	≥0.25%	<0.1%
Acute Toxicity HP6	≥2.5%	<0.1%
Acute Toxicity HP6	≥15%	<0.1%
Acute Toxicity HP6	≥55%	<1%
Acute Toxicity HP6	≥0.1%	<0.1%
Acute Toxicity HP6	≥0.5%	<0.1%
Acute Toxicity HP6	≥3.5%	<0.1%
Acute Toxicity HP6	≥22.5%	<1%
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥0.1%	
Carcinogenic HP7	≥1%	
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg	
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5	
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2	
Toxic for Reproduction HP10	≥0.3%	
Toxic for Reproduction HP10	≥3%	
Mutagenic HP11	≥0.1%	
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg	
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%	
Mutagenic HP11	≥1%	
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg	
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg	
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg	
HP13 Sensitising	≥10%	

If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.									
0.00098	0.00238	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00373	0.00452	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00947	0.01068	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00002	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00646	0.00727	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01190	0.06790	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01190	0.06790	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00087	0.00246	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00033	0.00014	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01166	0.01896	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00008	0.00008	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00019	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00009	0.00008	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00036	0.00016	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00014	0.00014	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01150	0.01752	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01190	0.06790	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
0.00001	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8.44	8.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.44	8.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00646	0.00810	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01190	0.06790	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.01190	0.06790	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0.00646	0.00727	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
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	0.0	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	0.0	0.0	0.0
0.00646	0.00727	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Ecotoxic HP14	≥25%	<0.1%	0.02039	0.04138	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
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amended v6



Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Haswaste, developed by Dr. Iain Haslock.

Ref. 1

Ref. 2

Date

TP1	TP2							
0.35	0.35							
03-Apr-23	04-Apr-23							

Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.03229	0.10929	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	2.15750	4.81730	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000	0.00000000000