

1.Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

6

The following Part A(1) and IPPC Authorised Activities are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details	
24B	340.0	W	509300, 179600	Operator: Owen Coyle Anodising Limited Installation Name: Owen Coyle (anodising) Ltd Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT	Permit Number: WP3233MM Original Permit Number: BP0334IM EPR Reference: - Issue Date: 19/6/2007 Effective Date: 1/7/2007 Last date noted as effective: 2010-02-08 Status: Effective
25B	340.0	W	509300, 179600	Operator: Owen Coyle Anodising Limited Installation Name: Owen Coyle (anodising) Ltd Process: SURFACE TREATING METALS AND PLASTICS; WITH RELEASE TO AIR OF OXIDES OF NITROGEN	Permit Number: BP0334IM Original Permit Number: BP0334IM EPR Reference: - Issue Date: 12/1/2005 Effective Date: 12/1/2005 Last date noted as effective: 2010-02-08 Status: Superceded
26B	340.0	W	509300, 179600	Operator: Owen Coyle Anodising Limited Installation Name: Owen Coyle (anodising) Ltd Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M	Permit Number: BP0334IM Original Permit Number: BP0334IM EPR Reference: - Issue Date: 12/1/2005 Effective Date: 12/1/2005 Last date noted as effective: 2010-02-08 Status: Superceded
27B	340.0	W	509300, 179600	Operator: Owen Coyle Anodising Limited Installation Name: Owen Coyle (anodising) Ltd Process: SURFACE TREATING METALS AND PLASTICS; WITH RELEASE TO AIR OF OXIDES OF NITROGEN	Permit Number: WP3233MM Original Permit Number: BP0334IM EPR Reference: - Issue Date: 19/6/2007 Effective Date: 1/7/2007 Last date noted as effective: 2010-02-08 Status: Effective
28B	340.0	W	509300, 179600	Operator: Owen Coyle Anodising Limited Installation Name: Owen Coyle (anodising) Ltd Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M	Permit Number: WP3233MM Original Permit Number: BP0334IM EPR Reference: - Issue Date: 19/6/2007 Effective Date: 1/7/2007 Last date noted as effective: 2010-02-08 Status: Effective
29C	489.0	SE	510150, 179240	Operator: Nestle Uk Ltd Installation Name: Hayes Boiler Houses And Roasters Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: VP3332ST Original Permit Number: VP3332ST EPR Reference: - Issue Date: 27/2/2007 Effective Date: 27/2/2007 Last date noted as effective: 2010-02-08 Status: Effective

Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site: **0**

Database searched and no data found.

Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site: **0**

Database searched and no data found.

Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site: **0**

Database searched and no data found.

Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site: **1**

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
8	0.0	On Site	509664, 179475	Name: Damont Audio Ltd, Blyth Rd, Hayes Status: Active Receiving Water: - Authorised Substances: Chromium, Nickel

Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site: **6**

The following Part A(2) and Part B Activities are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
17	221.0	W	509400, 179500	Address: Owen Coyle Alpha Wks, Blythe Rd Process: Metal Process Status: Historic Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
18	293.0	S	509674, 179112	Address: Esso North Hyde, North Hyde Road, Hayes Process: Unloading Of Petrol Into Storage Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
19	387.0	E	510109, 179451	Address: Mays (Pressure Diecasting) Ltd, Unit 9, Silverdale Industrial Centre, Silverdale Road, Hayes, Middlesex Ub3 3bl Process: Aluminium And Aluminium Alloy (2.2 Non-ferrous Metals) Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
20	435.0	W	509200, 179600	Address: Thorn Emi Blythe Rd Process: Coating & Enamelling Process Status: Historic Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
21	462.0	NE	509963, 179874	Address: Tarmac Roadstone Hayes, Hayes Works, Pump Lane, Hayes, Middlesex Ub3 3lz Process: Mineral drying and roadstone coating (3.5 Other Minerals) Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

22	468.0	SE	510100, 179200	Address: Nestle Uk Process: Combustion Process Status: Historic Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
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Records of Category 3 or 4 Radioactive Substance Licences within 500m of the study site:

1

The following RAS Licence (3 or 4) records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance [m]	Direction	Address	Operator	Type	Permission Number	Dates	Status
30D	478.0	SW	Saunders Roe Developments Ltd, Millington Road, Hayes, Middlesex, UB3 4AZ	Saunders Roe Develop ments Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AC6409	Date of Approval:- Effective from:- Last date of update:20 01-06-01	-

Records of Licensed Discharge Consents within 500m of the study site:

2

The following Licensed Discharge Consents records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
9A	483.0	NW	509311, 179860	Address: Ubs Ag, Clayton Road, Hayes, Middlesex, UB3 1AX Effluent Type: Trade Discharges - Cooling Water Permit Number: NPSWQD003883 Permit Version: 1 Receiving Water: Grand Union Canal Status: New Consent (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 7/12/2008 Effective Date: 7/12/2008 Revocation Date: 25/8/2010
10A	483.0	NW	509311, 179860	Address: Ubs Ag, Clayton Road, Hayes, Middlesex, UB3 1AX Effluent Type: Trade Discharges - Cooling Water Permit Number: NPSWQD003883 Permit Version: 2 Receiving Water: Grand Union Canal Status: Varied Under Epr 2010 Issue date: 26/8/2010 Effective Date: 26/8/2010 Revocation Date: -

Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

Records of National Incidents Recording System, List 2 within 250m of the study site:

7

The following NIRS List 2 records are represented as points on the Authorisations, Incidents and Registers Map:

Report Reference: CMAPS-AAA-66153-13868-310311

ID	Distance	Direction	NGR	Details
1	132.0	NE	509758, 179609	Incident Date: 14/6/2002 Incident Identification: 84800 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	138.0	NE	509794, 179597	Incident Date: 17/4/2003 Incident Identification: 152150 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	141.0	SE	509782, 179322	Incident Date: 8/7/2002 Incident Identification: 89866 Pollutant: Specific Waste Materials Pollutant Description: Household Waste Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
4	157.0	SE	509837, 179366	Incident Date: 17/12/2001 Incident Identification: 48544 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	237.0	W	509396, 179563	Incident Date: 14/2/2002 Incident Identification: 58424 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
6	238.0	NE	509878, 179659	Incident Date: 22/7/2003 Incident Identification: 175875 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	249.0	E	509968, 179521	Incident Date: 30/4/2002 Incident Identification: 75693 Pollutant: Organic Chemicals/Products Pollutant Description: Other Organic Chemical or Product Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

Records of National Incidents Recording System, List 1 within 250m of the study site:

0

Database searched and no data found.

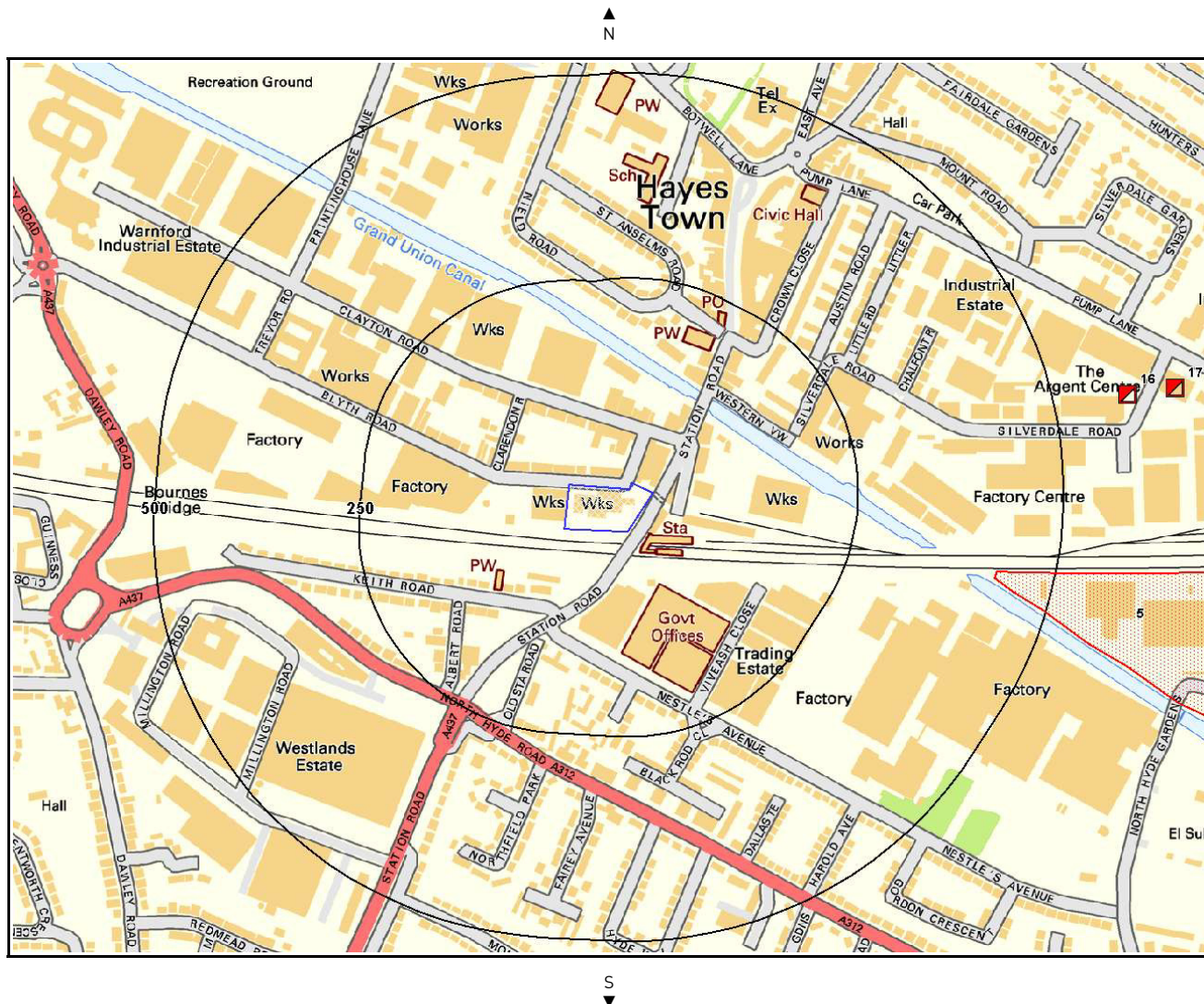
1.4 Sites Determined as Contaminated Land under Part IIA EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

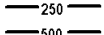
2. Landfill and Other Waste Sites Map



Landfill & Other Waste Sites Legend

Enabled by
Ordnance Survey

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- | | | |
|---|---|--|
|  Site Outline |  E.A. Active Landfill |  Operational Waste Treatment Licence |
|  250
500 Search Buffers (m) |  E.A. Historic Landfill (Area Data) |  Closed Waste Treatment Licence |
| |  E.A. Historic Landfill (Point Data) |  REGIS Waste Licence |
| |  BGS / DoE Survey Landfill |  Operational Landfill |
| |  Local Authority Landfill (Area Data) |  Closed Landfill |
| |  Local Authority Landfill (Point Data) | |

2. Landfill and Other Waste Sites

2.1 Landfill Sites

Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

Records of operational landfill sites sourced from Landmark within 1000m of the study site:

0

Database searched and no data found.

Records of Environment Agency historic landfill sites within 1500m of the study site:

11

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance	Direction	NGR	Details	
5	429.0	E	510500, 179200	Site Address: Bulls Bridge Area, Hays Town, Hillingdon, London Waste Licence: - Site Reference: 8EA008, EAL008 Waste Type: Inert, Commercial, Household Regis Reference: -	Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: -
Not shown	926.0	SE	510700, 178900	Site Address: Bulls Bridge, Southall Waste Licence: - Site Reference: 8HO050 Waste Type: Inert, Industrial, Commercial, Household, Special Regis Reference: -	Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: -
Not shown	964.0	E	511100, 179600	Site Address: Land at Yeading, Hayes, Middlesex Waste Licence: - Site Reference: - Waste Type: - Regis Reference: -	Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: -
Not shown	1187.0	NW	508100, 180600	Site Address: Stockley Park East, Stockley Park, Middlesex Waste Licence: Yes Site Reference: 8HI048, DL197, HIL56C Waste Type: Inert, Industrial, Commercial, Household, Special Regis Reference: -	Licence Issue: 02/04/1985 Licence Surrendered: 15/03/1993 Licence Hold Address: - Operator: -
Not shown	1193.0	SW	508900, 178200	Site Address: Saint Peters Way, Harlington, West Drayton, Hillingdon, London Waste Licence: - Site Reference: 8HI039 Waste Type: - Regis Reference: -	Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: -
Not shown	1197.0	S	509600, 178100	Site Address: Crane Meadow, Harlington, West Drayton, Hillingdon, London Waste Licence: Yes Site Reference: DL292, 8HI016, HIL017 Waste Type: Inert Regis Reference: -	Licence Issue: 12/01/1989 Licence Surrendered: 22/02/1990 Licence Hold Address: - Operator: -
Not shown	1262.0	NW	508700, 180600	Site Address: Botwell Common Road, Botwell Waste Licence: - Site Reference: 8HI008, HIL008 Waste Type: , Commercial, Household Regis Reference: -	Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: -
Not shown	1264.0	NW	508600, 180400	Site Address: Land Parcels 2,3,4,5,9, Stockley Park, Hillingdon, Middlesex Waste Licence: Yes Site Reference: DL410, 8HI066, HIL075 Waste Type: Inert, Industrial Regis Reference: TE1/L/ST0001	Licence Issue: 25/10/1990 Licence Surrendered: 30/10/2001 Licence Hold Address: Stockley Park Project Office, Bolingbroke Way, Hayes, Middlesex Operator: -

Report Reference: CMAPS-AAA-66153-13868-310311

Not shown	1284.0	E	511000, 180200	Site Address: Minet Site D, Avondale Drive, Minet Estate Waste Licence: Yes Site Reference: DL228, 8HI053, HIL062 Waste Type: Inert Regis Reference: -	Licence Issue: 25/03/1986 Licence Surrendered: 24/07/1989 Licence Hold Address: - Operator: -
Not shown	1310.0	SW	508300, 178500	Site Address: Frogditch Farm, Harlington, West Drayton, Hillingdon, London Waste Licence: - Site Reference: 8HI020, DL102, HIL071 Waste Type: Inert Regis Reference: -	Licence Issue: 07/07/1982 Licence Surrendered: 01/08/1989 Licence Hold Address: - Operator: -
Not shown	1375.0	SW	508200, 178800	Site Address: Frogditch Farm, Harlington, West Drayton, Hillingdon, London Waste Licence: Yes Site Reference: DL102, 8HI062, HIL071 Waste Type: Inert Regis Reference: -	Licence Issue: 07/07/1982 Licence Surrendered: 17/01/1990 Licence Hold Address: - Operator: -

Records of non-operational landfill sites sourced from Landmark within 1000m of the study site: 0

Database searched and no data found.

Records of BGS/DoE non-operational landfill sites within 1500m of the study site: 0

Database searched and no data found.

Records of Local Authority landfill sites within 1500m of the study site: 4

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance	Direction	Site Address	Source	Data Type
Not shown	1287.0	E	Minet	Environmental Agency (via London Borough of Hillingdon)	Polygon
Not shown	1325.0	W	Refuse Tip	1965 mapping	Polygon
Not shown	1325.0	W	Refuse Tip	1965 mapping	Polygon
Not shown	1392.0	NE	Minet	London Borough of Hillingdon	Polygon

2.2 Other Waste Sites

Records of operational waste treatment, transfer or disposal sites within 500m of the study site: 0

Database searched and no data found.

Records of non-operational waste treatment, transfer or disposal sites within 500m of the study site: 0

Database searched and no data found.

Records of Environment Agency licensed waste sites within 1500m of the study site: 13

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

Report Reference: [CMAPS-AAA-66153-13868-310311](#)

ID	Distance	Direction	NGR	Details
16	590.0	E	510300, 179600	Site Address: PHS Ltd, Unit 1, Pump Lane, Pump Lane Ind.Estate, Hayes, Middlesex, UB3 3NB Type: Clinical Waste Transfer Station Size: < 25000 tonnes Regis Licence Number: PER003 EPR reference: JP3191NV/V002 Operator: Personnel Hygiene Services Ltd Waste Management licence No: 80404 Annual Tonnage: 4999.0 Issue Date: 08/01/1999 Effective Date: - Modified: 19/04/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Hayes Correspondence Address: -, -
17	648.0	E	510358, 179607	Site Address: PHS Ltd, Unit 1, Pump Lane, Pump Lane Ind.Estate, Hayes, Middlesex, UB3 3NB Type: Clinical Waste Transfer Station Size: < 25000 tonnes Regis Licence Number: PER003 EPR reference: - Operator: Personnel Hygiene Services Ltd Waste Management licence No: 80404 Annual Tonnage: 0.0 Issue Date: 08/01/1999 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: "Personnel Hygiene Services Ltd, Hayes" Correspondence Address: PHS Ltd, Unit 1, Pump Lane, Pump Lane Ind.Estate, Hayes, Middlesex, UB3 3NB
Not shown	736.0	E	510428, 179692	Site Address: Rentokil, Units 5 & 6, Pump Lane, Pump Lane Ind.Est, Hayes, Middlesex, UB3 3NB Type: Special Waste Transfer Station Size: < 25000 tonnes Regis Licence Number: REN001 EPR reference: - Operator: Rentokil Initial UK Ltd Waste Management licence No: 80057 Annual Tonnage: 0.0 Issue Date: 27/09/1994 Effective Date: - Modified: 29/08/1997 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: "Pump Lane, Hayes" Correspondence Address: Rentokil Initial UK Ltd, Felcourt, East Grinstead, West Sussex, RH19 2JY
Not shown	736.0	E	510428, 179692	Site Address: Rentokil, Units 5 & 6, Pump Lane, Pump Lane Ind Est, Hayes, Middlesex, UB3 3NB Type: Special Waste Transfer Station Size: < 25000 tonnes Regis Licence Number: REN001 EPR reference: CP3396LY/S002 Operator: Rentokil Initial U K Ltd Waste Management licence No: 80057 Annual Tonnage: 0.0 Issue Date: 27/09/1994 Effective Date: - Modified: 29/08/1997 Surrendered Date: 23/12/2008 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Pump Lane, Hayes Correspondence Address: -, -
Not shown	920.0	W	508710, 179620	Site Address: Beechwood Nurseries, Farnham Lane, Farnham Royal, Slough, Buckinghamshire, SL2 3SD Type: Inert LF Size: >= 75000 tonnes Regis Licence Number: SUM006 EPR reference: EA/EPR/BU0605IR/A001 Operator: Summerleaze Ltd Waste Management licence No: 83532 Annual Tonnage: 10000.0 Issue Date: 14/07/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: - Site Name: Beechwood Nurseries Correspondence Address: -, Beechwood Nurseries, Farnham Lane, Farnham Royal, Slough, Buckinghamshire, SL2 3SD
Not shown	920.0	W	508710, 179620	Site Address: Beechwood Nurseries Landfill, Farnham Lane, Slough, Berks, SL2 3SD Type: Inert LF Size: >= 75000 tonnes Regis Licence Number: SUM010 EPR reference: - Operator: Summerleaze Ltd Waste Management licence No: 101052 Annual Tonnage: 0.0 Issue Date: 29/05/2009 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Beechwood Nurseries Landfill Correspondence Address: -, -
Not shown	920.0	W	508710, 179620	Site Address: Beechwood Nurseries, Farnham Lane, Farnham Royal, Slough, Buckinghamshire, SL2 3SD Type: Inert LF Size: >= 75000 tonnes Regis Licence Number: SUM006 EPR reference: YP3890EH/A001 Operator: Summerleaze Ltd Waste Management licence No: 83532 Annual Tonnage: 10000.0 Issue Date: 14/07/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Beechwood Nurseries Correspondence Address: -, -

Not shown	1136.0	NW	508572, 179926	Site Address: SITA Products & Services, Land/ Premises At, Rigby Lane, Hayes, Middlesex, UB3 1ET Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Regis Licence Number: SIT007 EPR reference: NP3696NV/T004 Operator: SITA Wastecare Ltd Waste Management licence No: 80025 Annual Tonnage: 0.0	Issue Date: 13/07/1993 Effective Date: 06/08/1999 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Rigby Lane, Hayes Correspondence Address: -, -
Not shown	1208.0	S	509166, 178314	Site Address: The Gravel Pit, High Street, Harlington, Hayes, Middlesex, UB3 5DA Type: Landfill taking other wastes Size: >= 75000 tonnes Regis Licence Number: STR001 EPR reference: - Operator: Henry Streeter (Sand & Ballast) Ltd Waste Management licence No: 80066 Annual Tonnage: 0.0	Issue Date: 28/09/1977 Effective Date: - Modified: 23/09/1993 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: "High Street, Harlington" Correspondence Address: Henry Streeter (Sand & Ballast) Limited, 66, Purley Way, Croyden, Surrey, CR9 4BD
Not shown	1208.0	S	509166, 178314	Site Address: The Gravel Pit, High Street, Harlington, Hayes, Middlesex, UB3 5DA Type: Landfill taking other wastes Size: >= 75000 tonnes Regis Licence Number: STR000 EPR reference: - Operator: Henry Streeter (Sand & Ballast) Ltd Waste Management licence No: 80066 Annual Tonnage: 0.0	Issue Date: 28/09/1977 Effective Date: - Modified: 23/09/1993 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: High Street, Harlington Correspondence Address: Henry Streeter (Sand & Ballast) Limited, 66, Purley Way, Croyden, Surrey, CR9 4BD
Not shown	1208.0	S	509166, 178314	Site Address: The Gravel Pit, High Street, Harlington, Hayes, Middlesex, UB3 5DA Type: Landfill taking other wastes Size: >= 75000 tonnes Regis Licence Number: STR001 EPR reference: AP3896NG/V005 Operator: Henry Streeter (Sand & Ballast) Ltd Waste Management licence No: 80066 Annual Tonnage: 60360.0	Issue Date: 28/09/1977 Effective Date: - Modified: 23/09/1993 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: High Street, Harlington Correspondence Address: -, -
Not shown	1254.0	SE	510865, 178961	Site Address: PHS Ltd, Unit 1, Bullsbridge Industrial Estate, Hayes Road, Southall, Middlesex, UB2 5ND Type: Clinical Waste Transfer Station Size: < 25000 tonnes Regis Licence Number: PER001 EPR reference: - Operator: Personnel Hygiene Services Ltd Waste Management licence No: 80053 Annual Tonnage: 857.0	Issue Date: 11/12/1991 Effective Date: - Modified: 25/02/1998 Surrendered Date: 31/07/2000 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: "Bullsbridge Industrial Estate, Southall" Correspondence Address: PHS Ltd, Unit 1, Pump Lane, Pump Lane Ind.Estate, Hayes, Middx, UB3
Not shown	1254.0	SE	510865, 178961	Site Address: PHS Ltd, Unit 1, Bullsbridge Industrial Estate, Hayes Road, Southall, Middlesex, UB2 5ND Type: Clinical Waste Transfer Station Size: < 25000 tonnes Regis Licence Number: PER001 EPR reference: WP3996NG/S005 Operator: Personnel Hygiene Services Ltd Waste Management licence No: 80053 Annual Tonnage: 857.0	Issue Date: 11/12/1991 Effective Date: - Modified: 25/02/1998 Surrendered Date: 31/07/2000 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Bullsbridge Industrial Estate, Southall Correspondence Address: -, -

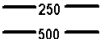
3. Current Land Use Map



Current Land Use Legend



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-  Site Outline
-  Current Industrial Sites
-  Petrol & Fuel Sites
-  Underground High Pressure Oil & Fuel Pipelines
-  Search Buffers (m)

3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

32

The following records are represented as points on the Current Land Uses map.

ID	Distance	Direction	Company	Address	Activity	Category
1	0.0	On Site	Tank	UB3	Tanks (Generic)	Industrial Features
2A	22.0	W	Electropatent International Ltd	32, Blyth Road, Hayes, UB3 1BY	General Manufacturing	Industrial Products
3A	27.0	W	Works	UB3	Unspecified Works Or Factories	Industrial Features
4	29.0	E	Roundabout Enterprises Mini Cabs	105, Station Road, Hayes, UB3 4BX	Airlines and Airline Services	Transport, Storage and Delivery
5	57.0	SE	Hayes and Harlington Station	UB3	Railway Stations, Junctions and Halts	Public Transport, Stations and Infrastructure
6	104.0	W	Tank	UB3	Tanks (Generic)	Industrial Features
7	105.0	W	Electricity Sub Station	UB3	Electrical Features	Infrastructure and Facilities
8B	115.0	S	Heathrow Transport Ltd	1, Nestles Avenue, Hayes, UB3 4UZ	Vehicle Hire and Rental	Hire Services
9B	115.0	S	Access Self Storage Ltd	1, Nestles Avenue, Hayes, UB3 4UZ	Container and Storage	Transport, Storage and Delivery
10 B	115.0	S	Netcargio International UK Ltd	1, Nestles Avenue, Hayes, UB3 4UZ	Distribution and Haulage	Transport, Storage and Delivery
11	117.0	W	Factory	UB3	Unspecified Works Or Factories	Industrial Features
12	122.0	NW	Electricity Sub Station	UB3	Electrical Features	Infrastructure and Facilities
13	130.0	N	Macfarlane	Unit 23 Crown Trading Centre, Clayton Road, Hayes, Middlesex, UB3 1DU	Packaging	Industrial Products
14	140.0	SE	Vanmatic Ltd	1, Viveash Close, Hayes, UB3 4RY	Vehicle Parts and Accessories	Motoring
15	172.0	S	Claremont Engineer Services	233-236, Nestles Avenue, Hayes, UB3 4SH	Vehicle Hire and Rental	Hire Services
16	172.0	N	Flowstore Systems Plc	29-31, Clayton Road, Hayes, UB3 1AN	Shelving, Storage, Safes and Vaults	Industrial Products
17	176.0	NE	Horizon Electronics	58, Station Road, Hayes, UB3 4DF	Electronic Equipment	Industrial Products
18	190.0	S	Electricity Sub Station	UB3	Electrical Features	Infrastructure and Facilities
19 C	191.0	NE	Housewives Choice	69, Station Road, Hayes, UB3 4BG	Clothing	Clothing and Accessories
20	194.0	SE	M D I Motor Services Ltd	Unit 1 Squirrels Trading Estate, Viveash Close, Hayes, UB3 4RZ	Vehicle Repair, Testing and Servicing	Repair and Servicing
21 C	196.0	NE	Housebox	67, Station Road, Hayes, UB3 4BG	Curtains and Blinds	Consumer Products
22 D	200.0	NW	Works	UB3	Unspecified Works Or Factories	Industrial Features
23E	211.0	NW	Works	UB3	Unspecified Works Or Factories	Industrial Features
24	214.0	E	Works	UB3	Unspecified Works Or Factories	Industrial Features
25	216.0	SE	Paramount Powders UK Ltd	4, Viveash Close, Hayes, UB3 4RY	Paints, Varnishes and Lacquers	Industrial Products

26 D	219.0	NW	Works	UB3	Unspecified Works Or Factories	Industrial Features
27E	221.0	NW	Depot	UB3	Container and Storage	Transport, Storage and Delivery
28	234.0	SE	Tanks	UB3	Tanks (Generic)	Industrial Features
29	239.0	NW	Works	UB3	Unspecified Works Or Factories	Industrial Features
30	239.0	S	P W Auto's	Unit 1/B Sandow Commercial Estate, Sandow Crescent, Hayes, UB3 4QH	Vehicle Repair, Testing and Servicing	Repair and Servicing
31F	241.0	NE	R & S Motors	Unit 8 Crauford Business Park, Silverdale Road, Hayes, UB3 3BN	Vehicle Repair, Testing and Servicing	Repair and Servicing
32F	241.0	NE	B M Coaches	Unit 8 Crauford Business Park, Silverdale Road, Hayes, UB3 3BN	Vehicle Hire and Rental	Hire Services

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance	Direction	NGR	Company	Address	LPG	Status
33	301.0	S	509655, 179132	Esso	South Hayes Express, 38-42, North Hyde Road, North Hyde Road, Hayes, Middlesex, UB3 4NE	No	Open

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site:

0

Database searched and no data found.

4. Geology

4.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

LEX Code	Description	Rock Type
WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

4.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LHGR-SAGR	LYNCH HILL GRAVEL MEMBER	SAND AND GRAVEL

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

4.3 Bedrock and Solid Geology

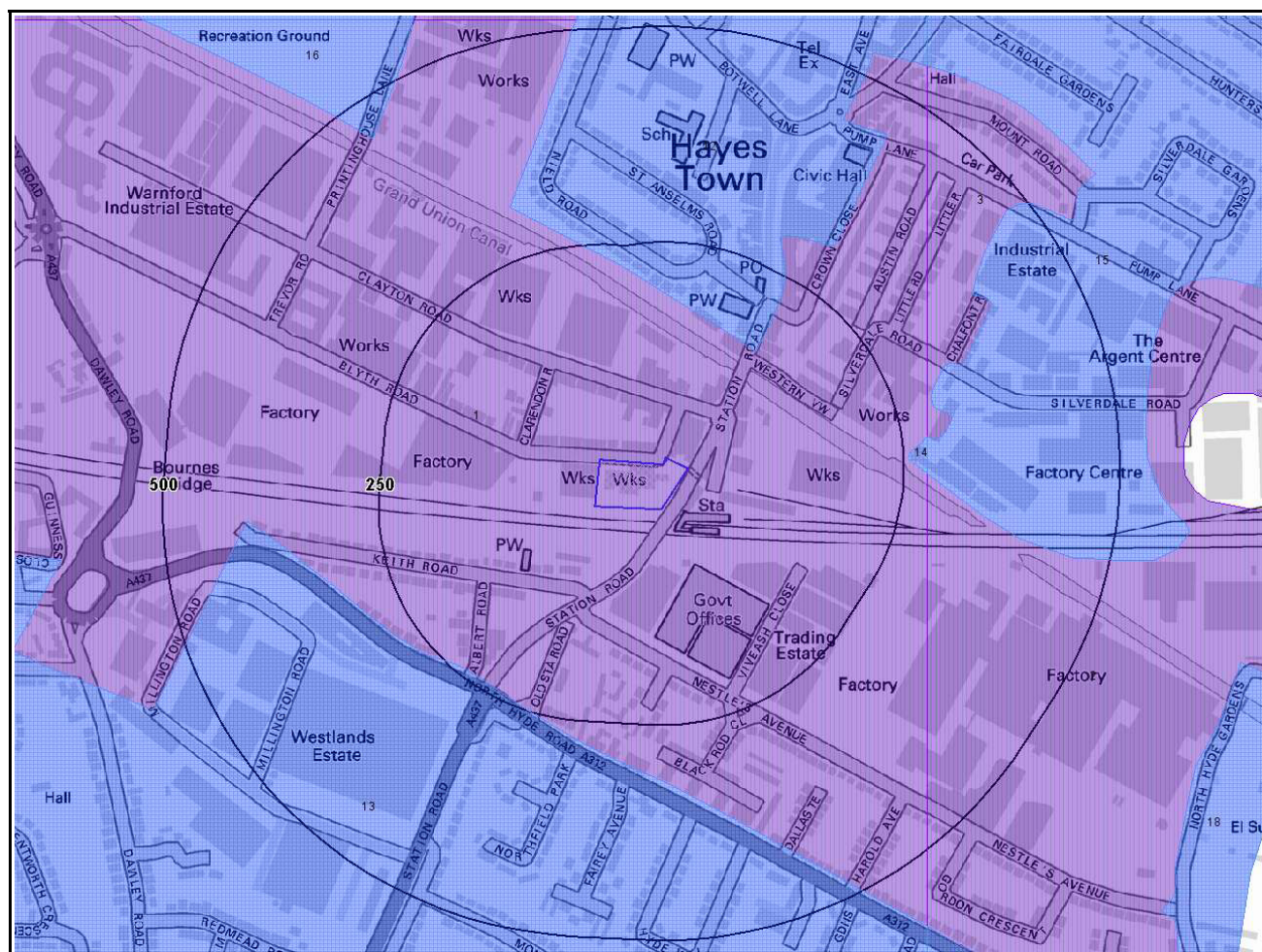
The database has been searched on site, including a 50m buffer.

LEX Code	Description	Rock Type
LC-CLSS	LONDON CLAY FORMATION	CLAY, SILT AND SAND

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

For more detailed geological and ground stability data please refer to the "GroundSure GeoInsight". Available from our website.

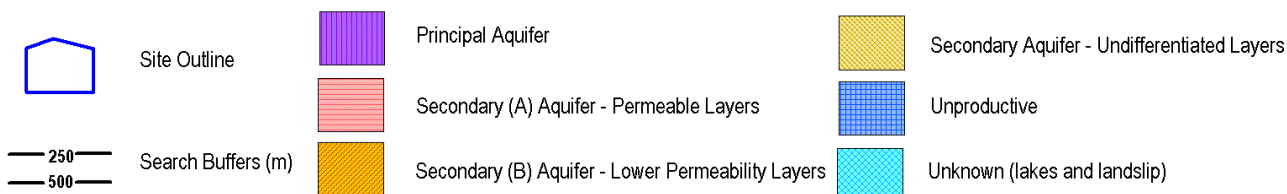
5a. Hydrogeology - Aquifer Within Superficial Geology



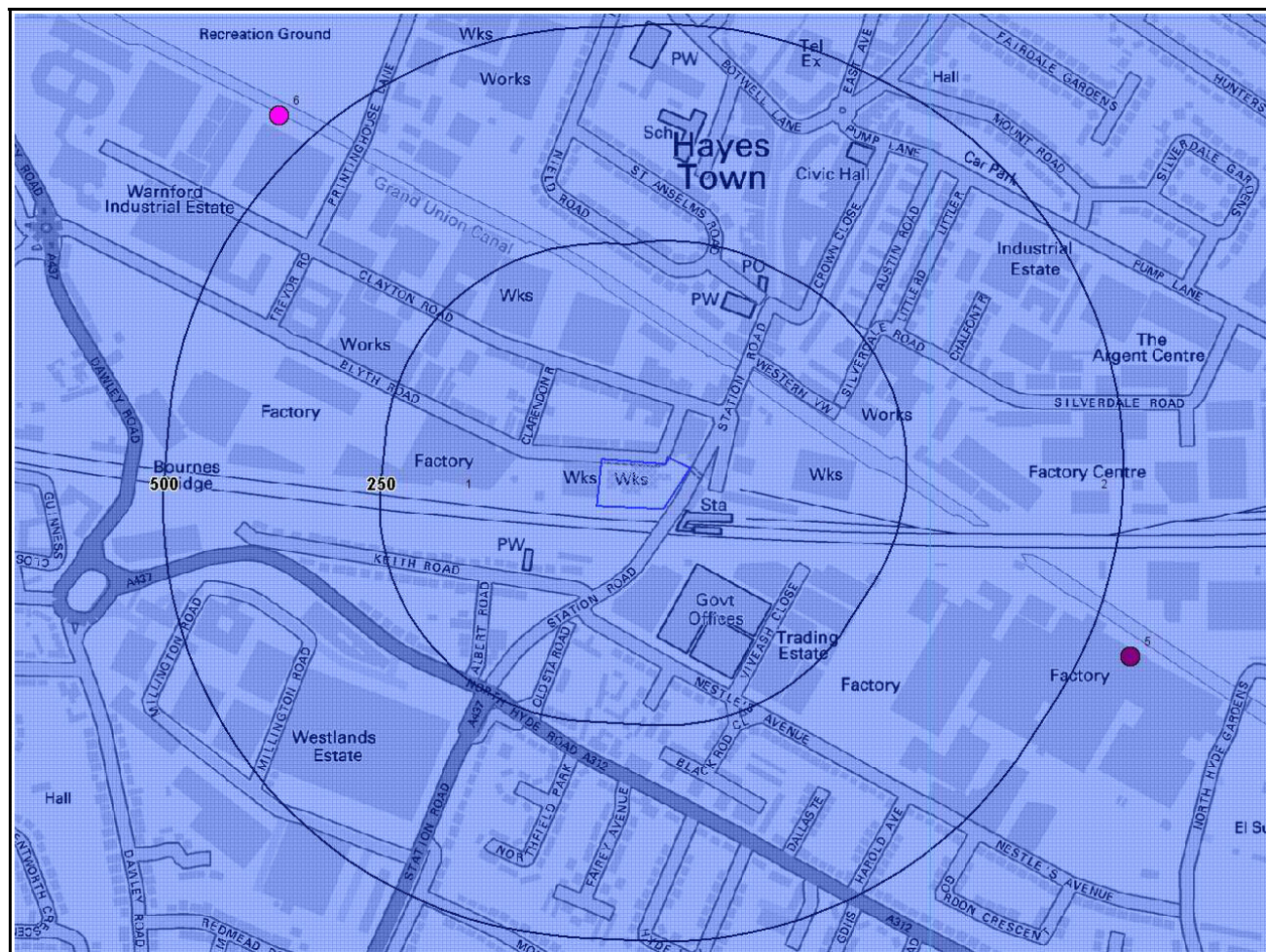
Aquifer Within Superficial Geology Legend



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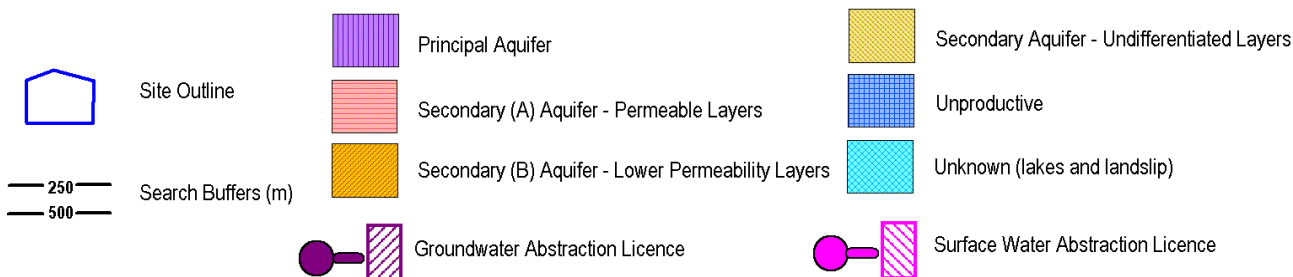
5b. Hydrogeology - Aquifer Within Bedrock Geology and Abstraction Licenses

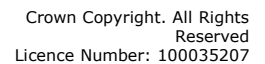
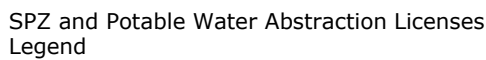


Aquifer Within Bedrock Geology Legend

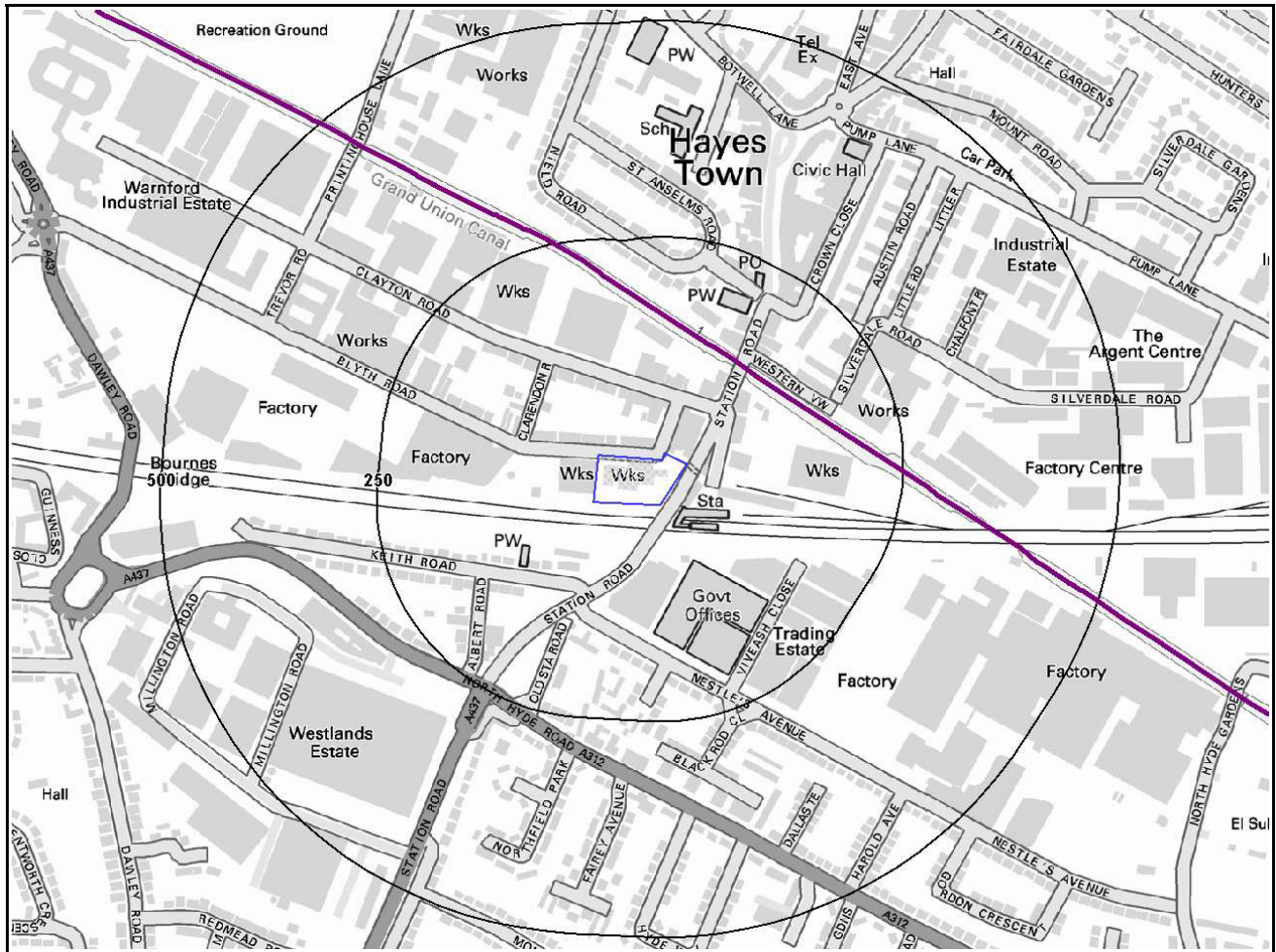


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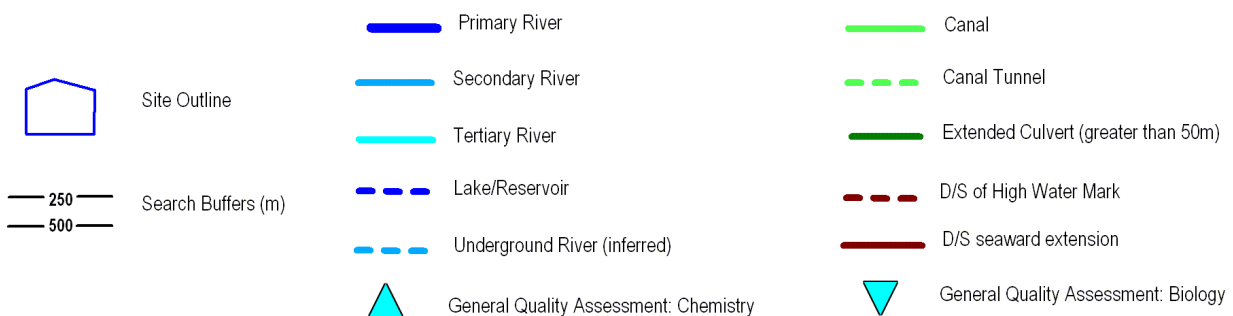




5d. Hydrology – Detailed River Network and River Quality



Hydrology Legend



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5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of productive strata within the superficial geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance [m]	Direction	Designation	Description
1	0.0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
12	157.0	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
13	239.0	SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
14	254.0	E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	277.0	E	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
15	277.0	E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3	279.0	E	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
16	456.0	NW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

5.2 Aquifer within Bedrock Deposits

Are there records of productive strata within the bedrock geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance [m]	Direction	Designation	Description
1	0.0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	277.0	E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 1000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance	Direction	NGR	Details
5	552.0	SE	510230, 179260	Licence No: 28/39/36/0072 Details: Evaporative Cooling Direct Source: Thames Groundwater Point: Nestle Coffee Factory-borehole Data Type: Point Annual Volume (m³): 609984 Max Daily Volume (m³): 1728 Original Application No: WRA/N/1410 Original Start Date: 12/8/2005 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 12/8/2005 Version End Date:

5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 1000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance	Direction	NGR	Details
6	544.0	NW	509249, 179886	Licence No: 28/39/36/0075 Details: Non-Evaporative Cooling Direct Source: Thames Surface Water - Non Tidal Point: Grand Union Canal At Ubs Data Processing Centre, Hayes Data Type: Point Annual Volume (m³): 3101040 Max Daily Volume (m³): 8496 Application No: NPS/WR/003848 Original Start Date: - Expiry Date: 31/3/2025 Issue No: 2 Version Start Date: 22/9/2010 Version End Date:

5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

No

Database searched and no data found.

5.7 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site?

Yes

Biological Quality:

Report Reference: CMAPS-AAA-66153-13868-310311

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (5d):

ID	Distance [m]	Direction	NGR	River Details	Biological Quality Grade				
					2004	2005	2006	2007	2008
Not shown	1052.0	SE	510430, 178680	River Name: Yeading Brook Reach: Conf Yeading Brook East & West - Crane End/Start of Stretch: End of Stretch NGR	E	D	D	E	E
Not shown	1052.0	SE	510430, 178680	River Name: Crane Reach: Yeading Bk - Duke Of N's River (lower) End/Start of Stretch: Start of Stretch NGR	C	C	C	C	C

Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (5d):

ID	Distance [m]	Direction	NGR	River Details	Chemical Quality Grade (Headline Indicator)				
					2004	2005	2006	2007	2008
Not shown	1052.0	SE	510430, 178680	River Name: Crane Reach: Yeading Bk - Duke Of N's River (lower) End/Start of Stretch: Start of Stretch NGR	C	C	B	C	C

5.8 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (5d):

ID	Distance	Direction	Details
1	130.0	NE	River Name: Grand Union Canal Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Canal Catchment: - Drain: NO Main River Status: Currently Undefined

5.9 Surface Water Features

Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance to Surface Water (m)	on-site	0-50	51-250
Surface water features within 250m of the study site	No	No	Yes

6. Environment Agency Flood Map

NW

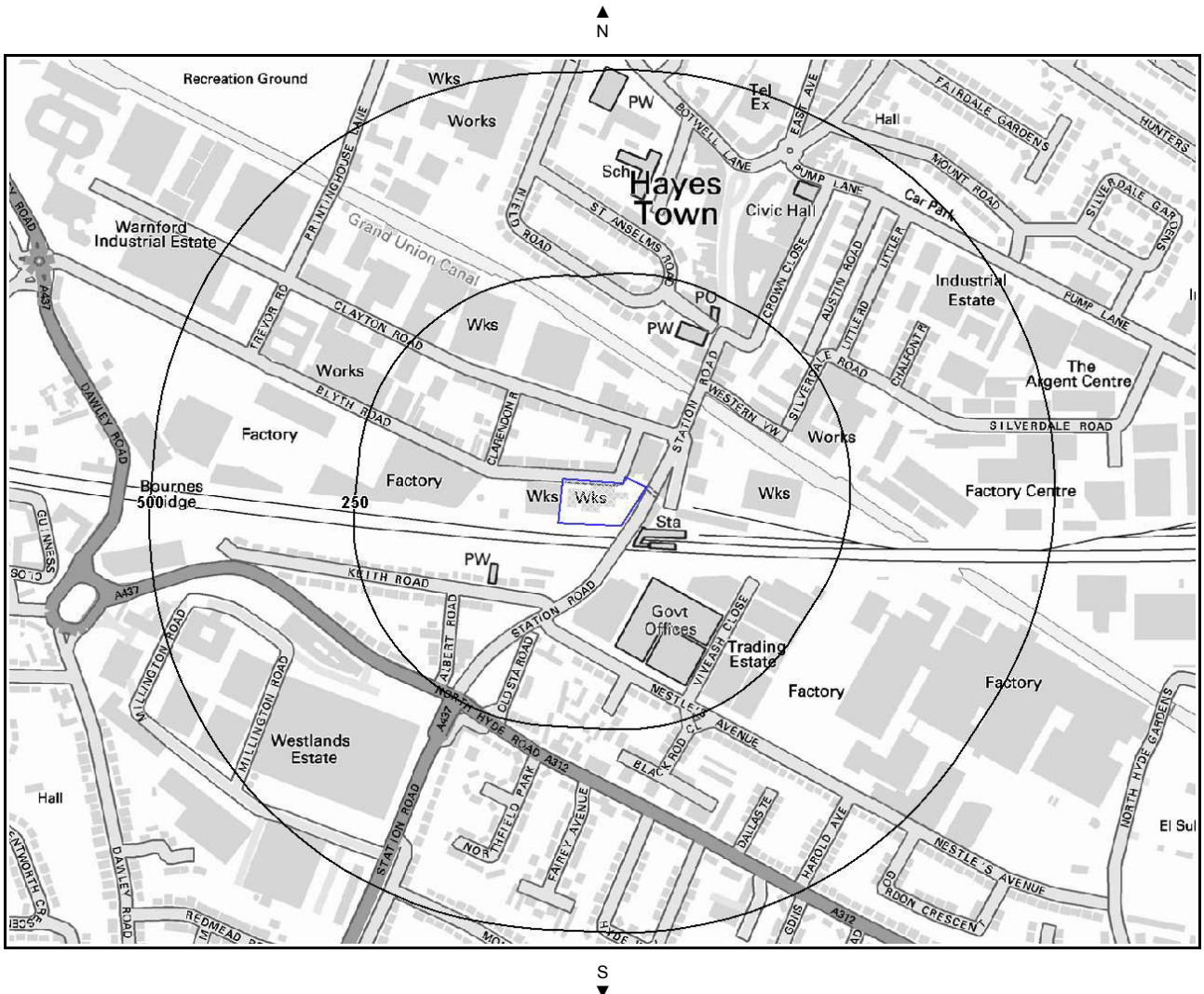
NE

W

E

SW

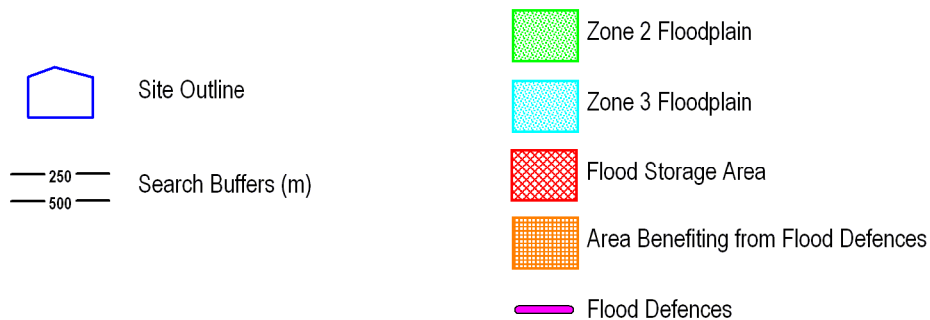
SE



Environment Agency Flood Legend



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6. Flooding

6.1 Zone 2 Flooding

Zone 2 floodplain estimates the annual probability of flooding as one in one thousand (0.1%) or greater from rivers and the sea but less than 1% from rivers or 0.5% from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 2 floodplain? **No**

Database searched and no data found.

6.2 Zone 3 Flooding

Zone 3 estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers and a one in two hundred (0.5%) or greater from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 3 floodplain? **No**

Database searched and no data found.

6.3 Flood Defences

Are there any Flood Defences within 250m of the study site? **No**

6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? **No**

6.5 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? **No**

6.6 Groundwater Flooding Susceptibility Areas

Are there any British Geological Survey groundwater flooding susceptibility flood areas within 50m of the boundary of the study site? **Yes**

What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions? **High**

6.7 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result?

Moderately Low

Notes:

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The **confidence rating** is on a fivefold scale - Low, Moderately Low, Moderate, Moderately High and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

7.Designated Environmentally Sensitive Sites Map



Designated Environmentally Sensitive Sites Legend

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7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 500m of the study site? **No**

Records of Sites of Special Scientific Interest (SSSI) within 500m of the study site: **0**

Database searched and no data found.

Records of National Nature Reserves (NNR) within 500m of the study site: **0**

Database searched and no data found.

Records of Special Areas of Conservation (SAC) within 500m of the study site: **0**

Database searched and no data found.

Records of Special Protection Areas (SPA) within 500m of the study site: **0**

Database searched and no data found.

Records of Ramsar sites within 500m of the study site: **0**

Database searched and no data found.

Records of Local Nature Reserves (LNR) within 500m of the study site: **0**

Database searched and no data found.

Records of World Heritage Sites within 500m of the study site: **0**

Database searched and no data found.

Records of Environmentally Sensitive Areas within 500m of the study site: **0**

Database searched and no data found.

Records of Areas of Outstanding Natural Beauty (AONB) within 500m of the study site: **0**

Database searched and no data found.

Records of National Parks (NP) within 500m of the study site: **0**

Database searched and no data found.

Records of Nitrate Sensitive Areas within 500m of the study site:

0

Database searched and no data found.

Records of Nitrate Vulnerable Zones within 500m of the study site:

0

Database searched and no data found.

8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a GroundSure GeoInsight, available from our website. The following information has been found:

8.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? **Negligible**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

8.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? **Null - Negligible**

Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

8.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? **Negligible**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

8.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? **Null - Negligible**

No indicators for collapsible deposits identified; No special actions required to avoid problems due to collapsible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with collapsible deposits.

8.1.6 Running Sand

What is the maximum Running Sand* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9. Mining

9.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

No

Database searched and no data found.

9.2 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site*?

Negligible

*Please note this data is searched with a 150m buffer.

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Database searched and no data found.

10. Contacts

CENTREMAPS

Telephone: #CustomerHelpLine#
groundsure@centremaps.co.uk



British Geological Survey (England & Wales)

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143. Fax: 0115 936 3276. Email:
enquiries@bgs.ac.uk
Web: www.bgs.ac.uk
BGS Geological Hazards Reports and general geological
enquiries



Environment Agency

National Customer Contact Centre
PO Box 544
Rotherham
S60 1BY
Tel: 08708 506 506
Web: www.environment-agency.gov.uk
Email: enquiries@environment-agency.gov.uk



Health Protection Agency

Chilton, Didcot, Oxon, OX11 0RQ
Tel: 01235 822622 www.hpa.org.uk/radiation
Radon measures and general radon information and
guidance



The Coal Authority

200 Lichfield Lane, Mansfield, Notts NG18 4RG
Tel: 0845 762 6848. DX 716176 Mansfield 5
www.coal-authority.co.uk
Coal mining reports and related enquiries



Ordnance Survey

Romsey Road
Southampton SO16 4GU
Tel: 08456 050505



Local Authority

Authority: Hillingdon London Borough Council
Phone: 01895 250111
Web: www.hillingdon.gov.uk
Address: Civic Centre, High Street, Uxbridge, Middlesex,
UB8 1UW

Get Mapping PLC

Virginia Villas, High Street, Hartley Witney, Hampshire RG27
8NW
Tel: 01252 845444



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This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these conditions unless the context otherwise requires:

"Beneficiary" means the Client or the customer of the Client for whom the Client has procured the Services.

"Commercial" means any building which is not Residential.

"Commission" means an order for Consultancy Services submitted by a Client.

"Consultancy Services" mean consultancy services provided by GroundSure including, without limitation, carrying out interpretation of third party and in-house environmental data, provision of environmental consultancy advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Content" means any data, database or other information contained in a Report or Mapping which is provided to GroundSure by a Data Provider.

"Contract" means the contract between GroundSure and the Client for the performance of the Services which arises upon GroundSure's acceptance of an Order or Commission and which shall incorporate these conditions, the relevant GroundSure User Guide, proposal by GroundSure and the content of any subsequent report, and any agreed amendments in accordance with clause 11.

"Client" means the party that submits an Order or Commission.

"Data Provider" means any third party providing Content to GroundSure.

"Data Report" means reports comprising factual data with no professional interpretation in respect of the level of likely risk and/or liability available from GroundSure.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028 and whose registered office is at Greater London House, Hampstead Road, London NW1 7EJ.

"Intellectual Property" means any patent, copyright, design rights, service marks, moral rights, data protection rights, know-how, trademark or any other intellectual property rights.

"Mapping" an historical map or a combination of historical maps of various ages, time periods and scales available from GroundSure.

"Order" means an order form submitted by the Client requiring Services from GroundSure in respect of a specified Site.

"Order Website" means online platform via which Orders may be placed.

"Report" means a Risk Screening Report or Data Report for commercial or residential property available from GroundSure relating to the Site prepared in accordance with the specifications set out in the relevant User Guide.

"Residential" means any building used as or suitable for use as an individual dwelling.

"Risk Screening Report" means one of GroundSure's risk screening reports, comprising factual data with interpretation in respect of the level of likely risk and/or liability, excluding **"Consultancy Services"**.

"Services" means the provision of any Report, Mapping or Consultancy Services which GroundSure has agreed to carry out for the Client/Beneficiary on these terms and conditions in respect of the Site.

"Site" means the landsite in respect of which GroundSure provides the Services.

"User Guide" means the relevant current version of the user guide, available upon request from GroundSure.

2 Scope of Services

2.1 GroundSure agrees to carry out the Services in accordance with the Contract and to the extent set out therein.

2.2 GroundSure shall exercise all the reasonable skill, care and diligence to be expected of experienced environmental consultants in the performance of the Services.

2.3 The Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in the Contract.

2.4 Terms and conditions appearing on a Client's order form, printed stationery or other communication, including invoices, to GroundSure, its employees, servants, agents or other representatives or any terms implied by custom, practice or course of dealing shall be of no effect and these terms and conditions shall prevail over all others.

2.5 In the event that a Client/Beneficiary opts to take out insurance in conjunction with or as a result of the Services, such insurance shall be subject solely to the terms of any policy issued to it in that respect and GroundSure will have no liability therefore.

2.6 GroundSure's quotations/proposals are valid for a period of 30 days only. GroundSure reserves the right to withdraw any quotation at any time before GroundSure accepts an Order or Commission. GroundSure's acceptance of an Order or Commission shall be effective only where such acceptance is in writing and signed by GroundSure's authorised representative or where accepted via GroundSure's Order Website.

3 The Client's obligations

3.1 The Client shall ensure the Beneficiary complies with and is bound by the terms and conditions set out in the Contract and shall provide that GroundSure may in its own right enforce such terms and conditions against the Beneficiary pursuant to the Contracts (Rights of Third Parties) Act 1999. The Client shall be liable for all breaches of the Contract by the Beneficiary as if they were breaches by the Client. The Client shall be solely responsible for ensuring that the Report/Mapping ordered is appropriate and suitable for the Beneficiary's needs.

3.2 The Client shall (or shall procure that the Beneficiary shall) supply to GroundSure as soon as practicable and without charge all information necessary and accurate relevant data including any specific and/or unusual environmental information relating to the Site known to the Client/Beneficiary which may pertain to the Services and shall give such assistance as GroundSure shall reasonably require in the performance of the Services (including, without limitation, access to a Site, facilities and equipment as agreed in the Contract).

3.3 Where Client/Beneficiary approval or decision is required, such approval or decision shall be given or procured in reasonable time as not to delay or disrupt the performance of any other part of the Services.

3.4 The Client shall not and shall not knowingly permit the Beneficiary to, save as expressly permitted by these terms and conditions, re-sell, alter, add to, amend or use out of context the content of any Report, Mapping or, in respect of any Services, information given by GroundSure. For the avoidance of doubt, the Client and Beneficiary may make the Report, Mapping or GroundSure's findings available to a third party who is considering acquiring the whole or part of the Site, or providing funding in relation to the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.5 The Client is responsible for maintaining the confidentiality of its user name and password if using GroundSure's internet ordering service and accepts responsibility for all activity that occurs under such account and password.

4 Reliance

4.1 Upon full payment of all relevant fees and subject to the provisions of these terms and conditions, the Client and Beneficiary are granted an irrevocable royalty-free licence to access the information contained in a Report, Mapping or in a report prepared by GroundSure in respect of or arising out of Consultancy Services. The Services may only be used for the benefit of the Client and those persons listed in clauses 4.2 and 4.3.

4.2 In relation to Data Reports, Mapping and Risk Screening Reports, the Client shall be entitled to make Reports available to (i) the Beneficiary, (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate), (iv) the first purchaser or first tenant of the Site (v) the professional advisers and lenders of the first purchaser or tenant of the Site. Accordingly GroundSure shall have the same duties and obligations to those persons in respect of the Services as it has to the Client and those persons shall have the benefit of any of the Client's rights under the Contract as if those persons were parties to the Contract. For the avoidance of doubt, the limitations of GroundSure's liability as set out in clauses 7 and 11.6 shall apply.

4.3 In relation to Consultancy Services, reliance shall be limited to the Client, Beneficiary and named parties on the Report.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise agreed in writing with GroundSure, any other party considering the information supplied by GroundSure as part of the Services, including (but not limited to) insurance underwriters, does so at their own risk and GroundSure has no legal obligations to such party unless otherwise agreed in writing.

4.5 The Client shall not and shall not knowingly permit any person (including the Beneficiary) who is provided with a copy of any Report, (except as permitted herein or by separate agreement with GroundSure) to: (a) remove, suppress or modify any trade mark, copyright or other proprietary marking from the Report or Mapping; (b) create any product which is derived directly or indirectly from the data contained in the Report or Mapping; (c) combine the Report or Mapping with, or incorporate the Report or Mapping into any other information data or service; or (d) re-format or otherwise change (whether by modification, addition or enhancement) data or images contained in the Report or Mapping.

4.6 Notwithstanding clause 4.5, if the Client acts in a professional capacity, it may make reasonable use of a Report and/or findings made as a result of Consultancy Services to advise Beneficiaries. However, GroundSure shall have no liability in respect of any opinion or report given to such Beneficiaries by the Client or a third party.

5 Fees and Disbursements

5.1 GroundSure shall charge the Client fees at the rate and frequency specified in the Contract together, in the case of Consultancy Services, with all proper disbursements incurred by GroundSure in performing the Services. For the avoidance of doubt, the fees payable for the Services are as set out in GroundSure's written proposal, Order Website or Order acknowledgement form. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services.

5.2 Unless GroundSure requires prepayment, the Client shall promptly pay all fees disbursements and other monies due to GroundSure in full without deduction, counterclaim or set off together with such value added tax or other tax as may be required within 30 days from the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("**Payment Date**"). GroundSure reserves the right to charge interest which shall accrue on a daily basis from 30 days after the date of Payment Date until the date of payment (whether before or after judgment) at the rate of five per cent per annum above the Bank of England base rate from time to time.

5.3 In the event that the Client disputes the amount payable in respect of GroundSure's invoice it shall notify GroundSure no later than 28 days after the date thereof that it is in dispute. In default of such notification the Client shall be deemed to have agreed the amount thereof. As soon as reasonably practicable following receipt of a notification in respect of any disputed invoice, a member of the management team at GroundSure shall contact the Client and the parties shall use all reasonable endeavours to resolve the dispute.

6 Intellectual Property

6.1 Subject to the provisions of clause 4.1, the Client and the Beneficiary hereby acknowledge that all Intellectual Property in the Services and Content are and shall remain owned by either GroundSure or the Data Providers and nothing in these terms purports to transfer or assign any rights to the Client or the Beneficiary in respect of the Intellectual Property.

6.2 The Client shall acknowledge the ownership of the Content where such Content is incorporated or used in the Client's own documents, reports, systems or services whether or not these are supplied to a third party.

6.3 Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client acknowledges that the proprietary rights subsisting in copyright, database rights and any other intellectual property rights in respect of any data and information contained in any Report are and shall remain (subject to clause 11.1) the property of GroundSure and/or any third party that has supplied data or information used to create a Report, and that these conditions do not purport to grant, assign or transfer any such rights in respect thereof to a Client and/or a Beneficiary.

6.5 The Client and each of the parties set out in clause 4.2 are permitted to make up to 8 (commercial) or 2 (residential) printed copies of the Report only. Further copies of the Report may not be made in whole or in part without the prior written permission of GroundSure who shall be entitled to make a charge for each additional copy.

6.6 The Client shall (and shall procure that any recipients of the Report as permitted under clause 4.2 shall):

(i) not remove, suppress or modify any trademark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the data contained in the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service; and

(v) not reformat or otherwise change (whether by modification, addition or enhancement), data contained in the Services (save that those acting in a professional capacity to the Beneficiary shall not be in breach of this clause 6.6(v) where such reformatting is in the normal course of providing advice based upon the Services), in each case of parts (iii) to (v) inclusive, whether or not such product or report is produced for commercial profit or not.

6.7 The Client and/or Beneficiary shall and shall procure that any party to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability

7.1 Nothing in these terms and conditions shall limit GroundSure's liability for causing death or personal injury through negligence or willful default.

7.2 Save as otherwise set out in these conditions, any information provided by one party ("**Disclosing Party**") to the other party ("**Receiving Party**") shall be treated as confidential except so far as authorised by the Disclosing Party to provide such information in whole or in part to a third party.

7.3 Nothing in these conditions shall affect the statutory rights of a consumer under the applicable consumer protection legislation from time to time.

7.4 In relation to Data Reports, Mapping and Risk Screening Reports, GroundSure's liability under the Contract shall cease upon the expiry of six years from the date when the Beneficiary became aware that it may have a claim against GroundSure in respect of the Services provided always that there shall be no liability at the expiration of twelve years from the completion of the Contract. For the avoidance of doubt, any claims in respect of which proceedings are notified to GroundSure in writing prior to the expiry of the time periods referred to in this clause shall survive the expiry of those time periods provided any such claim is actually commenced within six months of notification.

7.5 In relation to Consultancy Services GroundSure's liability under the Contract shall cease upon the expiry of six years from the date the Services were completed.

7.6 GroundSure shall not be liable to the Client or any person to whom the Client provides a copy of a Data Report, Mapping or Risk Screening Report in any circumstances whatsoever unless arising out of a breach on its part of the obligations set out in the Contract.

7.7 GroundSure shall not be liable if the Data Reports, Mapping or Risk Screening Report are used otherwise than as provided or referred to in these conditions and the relevant User Guide.

7.8 Subject to the provisions of clause 7.3, GroundSure makes no representation, warranties, express or implied, as to the accuracy, reliability, completeness, validity or fitness for purpose of any Content and shall not be liable for any omission, error or inaccuracy in relation thereto unless GroundSure should reasonably have been alerted to any omission, error or inaccuracy in the Content.

7.9 Subject to the provisions of clause 7.1 and irrespective of whether multiple parties make use of the same Services the total liability of GroundSure under or in connection with the Contract, whether in contract in tort for breach of statutory duty or otherwise shall not exceed £10 million per claim or series of connected claims,

7.10 Whilst GroundSure will use all reasonable endeavours to maintain operability of its internet ordering service it will not be liable for any loss or damages caused by a delay or loss of use of such service. The Client shall use GroundSure's internet ordering service at its own risk. GroundSure shall not be responsible for any damage to a Client or permitted assignee's computer, software, modem, telephone or other property resulting from the use of GroundSure's internet ordering service.

7.11 The Client accepts, and shall use all reasonable endeavours to procure that anyone who is provided with a copy of the Report accepts, that it has no claim or recourse to any Data Provider or to GroundSure in respect of the acts or omissions of such Data Providers including Content supplied by them.

7.12 GroundSure shall provide the Services using reasonable skill and care, however, GroundSure shall not be liable for any inaccurate statement or risk rating in a Report which resulted from a reasonable interpretation of the Content.

7.13 Subject to clause 7.1, GroundSure shall not be liable to the Client, the Beneficiary or any third party in contract, tort (including, without limitation, negligence) or for misrepresentation or breach of statutory duty or otherwise in respect of any loss of profits, goodwill, revenue or opportunity, or any indirect or consequential loss (even if such loss was reasonably foreseeable).

7.14 GroundSure undertakes for the duration of the liability periods referred to in clauses 7.4 and 7.5 to maintain professional indemnity insurance in respect of its liabilities under this Contract. GroundSure shall produce evidence of such insurance if requested by the Client. A greater level of cover may be available upon request and agreement with the Client.

8. GroundSure right to suspend or terminate

8.1 In the event that GroundSure reasonably believes that the Client or Beneficiary as applicable has not provided the information or assistance required to enable the proper performance of the Services, GroundSure shall be entitled on fourteen days written notice to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure may additionally terminate the Contract immediately on written notice in the event that:

(i) the Client shall fail to pay any sum due to GroundSure within 28 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an Administration Order made against it or if a Receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any material term of the Contract (including, but not limited to, the obligations in clause 4) incapable of remedy or if remediable, is not remedied within 14 days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.2, the Client may at any time after commencement of the Services by notice in writing to GroundSure require GroundSure to terminate or suspend immediately performance of all or any of the Services.

9.2 The Client waives all and any right of cancellation it may have under the Consumer Protection (Distance Selling) Regulations 2000 (as amended) in respect of the Order of a Report/Mapping. This does not affect the Beneficiary's statutory rights.

10. Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination or any suspension of the Services, GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client/Beneficiary any property of the Client/ Beneficiary in GroundSure's possession or control.

10.2 In the event of termination/suspension of the Contract under clauses 8 or 9, the Client shall pay to GroundSure all and any fees payable in respect of the performance of the Services up to the date of termination/suspension. In respect of any Consultancy Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination/suspension of the Contract.

11. General

11.1 The mapping contained in the Services is protected by Crown copyright and must not be used for any purpose outside the context of the Services or as specifically provided in these terms.

11.2 GroundSure reserves the right to amend these terms and conditions. No variation to these terms shall be valid unless signed by an authorised representative of GroundSure.

11.3 No failure on the part of GroundSure to exercise and no delay in exercising, any right, power or provision under these terms and conditions shall operate as a waiver thereof.

11.4 Save as expressly provided in clauses 4.2, 4.3, 6.3 and 11.5, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

11.5 The Secretary of State for Communities and Local Government acting through Ordnance Survey may enforce breach of clause 6.1 of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

11.6 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Data Providers; or

(viii) changes in law.

11.7 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

11.8 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email and on the second working day after the day of posting if sent by first class post.

11.9 The Contract constitutes the entire contract between the parties and shall supersede all previous arrangements between the parties.

11.10 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

11.11 These terms and conditions shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with these terms and conditions shall be subject to the exclusive jurisdiction of the English courts.

11.12 If the Client or Beneficiary has a complaint about the Services, notice can be given in any format eg writing, phone, email to the Compliance Officer at GroundSure who will respond in a timely manner.

©GroundSure Limited – January 2011

APPENDIX D

BGS Historic Borehole Records

2

TQ 07/6
A-Q

269/58 (cont.)

(q) Surface +c.100. Shaft 20. Fassnidge, 1937.

(f) Made	Made ground	...	1½	1½
1½				
Drift	Clay and gravel	...	2½	4
13½	Ballast	...	11	15
	Brown clay	...	2	17
LC	Blue clay	...	115	132
139	Sandy clay	...	17	149
	Sand and pebbles	...	5	154
	Mottled clay	...	30	184
	Sandy mottled clay	...	8	192
	Mottled clay	...	11	203
RB	Blue sandy clay	...	5	208
69½	Sandy mottled clay	...	11	219
	Blue clay	...	2	221
	Black clay and pebbles	...	2	223
	Flints	...	½	223½
UCk	Chalk and flints	...	244½	468
244½				
(n) Drift)				
LC)	...	...	212½	212½
RB)				
UCk)				
MCk)	...	...	407½	620

(n)		(and any additional remarks)		Feet	Inches	Feet	Inches
Drift LC RB 212½	Pit dug by clients Blue Clay Mottled clay Sandy clay Sand & pebbles Grey Sand Green coated flints Chalk & flints	DRIFT + L.C	RB AM. 13/14/02	16	0		
				150	0		
				19	0		
				10	0		
				10	0		
UCK MCK				7	0		
				6	212	6	
				407	6	620	0
BK 9/10/64		Sum 26 ft. 4 in.					

TQ 07/6A-P

269/58 Electric and Musical Industries Ltd., Dawley Works, Blyth Road, Hayes (formerly The Gramophone Co., Ltd.)

(a) Surface +109. Bore 500. Lining tubes: 30 x 11½ in from 6 down; 240 x 8½ in from ½ above. Ck -127. R.W.L. +86. *Isler, 1908.*

Suction -272. Yield 7,000 g.p.h. Air lift. Hardness: P. 0, T. 89. Anal. 1935. P.W.L. -176. Suction -219%. Yield 5,000 g.p.h. Electric pump. 1938. R.W.L. -99. P.W.L. -200 (after 5 h.). Yield 3,500 g.p.h. P.W.L. -219 (after 125 h.). Yield 2,800 g.p.h. (125 h. test). Hardness: P. 0, T. 45. Jan. 1939. R.W.L. -120. P.W.L. -195. Yield 1,250 g.p.h. Oct. 1948. R.W.L. -129. P.W.L. -205. Yield 880 g.p.h. Nov. 1952. R.W.L. -124. July. P.W.L. -181. Yield 1,000 g.p.h. Nov. 1964.

(b) Surface +109. Bore 501½. Lining tubes: x 14 in to 231 down. R.W.L. +56. Suction -119. Yield 14,000 g.p.h. *Isler, 1917.*

Suction -169. 1934. Yield 8,000 g.p.h. 1935. P.W.L. -167. Yield 4,000 g.p.h. 1938. R.W.L. -109. P.W.L. -169 (after 5 h.). Yield 5,000 g.p.h. falling to 3,000 g.p.h. (125 h. test). Hardness: P. 0, T. 78. Jan. 1939. Suction lowered. Date unknown. R.W.L. -122. P.W.L. -191. Yield 2,000 g.p.h. Oct. 1948. R.W.L. -130. Nov. 1952; -129%. June. P.W.L. -219. Yield 1,300 g.p.h. Nov. 1964.

(c) Surface +109. Shaft 18. *By the Co., 1919.*

Suction +92. Yield 5,000 g.p.h. 1935.

(d) Surface +109. Shaft 16. *By the Co., 1919.*

Suction +94. Yield 426 g.p.h. 1935.

(e) Surface +109. Bore 466½. Lining tubes: 35½ x 21 in from 5 down; 220½ x 14 in from 10 down. Ck -109. R.W.L. +22. P.W.L. -59. Suction -136. Yield 7,000 g.p.h. *Isler, 1924.*

Suction -220. Yield 5,600 g.p.h. Electric pump. Aug. 1938. R.W.L. -110. P.W.L. -140 (after 5 h.). Yield 4,900 g.p.h. P.W.L. -214. Yield 4,690 g.p.h. (125 h. test). Hardness: P. 0, T. 67. Jan. 1939. R.W.L. -120. P.W.L. -191%. Yield 6,000 g.p.h. Oct. 1948. R.W.L. -124. P.W.L. -225. Yield 3,640 g.p.h. Nov. 1952. R.W.L. -129. P.W.L. -211. Yield 2,100 g.p.h. Nov. 1964.

(f) Surface +109. Lining tubes: 20 x 23 in from 7 down; 226 x 18 in from 2 down. Ck -114½. R.W.L. -6. P.W.L. -90. Suction -144. Yield 25,800 g.p.h. *Isler, 1927.*

Suction -185. Yield 12,500 g.p.h. Jan. 1937. R.W.L. -105. P.W.L. -165. (after 5 h.). Yield 12,000 g.p.h. P.W.L. -185. Yield 7,000 g.p.h. (125 h. test). Hardness: P. 0, T. 65. Jan. 1939. R.W.L. -122½. P.W.L. -185. Yield 4,000 g.p.h. Oct. 1948. Suction lowered. Before Oct. 1949. R.W.L. -131½. P.W.L. -215½. Yield 2,850 g.p.h. Nov. 1952. R.W.L. -129. Oct. P.W.L. -223. Yield 1,500 g.p.h. Nov. 1964.

(g) Surface +109. Shaft 19. *By the Co., 1928.*

Suction +91. Yield 4,000 g.p.h. 1935.

(h) (Filled in). Surface +109. Shaft 13. *By the Co., 1928.*

Suction +97. Yield 153 g.p.h. 1935.

(j) Surface +109. Bore 501 x 21 in. Lining tubes: 246 x 21 in from surface. Ck -126½. Water struck at -141 to -145 and -229 to -233. R.W.L. -16. P.W.L. -75. Yield 14,500 g.p.h. *LeGrand, 1928.*

Suction -169. Yield 6,000 g.p.h. Hardness: P. 0, T. 100. Anal. 1935. R.W.L. -103. P.W.L. -169 (after 5 h.). Yield 4,750 g.p.h. falling to 3,500 g.p.h. (125 h. test). Hardness: P. 0, T. 70. Jan. 1939. R.W.L. -120%. P.W.L. -141. Yield 2,000 g.p.h. Oct. 1948. R.W.L. -128. P.W.L. -148%. Yield 700 g.p.h. Nov. 1952. R.W.L. -127%. P.W.L. -191. Yield 1,000 g.p.h. Nov. 1964.

(k) Surface +c.100. Shaft 15. *Newton and Hill, 1932.*

Suction +c.86. Yield 350 g.p.h. 1935.

(l) Surface +109. Shaft 21. *Fassnidge, 1934.*

Suction +89. Yield 417 g.p.h. 1935.

(m) Surface +109. Shaft 20½. *By the Co., 1934.*

Suction +89½. Yield 8,000 g.p.h. 1935.

(n) Surface +c.110. Lining tubes: 15 x 18 in from 15 down; 212½ x 15 in from 4½ down. Ck -c.102½. R.W.L. -c.85. P.W.L. -c.92. Yield 16,554 g.p.h. *LeGrand, Nov. 1937.*

Suction -c.177. June 1938. R.W.L. -c.80. P.W.L. -c.85 (after 5 h.). Yield 14,000 g.p.h. P.W.L. -c.104. Yield 14,000 g.p.h. (125 h. test). Hardness: P. 0, T. 97. Jan. 1939. R.W.L. -c.120. P.W.L. -c.170. Yield 15,000 g.p.h. Oct. 1948. R.W.L. -c.120. P.W.L. -c.190. Yield 14,000 g.p.h. Nov. 1952. R.W.L. -c.104. P.W.L. -c.197. Yield 4,400 g.p.h. // Acid treated. R.W.L. -c.96. P.W.L. -c.120. Yield 27,000 g.p.h. Before July 1960. R.W.L. -c.120. P.W.L. -c.150. Yield 12,000 g.p.h. Nov. 1964.

(p) Surface +c.110. Shaft 21. *Fassnidge, 1937.*

269/58 (cont.)

(q) Surface +c.100. Shaft 20. Fassnidge, 1937.

(f) Made	Made ground	...	1½	1½
1½				
Drift	Clay and gravel	...	2½	4
13½	Ballast	...	11	15
	Brown clay	...	2	17
LC	Blue clay	...	115	132
139	Sandy clay	...	17	149
	Sand and pebbles	...	5	154
	Mottled clay	...	30	184
	Sandy mottled clay	...	8	192
	Mottled clay	...	11	203
RB	Blue sandy clay	...	5	208
69½	Sandy mottled clay	...	11	219
	Blue clay	...	2	221
	Black clay and pebbles	...	2	223
	Flints	...	½	223½
UCk	Chalk and flints	...	244½	468
244½				

(n) Drift)				
LC)	...	...	212½	212½
RB)				
UCk)				
MCK)	...	...	407½	620

269/60 Messrs. C. C. Wakefield and Co., Ltd., Crown Wharf, Hayes
(formerly Valentin Ord and Co., Ltd.). (Disused)

Surface +99. Lining tubes: 224½ × 9½ in from 1½ down; 33½ × 8½ in from 218 down.
Ck -138. Water struck at -186. R.W.L. +12. Yield c. 2,500 g.p.h. Hardness: P. 39,
T. 61. Anal. LeGrand, Feb. 1923.
R.W.L. +7. Sept. 1923.

Made	...	...	1½	1½
Drift	...	...	10½	12
LC	...	...	150	162
RB	...	...	75	237
UCk	...	...	163	400

269/62 Littleton House, Littleton. (Disused)

(a) L.M. p. 130. Surface +c.42. Bore. Overflowed at +c.58 at 60 g.p.h. 1835.
Supply failed. 1871.

(b) Sheet Mem. p. 108. Surface +42. Bore 700. Ck -528. Overflowed at +45 at
7½ g.p.h. Tilley, T., 1871.

(a) Made	...	...	8	8
Drift	...	...	22	30
Bg	...	...	52	82
LC)				
? RB)	...	...	438	520

BEAR LANE, SOUTHWARK, S.E.1.

Telegraphic Address: "ISLER, LONDON."

Telephone No.: WATERLOO 7044 (3 lines).

BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at Spout Lane East,

for

Mid London County Council.Bored by F. Jones Date Commenced 25.2.42. 194Water Levels: Standing..... Ft. Pumping..... Ft. „ Completed 5.4.43. 194

Supply..... Galls. per hour. Analysis if made.....

Lined with..... Ft. Ins. of..... Ins. Tubes..... Ft. above below Surface.

Boring Stage above below Ground or Street Level..... Ft. Height above Sea Level..... Ft.

Stratum

Thickness.

Total.

Water le

Rods in Ro
o

TQ07NW/16 0464 7629

Trial BOREHOLE No. 1.Top soil and roots
Peat (sandy)
Ballast
Blue Clay

2	0		
2	9	4	9
6	3	11	0
2	0	13	0

Standing water level - 10"

" /17 0497 7626

Trial Hole No. 2.Top soil
Ballast
Sandy Clay & Stones
Blue Clay

3	3		
14	9	18	0
	6	18	6
2	0	20	6

Standing water level - 3'7"

" /15 0471 7603

Trial Hole No. 3.Top soil
Sandy Peat
Ballast
Blue Clay

1	0		
1	8	2	8
7	0	9	8
2	4	12	0

Standing water level - 1'0"

" /14 0477 7574

Trial Hole No. 4.Top soil
Dirty Ballast
Sand, Stones & Flint
Ballast
Blue Clay

2	0		
1	0	3	0
1	6	4	6
10	0	14	6
2	0	16	6

Standing water level - 4'0"

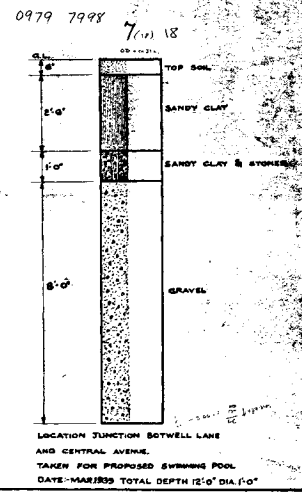
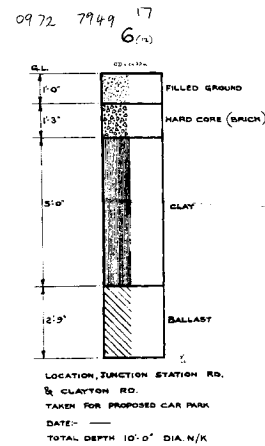
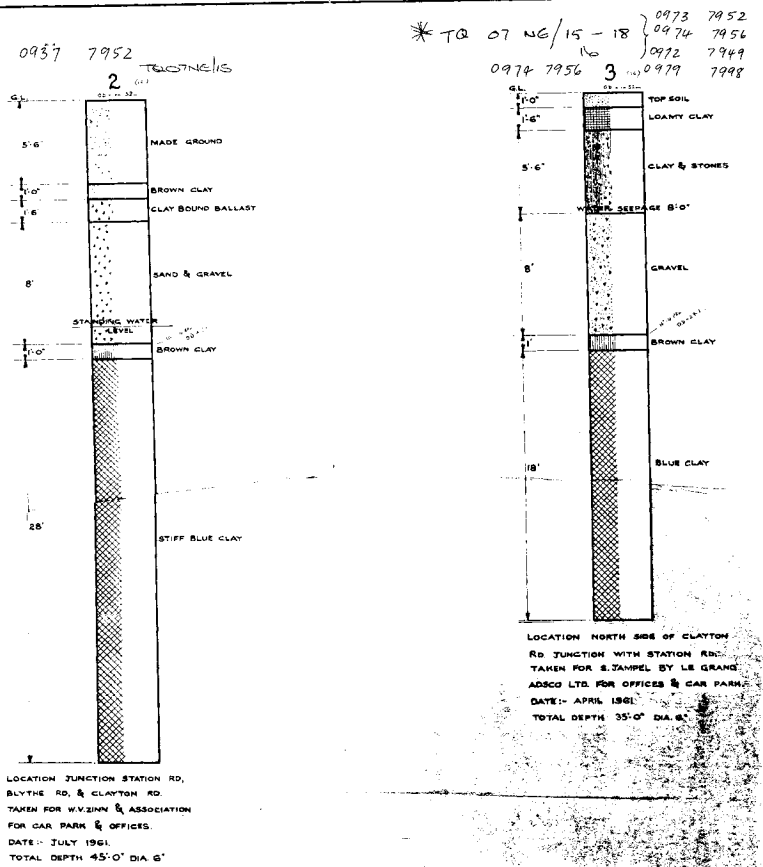
0505 7570

Trial Hole No. 5.Top soil
Dirty Ballast
Sand, Stone & Flint
Ballast
Sandy Clay & Stones
Blue Clay

2	0		
2	0	4	0
1	0	5	0
13	0	18	0
3	0	21	0
2	0	23	0

D. T. C.

Date rec'd
25/6/46



HAYES & HARLINGTON URBAN DISTRICT

DIAGRAMS OF BORE HOLES IN THE URBAN DISTRICT OF HAYES &

BY ———
BY I.O'C.
BY I.O'C.
AS ABOVE
JUNE 1962

BEAR LANE, SOUTHWARK, S.E.1.

Telegraphic Address: "ISLER, LONDON."

Telephone No.: WATERLOO 7044 (3 lines).

BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at Spout Lane East,

for

Mid London County Council.Bored by F. G. Jones Date Commenced 25.1.42. 194Water Levels: Standing..... Ft. Pumping..... Ft. „ Completed 5.4.43. 194

Supply..... Galls. per hour. Analysis if made.....

Lined with..... Ft. Ins. of..... Ins. Tubes..... Ft. above below Surface.

Boring Stage above below Ground or Street Level..... Ft. Height above Sea Level..... Ft.

Stratum

Thickness.

Total.

Water level

Rods in Rods out

TQ07NW/16 0464 7629

Trial BOREHOLE No. 1.Top soil and roots
Peat (sandy)
Ballast
Blue Clay

2	0		
2	9	4	9
6	3	11	0
2	0	13	0

Standing water level - 10"

" /17 0497 7626

Trial Hole No. 2.Top soil
Ballast
Sandy Clay & Stones
Blue Clay

3	3		
14	9	18	0
	6	18	6
2	0	20	6

Standing water level - 3'7"

" /15 0471 7603

Trial Hole No. 3.Top soil
Sandy Peat
Ballast
Blue Clay

1	0		
1	8	2	8
7	0	9	8
2	4	12	0

Standing water level - 1'0"

" /14 0477 7574

Trial Hole No. 4.Top soil
Dirty Ballast
Sand, Stones & Flint
Ballast
Blue Clay

2	0		
1	0	3	0
1	6	4	6
10	0	14	6
2	0	16	6

Standing water level - 4'0"

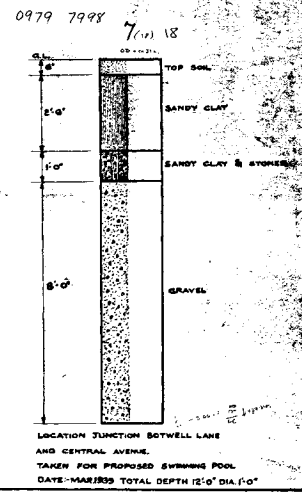
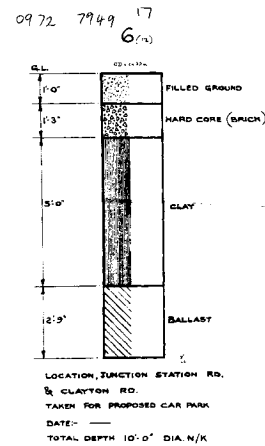
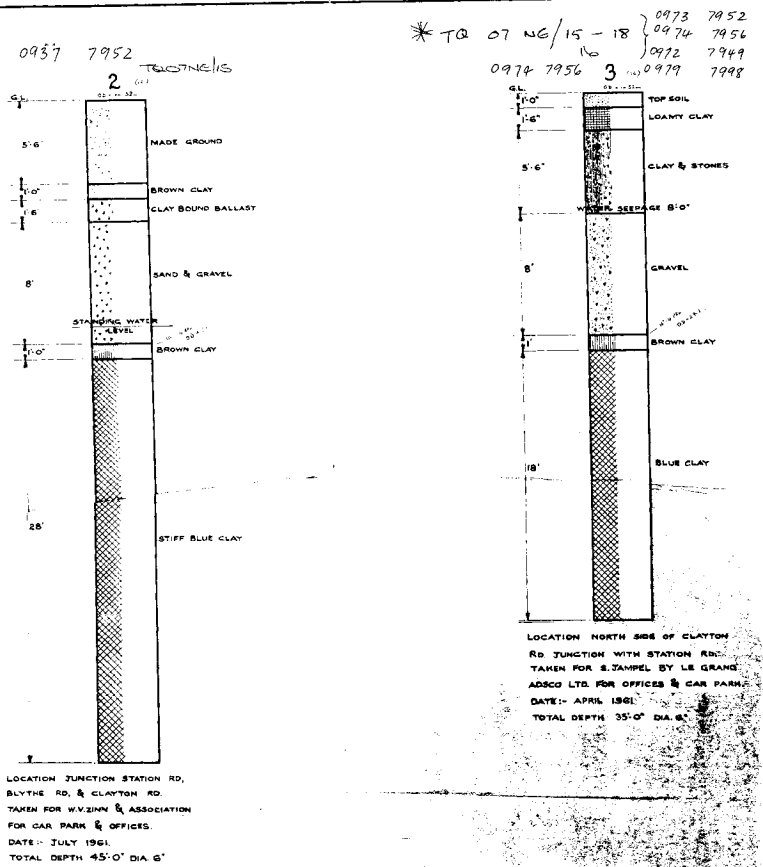
0505 7570

Trial Hole No. 5.Top soil
Dirty Ballast
Sand, Stone & Flint
Ballast
Sandy Clay & Stones
Blue Clay

2	0		
2	0	4	0
1	0	5	0
13	0	18	0
3	0	21	0
2	0	23	0

D. T. C.

Date rec'd
25/6/46



HAYES & HARLINGTON URBAN DISTRICT

DIAGRAMS OF BORE HOLES IN THE URBAN DISTRICT OF HAYES &

BY ———
BY I.O'C.
BY I.O'C.
AS ABOVE
JUNE 1962

BEAR LANE, SOUTHWARK, S.E.1.

Telegraphic Address: "ISLER, LONDON."

Telephone No.: WATERLOO 7044 (3 lines).

BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at Spout Lane East,

for

Mid Devon County Council.Bored by F. Jones Date Commenced 25.1.42. 194Water Levels: Standing..... Ft. Pumping..... Ft. „ Completed 5.4.43. 194

Supply..... Galls. per hour. Analysis if made.....

Lined with..... Ft. Ins. of..... Ins. Tubes..... Ft. above below Surface.

Boring Stage above below Ground or Street Level..... Ft. Height above Sea Level..... Ft.

Stratum

Thickness.

Total.

Water le

Rods in Ro
o

TQ07NW/16 0464 7629

Trial BOREHOLE No. 1.Top soil and roots
Peat (sandy)
Ballast
Blue Clay

2	0		
2	9	4	9
6	3	11	0
2	0	13	0

Standing water level - 10"

" /17 0497 7626

Trial Hole No. 2.Top soil
Ballast
Sandy Clay & Stones
Blue Clay

3	3		
14	9	18	0
	6	18	6
2	0	20	6

Standing water level - 3'7"

" /15 0471 7603

Trial Hole No. 3.Top soil
Sandy Peat
Ballast
Blue Clay

1	0		
1	8	2	8
7	0	9	8
2	4	12	0

Standing water level - 1'0"

" /14 0477 7574

Trial Hole No. 4.Top soil
Dirty Ballast
Sand, Stones & Flint
Ballast
Blue Clay

2	0		
1	0	3	0
1	6	4	6
10	0	14	6
2	0	16	6

Standing water level - 4'0"

0505 7570

Trial Hole No. 5.Top soil
Dirty Ballast
Sand, Stone & Flint
Ballast
Sandy Clay & Stones
Blue Clay

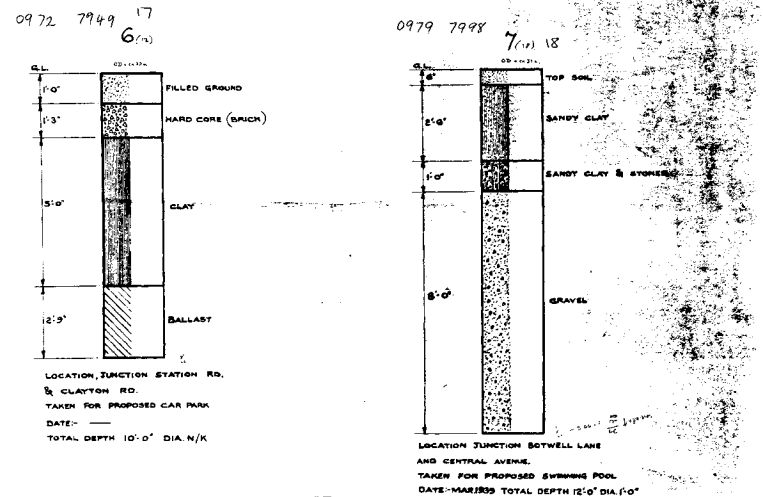
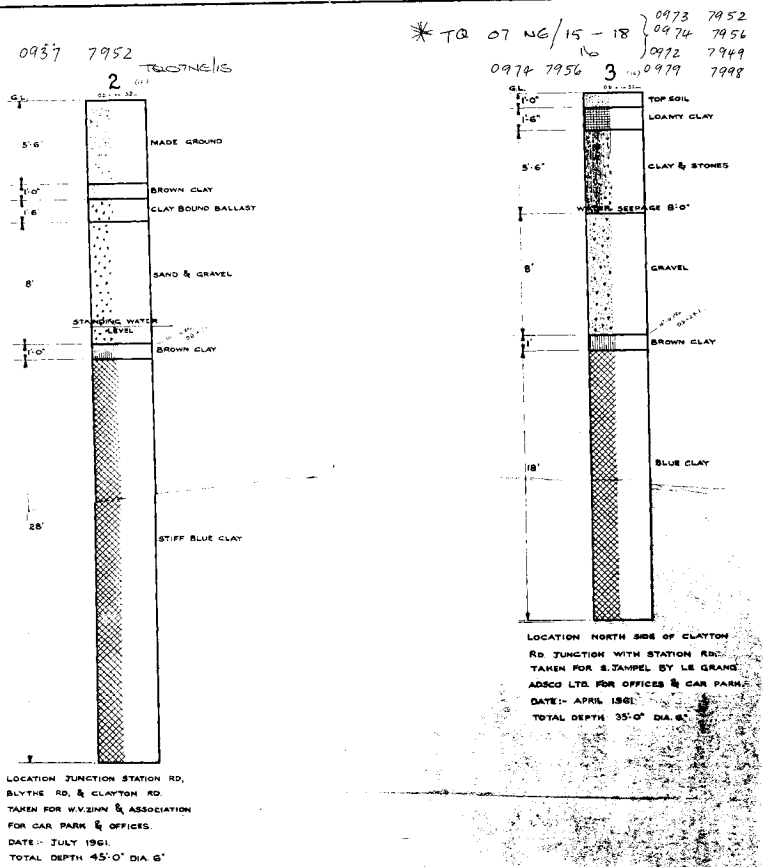
2	0		
2	0	4	0
1	0	5	0
13	0	18	0
3	0	21	0
2	0	23	0

D. T. C.

British
Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

Date rec'd
25/6/46



BY ———	HAYES	&	HARLINGTON	URBAN	DISTRICT
BY I.O'C.	DIAGRAMS OF BORE HOLES IN THE URBAN DISTRICT OF HAYES &				
BY I.O'C.					
AS ABOVE					
JUNE 1962					

APPENDIX E

CGL Exploratory Hole Logs

BOREHOLE LOG

Project Blyth Road				BOREHOLE No BH1
Job No CG/04668C	Date 01-03-13	Ground Level (m) 31.72	Co-Ordinates (m) E 509,688.0 N 179,466.0	
Client Ballymore Properties Ltd.				Sheet 1 of 2

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.20-0.50	B1			31.52		0.20	Concrete comprising a matrix of aggregate and cement. [MADE GROUND]	
0.60-0.90	B2			30.82		(0.70) 0.90	Firm to stiff light brown and orange sandy CLAY. Sand is fine to medium. [BRICEARTH]	
1.20-1.70 1.20	B3	N47		30.42		1.30	Dense orange brown sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, rounded to subangular of flint. [RIVER TERRACE GRAVELS]	
1.80 2.00-2.50 2.00	D2 B4	N38					Dense orange brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, rounded to subangular of flint. Occasional cobbles of flint. [RIVER TERRACE GRAVELS]	
2.70 3.00-3.50 3.00	D3 B5	N46						
3.80 3.80 4.00-4.50 4.00	W1 D4 B6	N36	1			(4.80)		
4.80 5.00-5.50 5.00	D5 B7	N30	1				5.00 - 6.10 Becoming more sandy.	
5.80 6.00-6.50 6.00	D6 B8	N13		25.62		6.10	Stiff dark brown mottled grey silty CLAY. [WEATHERED LONDON CLAY]	
7.10 7.50-7.95 7.50	D7 D8	N16		24.62		(1.00) 7.10	Stiff becoming very stiff with depth dark grey silty CLAY. [LONDON CLAY]	
8.50-9.00 9.00-9.20 9.20	B9 U1 D9	74 blows						
10.00 10.50-10.95 10.50	D10 D11	N14						

Boring Progress and Water Observations						General Remarks			
Date	Comment	Strike Depth	Depth	Casing Dia. mm	Standing Depth	1. Hole terminated at 20mbgl. 2. Groundwater strike encountered at 4.6mbgl. 3. D = small disturbed sample; B = bulk disturbed sample; N = SPT 'N' value; U = U100 undisurbed sample; W = water sample. 4. Installation details; Shallow - 0-0.5m 63mm plain pipe with bentonite seal; 0.5-2.0m 63mm plain pipe with gravel filter; 2.0-6.0m 63mm slotted pipe with gravel filter; 6.0-6.5m bentonite seal; 6.5-20.0m backfilled with arisings. 5. Ground levels and co-ordinates are estimates only.			
01-03-13	Fast	4.60	4.50		3.8				
Method/ Plant Used				Cable percussion		Field Crew Tony Bedford		Logged By JMS	Checked By AJB

SAMPLES & TESTS			Water	STRATA			Instrument /Backfill		
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		DESCRIPTION	
11.50-12.00	B10	60 blows				(12.90)	Stiff becoming very stiff with depth dark grey silty CLAY. [LONDON CLAY] (continued)		
12.00	D1								
12.00-15.50	U2								
12.50	D12								
13.00	D13	N26							
13.50-13.95	D14								
13.50									
									
14.50-15.00	B11	100 blows							
15.00-15.30	U3								
15.30	D15								
16.00	D16								
16.50-16.95	D17	N32							
16.50									
									
									
17.50-18.00	B12	100 blows							
18.00-18.40	U4								
18.40	D18								
19.00	D19								
19.50-19.95	D20	N36							
19.50									
			11.72		20.00	End of BH1 at 20mbgl			

Boring Progress and Water Observations						General Remarks					
Date	Comment	Strike Depth	Casing Depth	Dia. mm	Standing Depth	1. Hole terminated at 20mbgl. 2. Groundwater strike encountered at 4.6mbgl. 3. D = small disturbed sample; B = bulk disturbed sample; N = SPT 'N' value; U = U100 undisturbed sample; W = water sample. 4. Installation details; Shallow - 0-0.5m 63mm plain pipe with bentonite seal; 0.5-2.0m 63mm plain pipe with gravel filter; 2.0-6.0m 63mm slotted pipe with gravel filter; 6.0-6.5m bentonite seal; 6.5-20.0m backfilled with arisings. 5. Ground levels and co-ordinates are estimates only.					
Method/ Plant Used						Field Crew		Logged By		Checked By	
Cable percussion						Tony Bedford		JMS		AJB	

CGLBH LOG CG04668C.GPJ GINT STD AGS 3_1.GDT 11/3/13

BOREHOLE LOG

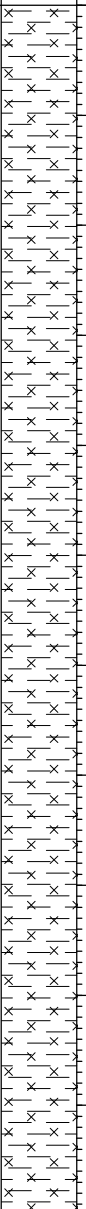
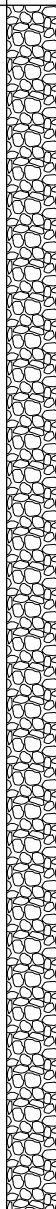
Project Blyth Road				BOREHOLE No BH2	
Job No CG/04668C	Date 26-02-13 28-02-13	Ground Level (m) 31.57	Co-Ordinates (m) E 509,566.0 N 179,474.0		
Client Ballymore Properties Ltd.				Sheet 1 of 3	

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.10	B1					(0.90)	Soft dark brown gravelly sandy clay. Sand is fine to medium. Gravel is fine to coarse, subrounded to subangular of flint, brick and chalk. Occasional cobbles of red brick. [MADE GROUND]	
0.50	B2			30.67		0.90	0.40 - 0.90 Hydrocarbon odour noted	
0.90	D1			30.27		1.30	Dense orange brown sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, rounded to subangular of flint. [RIVER TERRACE GRAVELS]	
1.20	B3	N43						
1.20								
1.80	D2						Dense orange brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, rounded to subangular of flint. Occasional cobbles of flint. [RIVER TERRACE GRAVELS]	
2.00	B4	N38						
2.00								
2.70	D3					(3.00)		
3.00	B5	N37						
3.00								
3.80	D4							
3.90	W1							
4.00	B6	N40		27.27		4.30		
4.00								
4.70	D5			26.87		4.70	Stiff dark brown mottled grey silty CLAY. [WEATHERED LONDON CLAY]	
4.70								
5.00-5.50	U1	51 blows 100					Stiff becoming very stiff with depth dark grey silty CLAY. [LONDON CLAY]	
5.50	D6							
5.80	D7							
6.00-6.45	D8	N17						
6.00								
7.00	B7							
7.50-7.90	U2	84 blows 80						
7.90	D9							
8.50	D10							
9.00-9.45	D11	N24						
9.00								
10.00	B8							
10.50-10.90	U3	100 blows 80						

Boring Progress and Water Observations						General Remarks			
Date	Comment	Strike Depth	Depth	Casing Dia. mm	Standing Depth	1. Hole terminated at 30mbgl. 2. Groundwater strike encountered at 4.2mbgl. 3. D = small disturbed sample; B = bulk disturbed sample; N = SPT 'N' value; U = U100 undisurbed sample; W = water sample. 4. Installation details; Double installation; Shallow - 0-1.0m 63mm slotted pipe with gravel filter; Deep - 1.0-2.0m 63mm plain pipe with bentonite seal; 2.0-4.5m 63mm slotted pipe with gravel filter; 4.5-30.0m backfilled with arisings. 5. Ground levels and co-ordinates are estimates only.			
26-02-13	Fast	4.20	4.00		3.9				
Method/ Plant Used			Cable percussion			Field Crew Tony Bedford		Logged By JMS	Checked By AJB

BOREHOLE LOG

Project Blyth Road				BOREHOLE No BH2	
Job No CG/04668C	Date 26-02-13 28-02-13	Ground Level (m) 31.57	Co-Ordinates (m) E 509,566.0 N 179,474.0		
Client Ballymore Properties Ltd.				Sheet 2 of 3	

SAMPLES & TESTS			Water	STRATA			Instrument / Backfill		
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		DESCRIPTION	
10.90	D12	N31			(17.40)	Stiff becoming very stiff with depth dark grey silty CLAY. [LONDON CLAY] (continued)			
11.50	D13								
12.00-12.45	D14								
12.00									
13.00	B9	96 blows 100							
13.50-14.00	U4								
14.00	D15								
14.50	D16								
15.00-15.45	D17	N33							
15.00									
16.00-16.50	B10								
16.50-16.70	U5								
16.70	D18	100 blows 40							
17.50	D19								
18.00-18.45	D20								
18.00									
19.00-19.50	B11	100 blows 60							
19.50-19.80	U6								
19.80	D21								
20.50	D22								
21.00-21.45	D23	N40							
21.00									

Boring Progress and Water Observations						General Remarks		
Date	Comment	Strike Depth	Casing Depth	Dia. mm	Standing Depth	1. Hole terminated at 30mbgl. 2. Groundwater strike encountered at 4.2mbgl. 3. D = small disturbed sample; B = bulk disturbed sample; N = SPT 'N' value; U = U100 undisurbed sample; W = water sample. 4. Installation details; Double installation; Shallow - 0-1.0m 63mm slotted pipe with gravel filter; Deep - 1.0-2.0m 63mm plain pipe with bentonite seal; 2.0-4.5m 63mm slotted pipe with gravel filter; 4.5-30.0m backfilled with arisings. 5. Ground levels and co-ordinates are estimates only.		
Method/Plant Used Cable percussion						Field Crew Tony Bedford	Logged By JMS	Checked By AJB

BOREHOLE LOG

Project Blyth Road				BOREHOLE No BH2	
Job No CG/04668C	Date 26-02-13 28-02-13	Ground Level (m) 31.57	Co-Ordinates (m) E 509,566.0 N 179,474.0		
Client Ballymore Properties Ltd.				Sheet 3 of 3	

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
22.00-22.50	B12			9.47 9.27		22.10 22.30	Hard thin dark grey CLAYSTONE band [LONDON CLAY]	
22.50-22.70	U7	100 blows 40					Very stiff becoming hard with depth dark grey silty CLAY. [LONDON CLAY]	
22.70	D24							
23.50	D25							
24.00-24.45 24.00	D26	N47				(4.40)		
25.00-25.50	B13							
25.50-26.00	U8	100 blows 100						
26.00	D27							
26.50	D28			4.87 4.67		26.70 26.90	Hard thin dark grey CLAYSTONE band [LONDON CLAY]	
27.00-27.45	D29						Hard dark grey silty CLAY. [LONDON CLAY]	
28.00-28.50 28.00	B14	N50				(3.10)		
28.50-28.90	U9	100 blows 20						
28.60	D30							
29.00	D31							
29.50-29.95 29.50	D32	N59		1.57		30.00		
End of BH2 at 30mbgl								

Boring Progress and Water Observations						General Remarks	
Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth	1. Hole terminated at 30mbgl. 2. Groundwater strike encountered at 4.2mbgl. 3. D = small disturbed sample; B = bulk disturbed sample; N = SPT 'N' value; U = U100 undisurbed sample; W = water sample. 4. Installation details; Double installation; Shallow - 0-1.0m 63mm slotted pipe with gravel filter; Deep - 1.0-2.0m 63mm plain pipe with bentonite seal; 2.0-4.5m 63mm slotted pipe with gravel filter; 4.5-30.0m backfilled with arisings. 5. Ground levels and co-ordinates are estimates only.	
Method/ Plant Used			Cable percussion			Field Crew Tony Bedford	Logged By JMS Checked By AJB

WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS01
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.68	Co-Ordinates (m) E 509,692.0 N 179,461.0	
Client Ballymore Properties Ltd.				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.25	ES1			31.43		0.25	Concrete. 50:50 aggregate to cement. [MADE GROUND]	
0.25	ES2			31.38		0.30	0.15 8mm rebar. 0.20 8mm rebar.	
0.40	ES3						Medium dense dark grey sandy clayey gravel. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of flint. Rootlets. [MADE GROUND]	
0.40	ES4						Stiff dark orange brown silty gravelly CLAY. Gravel is fine to coarse subrounded to subangular of flint and mudstone. [BRICKEARTH]	
0.50	B1							
1.00		N50/ 275 mm		30.43		1.25		
				30.18		1.50	Dense dark orange mottled grey sandy clayey GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of flint. [RIVER TERRACE GRAVELS]	

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Dia. mm	Water Depth	
						1. Hole terminated at 1.5m bgl due to refusal in gravels. 2. No groundwater was encountered in the borehole. 3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample. 4. All co-ordinates and ground levels are estimates only.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS02	
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.64	Co-Ordinates (m) E 509,635.0 N 179,473.0		
Client Ballymore Properties Ltd.				Sheet 1 of 1	

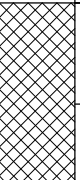
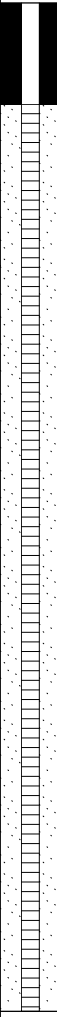
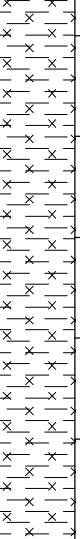
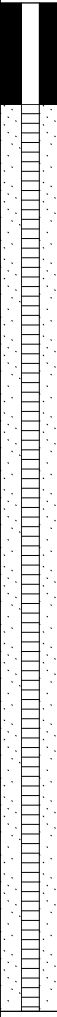
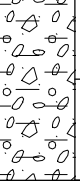
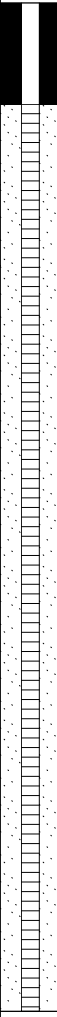
SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.10 0.10	ES5 ES6						Medium dense dark grey sandy clayey gravel. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of flint. Rootlets. [MADE GROUND]	
						(0.50)	0.20 - 0.35 Fragments of pipe. 0.35 - 0.45 Cobbles of concrete.	
0.50 0.50	ES7 ES8			31.14		0.50	Firm dark grey clayey SILT. [BRICKEARTH]	
						(0.30)	0.60 Becoming orange brown.	
0.85 0.85	ES9 ES10			30.84		0.80	Firm dark orange brown silty CLAY. [BRICKEARTH]	
				30.74		0.90		
1.00		N50		30.64		1.00	Dense dark orange brown clayey GRAVEL. Gravel is fine to coarse subangular to angular of flint. [RIVER TERRACE GRAVELS]	

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Dia. mm	Water Depth	
						1. Hole terminated at 1m bgl due to refusal in gravels. 2. No groundwater was encountered in the borehole. 3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample. 4. All co-ordinates and ground levels are estimates only. 5. Historic land drain encountered at 0.2m bgl.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS03	
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.60	Co-Ordinates (m) E 509,624.0 N 179,462.0		
Client Ballymore Properties Ltd.				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.20 0.20	ES11 ES12			31.42		(0.18) 0.18	Concrete. 50:50 aggregate to cement. [MADE GROUND] 0.14 8mm rebar.	
				31.34		(0.08) 0.26	Medium dense grey brown very clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of flint and brick. [MADE GROUND]	
0.60 0.70	B2 ES13 ES14					(0.54) 0.80	Firm dark grey brown silty CLAY. [BRICKEARTH] 0.50 Becoming orange brown.	
						30.80	Dense dark orange brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of flint. [RIVER TERRACE GRAVELS]	
0.90 1.00	B3	N50/ 180 mm		30.60		(0.20) 1.00		

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Dia. mm	Water Depth	
						1. Hole terminated at 1m bgl due to refusal in gravels. 2. No groundwater was encountered in the borehole. 3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample. 4. All co-ordinates and ground levels are estimates only.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS04
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.57	Co-Ordinates (m) E 509,560.0 N 179,479.0	
Client Ballymore Properties Ltd.				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.10 0.10	ES15 ES16					(0.20)	Medium dense dark grey brown sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of flint, brick and tarmac. [MADE GROUND]	
0.20	D1			31.37		0.20	Cobble of Brick. [MADE GROUND]	
						(0.30)		
				31.07		0.50		
0.60 0.60	ES17 ES18					(0.30)	Soft to firm dark orange grey brown silty CLAY. [BRICEARTH]	
				30.77		0.80		
						(0.20)	Dense dark orange brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of flint. [RIVER TERRACE GRAVELS]	
1.00		N50/ 285 mm		30.57		1.00		

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Dia. mm	Water Depth	
						1. Hole terminated at 1m bgl due to refusal in gravels. 2. No groundwater was encountered in the borehole. 3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample. 4. All co-ordinates and ground levels are estimates only.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS05
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.60	Co-Ordinates (m) E 509,557.0 N 179,456.0	
Client Ballymore Properties Ltd.				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.20	ES19			31.42		0.18	Concrete. 50:50 aggregate to cement. [MADE GROUND]	
0.20	ES20			31.30		0.30	0.14 8mm rebar. 0.17 8mm rebar. Medium dense dark grey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of flint. [MADE GROUND]	
0.40	ES21					0.30	Firm dark grey brown clayey SILT. [BRICEARTH]	
0.40	ES22			31.00		0.60		
0.60	B4			30.80		0.80	Firm dark orange brown silty CLAY. Some gravel medium to coarse subangular to angular of flint. [BRICEARTH]	
0.90	B5					1.10	Dense orange brown clayey GRAVEL. Gravel is fine to coarse subangular to angular of flint. [RIVER TERRACE GRAVELS]	
1.00		N45					1.30 Becoming sandy. Sand is fine to medium.	
1.90		N50/ 170 mm		29.70		1.90		

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Casing Dia. mm	Water Depth	
						1. Hole terminated at 1.9m bgl due to refusal in gravels. 2. No groundwater was encountered in the borehole. 3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample. 4. All co-ordinates and ground levels are estimates only.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS06
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.48	Co-Ordinates (m) E 509,611.0 N 179,447.0	
Client Ballymore Properties Ltd.				Sheet 1 of 1

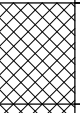
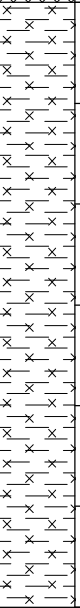
SAMPLES & TESTS			Water	STRATA			Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	
0.10 0.10	ES23 ES24			31.23		0.25	
				30.98		0.50	
0.60	D2					(0.40)	
0.80 0.80	ES25 ES26			30.58		0.90	
1.00		N50/ 170 mm		30.48		1.00	

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Dia. mm	Water Depth	
						1. Hole terminated at 1m bgl due to refusal in gravels.
						2. Black sludgy water with hydrocarbon odour noted from 0.45 to 0.9m bgl.
						3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample.
						4. All co-ordinates and ground levels are estimates only.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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WINDOW SAMPLE LOG

Project Blyth Road				HOLE No WS07
Job No CG/04668C	Date 20-02-13	Ground Level (m) 31.77	Co-Ordinates (m) E 509,666.0 N 179,451.0	
Client Ballymore Properties Ltd.				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.30 0.30	ES27 ES28			31.67		(0.10) 0.10	Medium dense dark grey clayey sand. Sand is fine to coarse. [MADE GROUND]	
				31.37		(0.30) 0.40	Firm dark brown very gravelly sandy clay. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick, flint and concrete. [MADE GROUND] 0.20 Cobble of concrete. Concrete is 40:60 aggregate to cement. 0.25 Becoming very sandy. Sand is fine to coarse.	
0.70 0.70	ES29 ES30			30.77		(0.60) 1.00	Firm dark orange brown silty CLAY. [BRICKEARTH]	
1.00		N50/ 160 mm						

Boring Progress and Water Observations						General Remarks
Date	Comment	Depth	Casing Depth	Casing Dia. mm	Water Depth	
						1. Hole terminated at 1m bgl due to refusal at top of gravels. 2. No groundwater was encountered in the borehole. 3. ES = Enviromental Sample, D = Disturbed Sample, B = Bulk Disturbed Sample. 4. All co-ordinates and ground levels are estimates only.

Method/ Plant Used	Tracked window sample rig	Field Crew RP Drilling	Logged By JJM	Checked By JOS
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APPENDIX F

Contamination Analysis Results



Adam Branson

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

t: 01483 310600
f: 01483 527285
e: adamb@cardgeotechnics.co.uk

t: 01923 67 00 20
f: 01923 67 00 30
e: reception@i2analytical.com

Analytical Report Number : 13-40123

Project / Site name:	Blyth Road	Samples received on:	27/02/2013
Your job number:	CG/4668C	Samples instructed on:	27/02/2013
Your order number:	CG/04668C/JJM02	Analysis completed by:	08/03/2013
Report Issue Number:	1	Report issued on:	08/03/2013
Samples Analysed:	1 wac multi sample		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

i2 Analytical

Building 19
BRE, Bucknalls Lane
Watford, WD25 9XX

Telephone: 01923 670020

Fax: 01923 670030

email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results							
Report No:	13-40123						
					Client: CARDGEO		
Location	Blyth Road						
Lab Reference (Sample Number)	249420				Landfill Waste Acceptance Criteria		
Sampling Date	27/02/2013				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH2						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	3.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	1600				500	--	--
Total PAH (WAC-17) (mg/kg)	5.4				100	--	--
pH (units)**	7.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	2.3				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.098	0.069		0.73	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0020	0.0014		0.015	0.5	10	70
Copper *	0.0093	0.0075		0.077	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.048	0.018		0.22	0.5	10	30
Nickel *	0.013	0.0075		0.082	0.4	10	40
Lead *	0.0065	< 0.0050		0.042	0.5	10	50
Antimony *	0.0090	0.0066		0.070	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0037	< 0.0010		< 0.020	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	4000	25000
Fluoride	0.54	0.33		3.6	10	150	500
Sulphate *	56	23		270	1000	20000	50000
TDS	160	120		1300	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	22	7.8		98	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	84						
Moisture (%)	16						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.24						
Results are expressed on a dry weight basis, after correction for moisture content where applicable							
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation							

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation

*= UKAS accredited (liquid eluate analysis only)

** = MCERTS accredited



Analytical Report Number : 13-40123

Project / Site name: Blyth Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content

of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
249420	BH2	ES2	0.60	Brown clay and topsoil with gravel and chalk.

Analytical Report Number : 13-40123

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with DCM and analysis by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	NONE
Sociated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	NONE

Analytical Report Number : 13-40123

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Analytical Report Number: 13-40893

Project / Site name: Blyth Road

Your Order No: CG/04668C/JJM02

Lab Sample Number				253614	253615			
Sample Reference				BH1	BH2			
Sample Number				D10	D22			
Depth (m)				10.00	22.70			
Date Sampled				01/03/2013	01/03/2013			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	17	17
Total mass of sample received				kg	0.001	NONE	2.0	2.0

General Inorganics

pH	pH Units	N/A	MCERTS	8.7	9.3			
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	480	440			
Water Soluble Sulphate as SO ₄ (2:1)	g/l	0.0025	MCERTS	0.092	0.43			
Water Soluble Sulphate as SO ₄ (2:1)	mg/kg	2.5	MCERTS	91	430			
Total Sulphur	mg/kg	100	NONE	3100	2900			



Andrew Brandon
Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

t: 01483 310600
f: 01483 527285
e: andrewb@cardgeotechnics.co.uk

t: 01923 67 00 20
f: 01923 67 00 30
e: reception@i2analytical.com

Analytical Report Number : 13-40285

Project / Site name:	Blyth Road	Samples received on:	20/02/2013
Your job number:	CG/4668C	Samples instructed on:	06/03/2013
Your order number:	CG/04668C/JJM02	Analysis completed by:	13/03/2013
Report Issue Number:	1	Report issued on:	13/03/2013
Samples Analysed:	2 wac multi samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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i2 Analytical

Building 19
BRE, Bucknalls Lane
Watford, WD25 9XX

Telephone: 01923 670020

Fax: 01923 670030

email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results							
Report No:	13-40285						
					Client: CARDGEO		
Location	Blyth Road						
Lab Reference (Sample Number)	250397				Landfill Waste Acceptance Criteria		
Sampling Date	20/02/2013				Limits		
Sample ID	ES1/2				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.25						
Solid Waste Analysis							
TOC (%)**	3.2				3%	5%	6%
Loss on Ignition (%) **	7.1				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	520				500	--	--
Total PAH (WAC-17) (mg/kg)	210				100	--	--
pH (units)**	8.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	6.4				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.029	0.028		0.28	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0051	0.0040		0.042	0.5	10	70
Copper *	0.015	0.014		0.14	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.013	0.0035		0.050	0.5	10	30
Nickel *	0.0020	< 0.0010		0.011	0.4	10	40
Lead *	0.014	0.0078		0.088	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0066	0.0024		0.031	4	50	200
Chloride *	12	< 4.0		27	800	4000	25000
Fluoride	1.4	0.42		5.7	10	150	500
Sulphate *	38	6.7		120	1000	20000	50000
TDS	160	90		1000	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	11	7.9		84	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.47						
Dry Matter (%)	93						
Moisture (%)	6.6						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.28						
Results are expressed on a dry weight basis, after correction for moisture content where applicable							
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation							

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation

* = UKAS accredited (liquid eluate analysis only)

** = MCERTS accredited

i2 Analytical

Building 19
BRE, Bucknalls Lane
Watford, WD25 9XX

Telephone: 01923 670020

Fax: 01923 670030

email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results							
Report No:	13-40285						
				Client: CARDGEO			
Location	Blyth Road						
Lab Reference (Sample Number)	250398			Landfill Waste Acceptance Criteria			
Sampling Date	20/02/2013			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	ES25/26						
Depth (m)	0.80						
Solid Waste Analysis							
TOC (%)**	6.1			3%	5%	6%	
Loss on Ignition (%) **	9.5			--	--	10%	
BTEX (µg/kg) **	100			6000	--	--	
Sum of PCBs (mg/kg)	< 0.30			1	--	--	
Mineral Oil (mg/kg)	31000			500	--	--	
Total PAH (WAC-17) (mg/kg)	11			100	--	--	
pH (units)**	8.3			--	>6	--	
Acid Neutralisation Capacity (mol / kg)	5.8			--	To be evaluated	To be evaluated	
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.018	0.013		0.14	0.5	2	25
Barium *	0.023	0.0090		0.11	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0012	0.0011		0.011	0.5	10	70
Copper *	0.0087	0.0078		0.079	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.080	0.016		0.27	0.5	10	30
Nickel *	0.029	0.012		0.15	0.4	10	40
Lead *	0.010	0.0088		0.091	0.5	10	50
Antimony *	0.048	0.028		0.31	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.033	0.0304		0.31	4	50	200
Chloride *	13	7.4		84	800	4000	25000
Fluoride	0.42	0.33		3.5	10	150	500
Sulphate *	100	53		610	1000	20000	50000
TDS	180	100		1100	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	46	20		240	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.48						
Dry Matter (%)	85						
Moisture (%)	15						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.30						
results are expressed on a dry weight basis, after correction for moisture content where applicable							

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

* = UKAS accredited (liquid eluate analysis only)

** = MCERTS accredited



Analytical Report Number : 13-40285

Project / Site name: Blyth Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content

of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
250397	ES1/2	None Supplied	0.25	Brown gravelly clay with vegetation.
250398	ES25/26	None Supplied	0.80	Black gravelly clay with glass.



Analytical Report Number : 13-40285

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with DCM and analysis by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	NONE
Sociated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	NONE



Analytical Report Number : 13-40285

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Adam Branson

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

t: 01483 310600
f: 01483 527285
e: adamb@cardgeotechnics.co.uk

t: 01923 67 00 20
f: 01923 67 00 30
e: reception@i2analytical.com

Analytical Report Number : 13-40122

Project / Site name: Blyth Road

Samples received on: 27/02/2013

Your job number: CG/4668C

Samples instructed on: 27/02/2013

Your order number: CG/04668C/JJM02

Analysis completed by: 08/03/2013

Report Issue Number: 1

Report issued on: 08/03/2013

Samples Analysed: 3 soil samples

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Analytical Report Number: 13-40122

Project / Site name: Blyth Road

Your Order No: CG/04668C/JJM02

Lab Sample Number				249417	249418	249419		
Sample Reference				BH2	BH2	BH2		
Sample Number				ES1	ES2	ES3		
Depth (m)				0.20	0.60	1.50		
Date Sampled				27/02/2013	27/02/2013	27/02/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	22		
Moisture Content	%	N/A	NONE	7.6	16	8.3		
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0		
Asbestos Identification Name	Type	N/A	ISO 17025	Chrysotile - Insulation Board Fragments	-	-		
Asbestos in Soil Screen	P/A	N/A	ISO 17025	Present	Absent	-		

General Inorganics

pH	pH Units	N/A	MCERTS	8.4	7.5	8.1		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	2900	450	< 100		
Organic Matter	%	0.1	MCERTS	3.0	1.4	0.4		

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.87	< 0.05		
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Phenanthrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.2	MCERTS	0.82	0.69	< 0.20		
Pyrene	mg/kg	0.2	MCERTS	0.76	0.58	< 0.20		
Benzo(a)anthracene	mg/kg	0.2	MCERTS	0.41	0.48	< 0.20		
Chrysene	mg/kg	0.05	MCERTS	0.54	0.50	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.59	0.73	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	0.34	0.35	< 0.20		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.46	0.58	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	< 0.20	0.31	< 0.20		
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0.05		
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05		

Total PAH

Total WAC-17 PAHs	mg/kg	1.6	NONE	4.0	5.4	< 1.6		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	43	14	11		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	220	120	27		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.0	0.5		
Boron (water soluble)	mg/kg	0.2	MCERTS	2.0	2.7	0.5		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.3	0.2	< 0.2		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	-		
Chromium (III)	mg/kg	1	NONE	160	41	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	160	41	29		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3400	97	17		
Lead (aqua regia extractable)	mg/kg	2	MCERTS	210	120	18		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	0.9	< 0.3		
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	800	71	25		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	3.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	79	42	29		
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	460	100	45		

Analytical Report Number: 13-40122

Project / Site name: Blyth Road

Your Order No: CG/04668C/JJM02

Lab Sample Number				249417	249418	249419		
Sample Reference				BH2	BH2	BH2		
Sample Number				ES1	ES2	ES3		
Depth (m)				0.20	0.60	1.50		
Date Sampled				27/02/2013	27/02/2013	27/02/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	2.4	8.5	2.7		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	69	320	62		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	310	500	87		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	2700	330	36		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	3100	1200	190		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	1.8	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	110	15		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	33	230	38		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	370	91	16		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	400	440	69		

Analytical Report Number : 13-40122

Project / Site name: Blyth Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content

of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
249417	BH2	ES1	0.20	Brown topsoil and sand with gravel.
249418	BH2	ES2	0.60	Brown clay and topsoil with gravel and chalk.
249419	BH2	ES3	1.50	Light brown gravelly sand with stones.

Analytical Report Number : 13-40122

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-UK	W	ISO 17025
Asbestos Screening in Soil	Screening of samples for Asbestos in Soil. Standard practice is to screen a representative 100 g of the sample provided for the presence/absence of asbestos and identification.	In-house method based on HSG 248. All samples are screened by optical microscopy and identification is carried out using dispersion staining and polarised light	A001-UK	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	D	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025



Analytical Report Number : 13-40122

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Adam Branson**

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

t: 01483 310600
f: 01483 527285
e: adamb@cardgeotechnics.co.uk

t: 01923 67 00 20
f: 01923 67 00 30
e: reception@i2analytical.com

Analytical Report Number : 13-40346

Project / Site name: Blyth Road

Samples received on: 07/03/2013

Your job number: CG/4668C

Samples instructed on: 07/03/2013

Your order number:

Analysis completed by: 18/03/2013

Report Issue Number: 1

Report issued on: 18/03/2013

Samples Analysed: 3 water samples

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Analytical Report Number: 13-40346

Project / Site name: Blyth Road

Lab Sample Number				250618	250619	250620		
Sample Reference				BH01	BH02A	WS06		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				06/03/2013	06/03/2013	06/03/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.4	7.8		
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	ug/l	45	ISO 17025	74400	147000	425000		
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	355	444	1010		

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	96		
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	3.8		
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	3.84		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	1.5	2.9	11		
Barium (dissolved)	µg/l	0.05	ISO 17025	91	96	30		
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Boron (dissolved)	µg/l	10	ISO 17025	120	220	420		
Cadmium (dissolved)	µg/l	0.1	ISO 17025	< 0.10	< 0.10	< 0.10		
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	< 0.4		
Copper (dissolved)	µg/l	0.7	ISO 17025	4.4	< 0.7	20		
Lead (dissolved)	µg/l	1	ISO 17025	1.0	< 1.0	19		
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.4	220	38		
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0		
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	19		
Zinc (dissolved)	µg/l	0.4	ISO 17025	4.3	< 0.4	97		

Calcium (dissolved)	mg/l	0.012	ISO 17025	130	160	360		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.4	9.8	26		



Analytical Report Number: 13-40346

Project / Site name: Blyth Road

Lab Sample Number				250618	250619	250620		
Sample Reference				BH01	BH02A	WS06		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				06/03/2013	06/03/2013	06/03/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	44		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	45		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	80		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10.0	< 10.0	< 10.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10.0	< 10.0	< 10.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10.0	< 10.0	1640		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	1600		

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10.0	< 10.0	< 10.0		
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10.0	< 10.0	44		
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10.0	< 10.0	4920		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	170		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	5100		

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 13-40346

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073S-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in hexane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPH7 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



Adam Branson

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

t: 01483 310600
f: 01483 527285
e: adamb@cardgeotechnics.co.uk

t: 01923 67 00 20
f: 01923 67 00 30
e: reception@i2analytical.com

Analytical Report Number : 13-40159

Project / Site name: Blyth Road

Samples received on: 28/02/2013

Your job number: CG/4668C

Samples instructed on: 28/02/2013

Your order number:

Analysis completed by: 11/03/2013

Report Issue Number: 1

Report issued on: 11/03/2013

Samples Analysed: 5 soil samples

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Analytical Report Number: 13-40159

Project / Site name: Blyth Road

Lab Sample Number				249582	249583	249584	249585	249586
Sample Reference				ES10/9	ES12/11	ES14/13	ES20/19	ES22/21
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.85	0.20	0.70	0.20	0.40
Date Sampled				20/02/2013	20/02/2013	20/02/2013	20/02/2013	20/02/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	17	16	16	19
Total mass of sample received	kg	0.001	NONE	0.63	0.39	0.57	0.39	0.48

General Inorganics

	pH Units	N/A	MCERTS	7.5	7.8	7.9	8.0	8.0
Water Soluble Sulphate as SO ₄ (2:1)	g/l	0.0025	MCERTS	0.053	1.7	0.17	0.11	0.42
Water Soluble Sulphate as SO ₄ (2:1)	mg/kg	2.5	MCERTS	53	1700	170	110	420

Analytical Report Number : 13-40159

Project / Site name: Blyth Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content

of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
249582	ES10/9	None Supplied	0.85	Light brown sandy clay.
249583	ES12/11	None Supplied	0.20	Brown sandy clay with gravel.
249584	ES14/13	None Supplied	0.70	Brown sandy clay with gravel.
249585	ES20/19	None Supplied	0.20	Black topsoil and gravel.
249586	ES22/21	None Supplied	0.40	Brown clay and topsoil with gravel.

Analytical Report Number : 13-40159

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



Adam Branson

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

i2 Analytical Ltd.
Building 19,
BRE,
Garston,
Watford,
WD25 9XX

t: 01483 310600
f: 01483 527285
e: adamb@cardgeotechnics.co.uk

t: 01923 67 00 20
f: 01923 67 00 30
e: reception@i2analytical.com

Analytical Report Number : 13-40013

Project / Site name:	Blyth Road	Samples received on:	20/02/2013
Your job number:	CG/4668C	Samples instructed on:	22/02/2013
Your order number:	CG/4668C/JJM02	Analysis completed by:	05/03/2013
Report Issue Number:	1	Report issued on:	05/03/2013
Samples Analysed:	2 2 stage wac samples - 8 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 13-40013

Project / Site name: Blyth Road

Your Order No: CG/4668C/JJM02

Lab Sample Number				248806	248807	248808	248809	248810
Sample Reference				ES1/2	ES3/4	ES5/6	ES7/8	ES15/16
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.40	0.10	0.50	0.10
Date Sampled				20/02/2013	20/02/2013	20/02/2013	20/02/2013	20/02/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	24	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	6.6	15	9.6	18	10
Total mass of sample received	kg	0.001	NONE	0.47	0.57	0.43	0.58	0.41

General Inorganics

pH	pH Units	N/A	MCERTS	8.5	7.1	8.3	7.7	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	400	240	1500	340	2500
Organic Matter	%	0.1	MCERTS	5.6	< 0.1	3.8	2.0	1.6
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.2	-	-	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	7.1	-	-	-	-
Acid Neutralisation Capacity	+/- mol/kg	-100	NONE	6.4	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.48	< 0.05	2.3	0.50	< 0.05
Acenaphthylene	mg/kg	0.2	MCERTS	0.61	< 0.20	1.3	0.26	< 0.20
Acenaphthene	mg/kg	0.1	MCERTS	1.6	0.13	25	0.30	< 0.10
Fluorene	mg/kg	0.2	MCERTS	1.4	< 0.20	21	0.29	< 0.20
Phenanthrene	mg/kg	0.2	MCERTS	14	1.0	240	6.7	2.7
Anthracene	mg/kg	0.1	MCERTS	5.0	0.31	68	1.8	0.45
Fluoranthene	mg/kg	0.2	MCERTS	38	2.0	370	27	5.1
Pyrene	mg/kg	0.2	MCERTS	35	1.6	300	23	4.2
Benzo(a)anthracene	mg/kg	0.2	MCERTS	23	0.90	180	16	2.5
Chrysene	mg/kg	0.05	MCERTS	17	0.67	130	13	2.4
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	21	0.73	170	16	2.8
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	13	0.37	67	7.7	1.2
Benzo(a)pyrene	mg/kg	0.1	MCERTS	20	0.52	140	14	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	9.7	0.42	68	7.7	1.2
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	1.9	< 0.20	12	1.4	0.23
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	11	0.43	79	8.9	1.4
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	1.6	NONE	210	9.2	1900	140	26
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.9	12	48	14	19
Barium (aqua regia extractable)	mg/kg	1	MCERTS	150	95	440	190	260
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.2	1.9	1.0	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.9	< 0.2	2.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	< 0.2	2.3	0.8	0.6
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	-	< 1.2	-	-
Chromium (III)	mg/kg	1	NONE	-	-	65	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	36	65	23	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	48	26	690	650	360
Lead (aqua regia extractable)	mg/kg	2	MCERTS	35	16	470	250	170
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	1.4	0.3
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	20	39	110	27	96
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	2.9	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	52	47	68	44	50
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	64	65	500	540	190

Analytical Report Number: 13-40013

Project / Site name: Blyth Road

Your Order No: CG/4668C/JJM02

Lab Sample Number				248806	248807	248808	248809	248810
Sample Reference				ES1/2	ES3/4	ES5/6	ES7/8	ES15/16
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.40	0.10	0.50	0.10
Date Sampled				20/02/2013	20/02/2013	20/02/2013	20/02/2013	20/02/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	mg/kg	10	NONE	520	-	-	-	-
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TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.2	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	17	< 2.0	14
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	21	< 8.0	55	12	160
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	500	< 8.0	290	83	920
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	520	< 10	360	95	1100

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.4	< 1.0	3.8	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	13	< 2.0	150	4.4	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	150	< 10	1100	85	35
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1200	< 10	2000	170	150
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1400	< 10	3300	260	190

PCBs by GC-MS

PCB Congener 28	mg/kg	0.02	NONE	< 0.02	-	-	-	-
PCB Congener 52	mg/kg	0.02	NONE	< 0.02	-	-	-	-
PCB Congener 101	mg/kg	0.02	NONE	< 0.02	-	-	-	-
PCB Congener 118	mg/kg	0.02	NONE	< 0.02	-	-	-	-
PCB Congener 138	mg/kg	0.02	NONE	< 0.02	-	-	-	-
PCB Congener 153	mg/kg	0.02	NONE	< 0.02	-	-	-	-
PCB Congener 180	mg/kg	0.02	NONE	< 0.02	-	-	-	-
Total PCBs	mg/kg	0.3	NONE	< 0.30	-	-	-	-

Analytical Report Number: 13-40013

Project / Site name: Blyth Road

Your Order No: CG/4668C/JJM02

Lab Sample Number				248811	248812	248813		
Sample Reference				ES17/18	ES25/26	ES27/28		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.60	0.80	0.30		
Date Sampled				20/02/2013	20/02/2013	20/02/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	16	15	16		
Total mass of sample received	kg	0.001	NONE	0.53	0.48	0.47		

General Inorganics

pH	pH Units	N/A	MCERTS	7.7	8.3	8.2		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	650	1900	760		
Organic Matter	%	0.1	MCERTS	1.6	11	0.6		
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	6.1	-		
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	9.5	-		
Acid Neutralisation Capacity	+/- mol/kg	-100	NONE	-	5.8	-		

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Phenanthrene	mg/kg	0.2	MCERTS	1.1	2.8	< 0.20		
Anthracene	mg/kg	0.1	MCERTS	0.20	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.2	MCERTS	2.7	4.6	0.39		
Pyrene	mg/kg	0.2	MCERTS	2.4	3.9	0.37		
Benzo(a)anthracene	mg/kg	0.2	MCERTS	1.8	< 0.20	0.22		
Chrysene	mg/kg	0.05	MCERTS	1.4	< 0.05	0.17		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	2.0	< 0.10	0.22		
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	0.77	< 0.20	< 0.20		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	1.5	< 0.10	0.21		
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	0.83	< 0.20	< 0.20		
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.93	< 0.05	< 0.05		
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05		

Total PAH

Total WAC-17 PAHs	mg/kg	1.6	NONE	16	11	< 1.6		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	27	12	13		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	380	190	110		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.2	1.1		
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	2.6	1.2		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	3.6	0.3		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	-	-		
Chromium (III)	mg/kg	1	NONE	-	-	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	35	29		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	91	450	130		
Lead (aqua regia extractable)	mg/kg	2	MCERTS	550	170	37		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.1	0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	28	89	34		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	51	53	42		
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	160	1200	170		

Analytical Report Number: 13-40013

Project / Site name: Blyth Road

Your Order No: CG/4668C/JJM02

Lab Sample Number				248811	248812	248813		
Sample Reference				ES17/18	ES25/26	ES27/28		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.60	0.80	0.30		
Date Sampled				20/02/2013	20/02/2013	20/02/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	25	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	9.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	27	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	41	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	-	31000	-		
TPH-CWG - Aliphatic >EC5 - EC6								
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	57	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.3	420	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	11	1500	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	160	28000	130		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	170	30000	130		
TPH-CWG - Aromatic >EC5 - EC7								
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	0.4	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	21	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	200	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	590	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	55	7000	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	55	7800	< 10		
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.02	NONE	-	< 0.02	-		
PCB Congener 52	mg/kg	0.02	NONE	-	< 0.02	-		
PCB Congener 101	mg/kg	0.02	NONE	-	< 0.02	-		
PCB Congener 118	mg/kg	0.02	NONE	-	< 0.02	-		
PCB Congener 138	mg/kg	0.02	NONE	-	< 0.02	-		
PCB Congener 153	mg/kg	0.02	NONE	-	< 0.02	-		
PCB Congener 180	mg/kg	0.02	NONE	-	< 0.02	-		
Total PCBs	mg/kg	0.3	NONE	-	< 0.30	-		



Analytical Report Number: 13-40013

Project / Site name: Blyth Road

Your Order No: CG/4668C/JJM02

Lab Sample Number				248814	248815			
Sample Reference				ES1/2	ES25/26			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.25	0.80			
Date Sampled				20/02/2013	20/02/2013			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Two-stage Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General 2:1

Sulphate as SO ₄	mg/l	0.2	NONE	38	100			
Monohydric Phenols	mg/l	0.16	NONE	< 0.16	< 0.16			
Chloride	mg/l	4	NONE	12	13			
Fluoride	mg/l	0.05	NONE	1.4	0.42			
Dissolved Organic Carbon	mg/l	0.1	NONE	11	46			
Total Dissolved Solids	mg/l	4	NONE	160	180			
Arsenic	mg/l	0.01	NONE	< 0.010	0.018			
Cadmium	mg/l	0.0005	NONE	< 0.0005	< 0.0005			
Chromium	mg/l	0.001	NONE	0.0051	0.0012			
Lead	mg/l	0.005	NONE	0.014	0.010			
Mercury	mg/l	0.0015	NONE	< 0.0015	< 0.0015			
Selenium	mg/l	0.01	NONE	< 0.010	< 0.010			
Copper	mg/l	0.001	NONE	0.015	0.0087			
Nickel	mg/l	0.001	NONE	0.0020	0.029			
Zinc	mg/l	0.001	NONE	0.0066	0.033			
Antimony	mg/l	0.005	NONE	< 0.0050	0.048			
Molybdenum	mg/l	0.003	NONE	0.013	0.080			
Barium	mg/l	0.005	NONE	0.029	0.023			

General 2:1

Sulphate as SO ₄	mg/kg	0.5	NONE	76	200			
Monohydric Phenols	mg/kg	0.4	NONE	< 0.40	< 0.40			
Chloride	mg/kg	12	NONE	23	26			
Fluoride	mg/kg	0.05	NONE	2.7	0.84			
Dissolved Organic Carbon	mg/kg	0.3	NONE	22	93			
Total Dissolved Solids	mg/kg	12	NONE	320	360			
Arsenic	mg/kg	0.03	NONE	< 0.030	0.036			
Cadmium	mg/kg	0.0015	NONE	< 0.0015	< 0.0015			
Chromium	mg/kg	0.003	NONE	0.010	< 0.0030			
Lead	mg/kg	0.015	NONE	0.028	0.021			
Mercury	mg/kg	0.005	NONE	< 0.0050	< 0.0050			
Selenium	mg/kg	0.03	NONE	< 0.030	< 0.030			
Copper	mg/kg	0.003	NONE	0.030	0.017			
Nickel	mg/kg	0.002	NONE	0.0041	0.058			
Zinc	mg/kg	0.003	NONE	0.013	0.065			
Antimony	mg/kg	0.015	NONE	< 0.015	0.096			
Molybdenum	mg/kg	0.01	NONE	0.026	0.16			
Barium	mg/kg	0.015	NONE	0.057	0.046			



Analytical Report Number: 13-40013

Project / Site name: Blyth Road

Your Order No: CG/4668C/JJM02

Lab Sample Number				248814	248815			
Sample Reference				ES1/2	ES25/26			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.25	0.80			
Date Sampled				20/02/2013	20/02/2013			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Two-stage Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General 8:1

Sulphate as SO ₄	mg/l	0.2	NONE	6.7	53			
Monohydric Phenols	mg/l	0.13	NONE	< 0.13	< 0.13			
Chloride	mg/l	4	NONE	< 4.0	7.4			
Fluoride	mg/l	0.05	NONE	0.42	0.33			
Dissolved Organic Carbon	mg/l	0.1	NONE	7.9	20			
Total Dissolved Solids	mg/l	4	NONE	90	100			
Arsenic	mg/l	0.01	NONE	< 0.010	0.013			
Cadmium	mg/l	0.0005	NONE	< 0.0005	< 0.0005			
Chromium	mg/l	0.001	NONE	0.0040	0.0011			
Lead	mg/l	0.005	NONE	0.0078	0.0088			
Mercury	mg/l	0.0015	NONE	< 0.0015	< 0.0015			
Selenium	mg/l	0.01	NONE	< 0.010	< 0.010			
Copper	mg/l	0.003	NONE	0.014	0.0078			
Nickel	mg/l	0.001	NONE	< 0.0010	0.012			
Zinc	mg/l	0.001	NONE	0.0024	0.030			
Antimony	mg/l	0.005	NONE	< 0.0050	0.028			
Molybdenum	mg/l	0.003	NONE	0.0035	0.016			
Barium	mg/l	0.005	NONE	0.028	0.0090			

General 10:1

Sulphate as SO ₄	mg/kg	1	NONE	120	610			
Monohydric Phenols	mg/kg	0.5	NONE	< 0.50	< 0.50			
Chloride	mg/kg	15	NONE	26	84			
Fluoride	mg/kg	0.2	NONE	5.7	3.4			
Dissolved Organic Carbon	mg/kg	0.5	NONE	85	240			
Total Dissolved Solids	mg/kg	15	NONE	1000	1100			
Arsenic	mg/kg	0.05	NONE	< 0.050	0.14			
Cadmium	mg/kg	0.002	NONE	< 0.0020	< 0.0020			
Chromium	mg/kg	0.005	NONE	0.042	0.011			
Lead	mg/kg	0.02	NONE	0.088	0.091			
Mercury	mg/kg	0.01	NONE	< 0.010	< 0.010			
Selenium	mg/kg	0.04	NONE	< 0.040	< 0.040			
Copper	mg/kg	0.002	NONE	0.14	0.079			
Nickel	mg/kg	0.005	NONE	0.011	0.15			
Zinc	mg/kg	0.004	NONE	0.031	0.31			
Antimony	mg/kg	0.02	NONE	< 0.020	0.31			
Molybdenum	mg/kg	0.02	NONE	0.050	0.27			
Barium	mg/kg	0.02	NONE	0.28	0.11			

Analytical Report Number : 13-40013

Project / Site name: Blyth Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content

of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
248806	ES1/2	None Supplied	0.25	Brown gravelly clay with vegetation.
248807	ES3/4	None Supplied	0.40	Light brown sandy clay with gravel.
248808	ES5/6	None Supplied	0.10	Brown topsoil and gravel with stones.
248809	ES7/8	None Supplied	0.50	Brown clay and topsoil with vegetation.
248810	ES15/16	None Supplied	0.10	Brown gravelly topsoil with rubble.
248811	ES17/18	None Supplied	0.60	Brown clay and sand with gravel.
248812	ES25/26	None Supplied	0.80	Black gravelly clay with glass.
248813	ES27/28	None Supplied	0.30	Light brown clay and sand with gravel.

Analytical Report Number : 13-40013

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance"	L046-UK	W	NONE
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	D	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	NONE
Mineral Oil (Soil)		In-house method	L064-PL		NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

Analytical Report Number : 13-40013

Project / Site name: Blyth Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	NONE
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

APPENDIX G

Geotechnical Analysis Results

PROJECT NAME PROJECT NO:	BLYTH ROAD Project Number CG04668C GEO / 19397	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Date</td> <td>27/03/2013</td> </tr> <tr> <td>Approved</td> <td></td> </tr> <tr> <td>Page</td> <td>1 of 1</td> </tr> </table>	Date	27/03/2013	Approved		Page	1 of 1
Date	27/03/2013							
Approved								
Page	1 of 1							

Sample details				Description	Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			Other tests and comments
Borehole	Depth	No.	Type		MC	LL	PL	PI	<425 mic	Bulk	Dry	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	Ground Water SO4	
No.	(m)				(%)	(%)	(%)	(%)	(%)	(Mg/m³)	(Mg/m³)	(kPa)	(kPa)	(kPa)		(g/l)	(g/l)	
BH1	5.00	-	B	Brown slightly sandy GRAVEL														Particle Size Distribution
BH1	7.50	-	D	Dark greyish brown silty CLAY	25	62	24	38	100									
BH1	13.50	-	D	Dark greyish brown silty CLAY	28	69	27	42	100									
BH1	18.00	-	U	Very stiff brown CLAY	31					1.94	1.48	360	338	169				
BH2	2.00	-	B	Brown sandy GRAVEL														Particle Size Distribution
BH2	7.00	-	B	Grey slightly fine sandy silty CLAY														Particle Size Distribution
BH2	7.50	-	U	Very stiff dark brown CLAY	25					2.02	1.62	150	315	158				
BH2	10.00	-	B	Dark greyish brown silty CLAY	25	69	28	41	100									
BH2	13.50	-	U	Very stiff brown CLAY	26					1.98	1.57	270	401	200				
BH2	25.00	-	B	Dark greyish brown silty CLAY	20	68	26	42	100									
BH2	25.50	-	U	Very stiff dark brown CLAY	26					2.01	1.59	510	554	277				
BH2	28.50	-	U	Very stiff brown CLAY	25					2.03	1.63	570	468	234				

SUMMARY OF GEOTECHNICAL TESTING



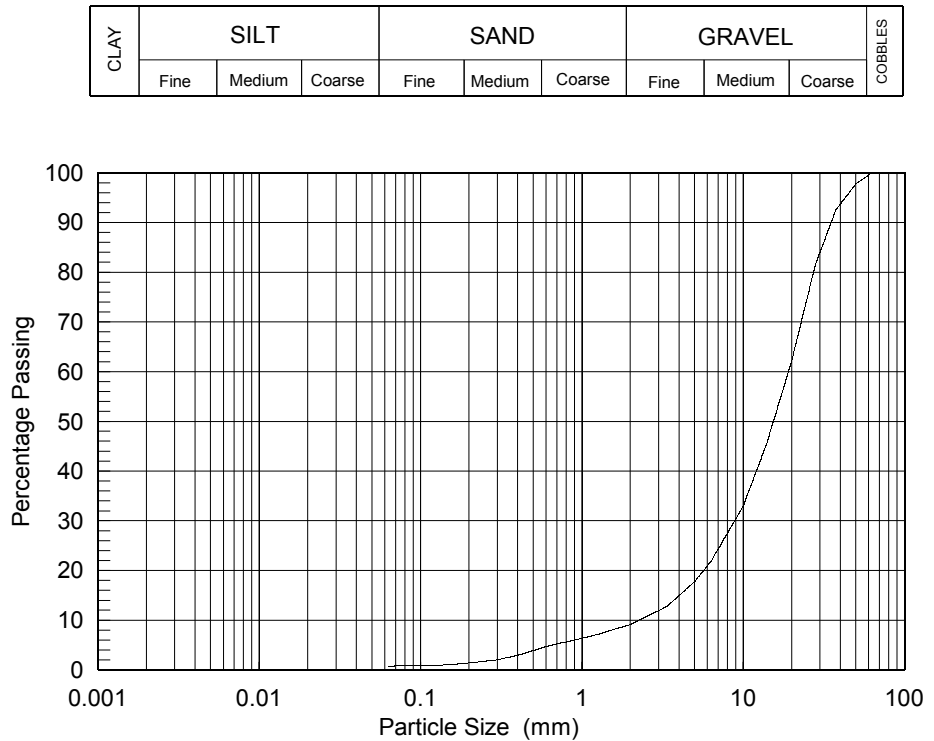
Determination of Particle Size Distribution

Borehole Number: BH1
 Sample Number: -
 Depth (m): 5.00

Description:
 Brown slightly sandy GRAVEL

BS1377 : Part 2 : Clause 9.3 : 1990 Dry Sieving Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	98
37.5 mm	93
28 mm	82
20 mm	62
14 mm	45
10 mm	33
6.3 mm	22
5 mm	18
3.35 mm	13
2 mm	9
1.18 mm	7
600 µm	5
425 µm	3
300 µm	2
212 µm	1
150 µm	1
63 µm	1



Particle Proportions		
Cobbles	0.0	%
Gravel	90.9	%
Sand	8.4	%
Silt & Clay	0.7	%

Checked and
Approved

Initials:

SB

Date: 27/03/2013

Project Number:

GEO / 19397

Project Name:

BLYTH ROAD

Project Number CG04668C



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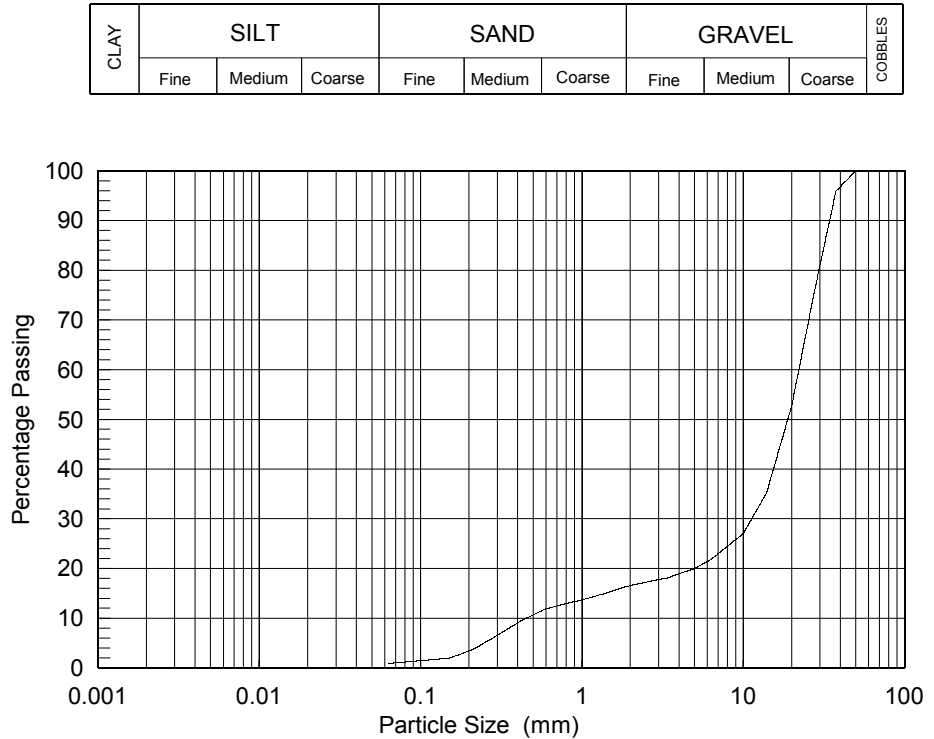
BS1377 : Part 2 : Clause 9 : 1990
Determination of Particle Size Distribution

Borehole Number: BH2
Sample Number: -
Depth (m): 2.00

Description:
Brown sandy GRAVEL

BS1377 : Part 2 : Clause 9.3 : 1990 Dry Sieving Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	96
28 mm	77
20 mm	53
14 mm	35
10 mm	27
6.3 mm	22
5 mm	20
3.35 mm	18
2 mm	17
1.18 mm	14
600 µm	12
425 µm	10
300 µm	7
212 µm	4
150 µm	2
63 µm	1



Particle Proportions		
Cobbles	0.0	%
Gravel	83.4	%
Sand	15.7	%
Silt & Clay	0.9	%

Checked and
Approved

Initials:

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Date: 27/03/2013

Project Number:

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Project Name:

BLYTH ROAD

Project Number CG04668C



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Determination of Particle Size Distribution

Borehole Number: BH 2
 Sample Number: -
 Depth (m): 7.00

Description:
 Grey slightly fine sandy silty CLAY

**

BS1377 : Part 2 : Clause 9.2 : 1990 Wet Sieving Method

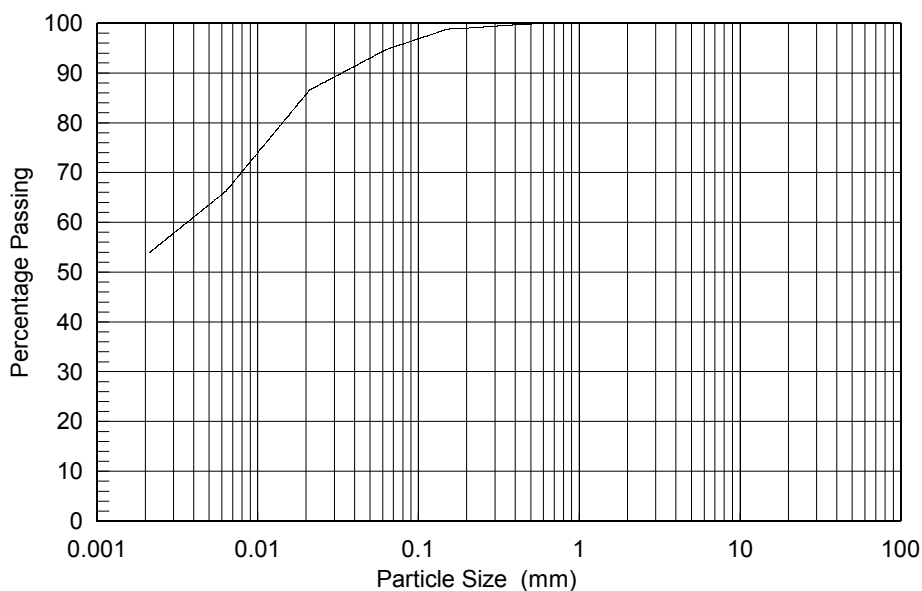
BS1377 : Part 2 : Clause 9.4 : 1990 Sedimentation by the Pipette Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
28 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
3.35 mm	100
2 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	99
212 µm	99
150 µm	99
63 µm	95

PIPETTE	
Particle size	% pass
21.1 µm	87
6.3 µm	66
2.1 µm	54
Preparation:	
No Pre-treatment used	

Temp (°C)	20
-----------	----

CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	



Particle Proportions		
Cobbles	0.0	%
Gravel	0.0	%
Sand	5.3	%
Silt	40.8	%
Clay	53.9	%

Checked and
Approved

Initials:

SB

Date: 27/03/2013

Project Number:

GEO / 19397

Project Name:

BLYTH ROAD**Project Number CG04668C****GEOLABS®**

Quick Undrained Triaxial Compression Test

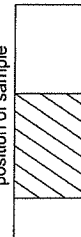
Borehole Number: BH1
 Sample Number: -
 Depth (m): 18.00

Description:
 Very stiff brown CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	207.3
Diameter (mm):	103.2
Moisture Content (%):	31
Bulk Density (Mg/m ³):	1.94
Dry Density (Mg/m ³):	1.48
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	1.9
Cell pressure (kPa):	360
Strain at failure (%):	4.1
Maximum Deviator Stress (kPa):	338
Shear Stress τ_c (kPa):	169
Mode of failure:	

Orientation and
position of sample



Checked and
Approved

Initials:

SB

Date: 27/03/2013

Project Number:

GEO / 19397

Project Name:

BLYTH ROAD

Project Number CG04668C



GEOLABS®

Quick Undrained Triaxial Compression Test

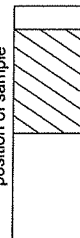
Borehole Number: BH2
 Sample Number: -
 Depth (m): 7.50

Description:
 Very stiff dark brown CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.9
Diameter (mm):	103.5
Moisture Content (%):	25
Bulk Density (Mg/m ³):	2.02
Dry Density (Mg/m ³):	1.62
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.4
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	150
Strain at failure (%):	5.4
Maximum Deviator Stress (kPa):	315
Shear Stress τ_c (kPa):	158
Mode of failure:	

Orientation and
position of sample



Checked and
Approved

Initials:

SB

Date: 27/03/2013

Project Number:

GEO / 19397

Project Name:

BLYTH ROAD

Project Number CG04668C



GEOLABS®

Quick Undrained Triaxial Compression Test

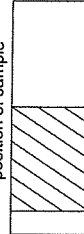
Borehole Number: BH2
 Sample Number: -
 Depth (m): 13.50

Description:
 Very stiff brown CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	187.6
Diameter (mm):	102.7
Moisture Content (%):	26
Bulk Density (Mg/m ³):	1.98
Dry Density (Mg/m ³):	1.57
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	2.1
Cell pressure (kPa):	270
Strain at failure (%):	3.7
Maximum Deviator Stress (kPa):	401
Shear Stress Cu (kPa):	200
Mode of failure:	

Orientation and
position of sample



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Quick Undrained Triaxial Compression Test

Borehole Number: BH2
 Sample Number: -
 Depth (m): 25.50

Description:
 Very stiff dark brown CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.3
Diameter (mm):	103.1
Moisture Content (%):	26
Bulk Density (Mg/m ³):	2.01
Dry Density (Mg/m ³):	1.59
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	510
Strain at failure (%):	9.4
Maximum Deviator Stress (kPa):	554
Shear Stress C_u (kPa):	277
Mode of failure:	

Orientation and
position of sample



Checked and
Approved

Initials:

SB

Date: 27/03/2013

Project Number:

GEO / 19397

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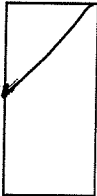
GEOLABS®

Quick Undrained Triaxial Compression Test

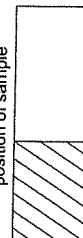
Borehole Number: BH2
 Sample Number: -
 Depth (m): 28.50

Description:
 Very stiff brown CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	159.3
Diameter (mm):	103.0
Moisture Content (%):	25
Bulk Density (Mg/m ³):	2.03
Dry Density (Mg/m ³):	1.63
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	2.5
Cell pressure (kPa):	570
Strain at failure (%):	4.4
Maximum Deviator Stress (kPa):	468
Shear Stress τ_c (kPa):	234
Mode of failure:	

Orientation and
position of sample



Checked and
Approved

Initials:

SB

Date: 27/03/2013

Project Number:

GEO / 19397

Project Name:

BLYTH ROAD

Project Number CG04668C



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APPENDIX H

Ground Gas and Groundwater Monitoring Results

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Blyth Road, Hayes	Job No:	CG/04668C
Date:	06/03/2013	Engineer:	AMT
Time:	09:50	Client:	Ballymore

METEOROLOGICAL & SITE INFORMATION									
State of ground:	Dry	☐	Moist	☒	Wet	☐			
Wind:	Calm	☐	Light	☒	Moderate	☐	Strong	☐	
Cloud cover:	None	☐	Slight	☐	Cloudy	☐	Overcast	☒	
Precipitation:	None	☒	Slight	☐	Moderate	☐	Heavy	☐	
Barometric pressure (mb):	996, falling to 995			Local pressure system*:	Falling	Air temperature (°C):		9	

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O ₂ (% vol. in air)	CO ₂ (% vol. in air)	CH ₄ (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH02A (deep)	0	0.0	0.0	19.1	0.0	0.0	NR	3.09	4.09 to base
	15	-0.1	-1.0	18.4	0.5	0.0			
	30	0.0	0.0	17.9	0.6	0.0			
	45	0.0	0.0	17.8	0.6	0.0			
	60	0.0	0.0	17.7	0.7	0.0			
	90	0.0	0.0	17.6	0.7	0.0			
	120	0.0	0.0	17.4	0.9	0.0			
	150	0.0	0.0	17.0	1.0	0.0			
	180	0.0	0.0	16.3	1.6	0.0			
	240	0.0	0.0	16.3	1.6	0.0			
	300	0.0	0.0	16.3	1.6	0.0			
BH02B (shallow)	0	0.0	0.0	17.0	0.0	0.0	NR	Dry	1.17 to base
	15	0.0	0.0	20.0	0.0	0.0			
	30	0.0	0.0	20.1	0.0	0.0			
	45	0.0	0.0	20.1	0.0	0.0			
	60	0.0	0.0	20.1	0.0	0.0			
	90	0.0	0.0	20.1	0.0	0.0			
	120	0.0	0.0	20.1	0.0	0.0			
	150	0.0	0.0	20.1	0.0	0.0			
	180	0.0	0.0	20.1	0.0	0.0			
	240	0.0	0.0	20.1	0.0	0.0			
	300	0.0	0.0	20.1	0.0	0.0			
WS03	0	0.0	0.0	19.8	0.0	0.0	NR	Dry	1.13 to base
	15	-0.1	-1.0	19.2	0.0	0.0			
	30	0.0	0.0	19.2	0.0	0.0			
	45	-0.1	-1.0	19.2	0.0	0.0			
	60	-0.1	-1.0	19.2	0.0	0.0			
	90	-0.1	-1.0	19.2	0.0	0.0			
	120	-0.1	-1.0	19.2	0.0	0.0			
	150	-0.1	-1.0	19.2	0.0	0.0			
	180	-0.1	-1.0	19.2	0.0	0.0			
	240	-0.1	-1.0	19.2	0.0	0.0			
	300	-0.1	-1.0	19.2	0.0	0.0			
WS06	0	0.0	1.0	19.2	0.2	0.0	NR	0.78	1.06 to base
	15	-0.1	0.0	12.3	2.2	0.0			
	30	0.0	0.0	12.1	2.0	0.0			
	45	-0.1	0.0	13.0	1.8	0.0			
	60	0.0	0.0	13.8	1.6	0.0			
	90	0.0	0.0	14.7	1.4	0.0			
	120	0.0	0.0	15.3	1.3	0.0			
	150	0.0	0.0	16.1	1.1	0.0			
	180	0.0	0.0	16.5	0.9	0.0			
	240	0.0	0.0	16.9	0.8	0.0			
	300	0.0	0.0	16.9	0.8	0.0			
BH1	0	0.1	0.0	17.3	0.8	0.0	NR	3.05	4.39 to base
	15	0.0	0.0	18.6	0.1	0.0			
	30	0.0	0.0	18.6	0.1	0.0			
	45	0.0	0.0	18.6	0.1	0.0			
	60	0.0	0.0	18.6	0.1	0.0			
	90	0.0	0.0	18.6	0.1	0.0			
	120	0.0	0.0	18.6	0.1	0.0			
	150	0.0	0.0	18.6	0.1	0.0			
	180	0.0	0.0	18.6	0.1	0.0			
	240	0.0	0.0	18.6	0.1	0.0			
	300	0.0	0.0	18.6	0.1	0.0			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
 * With reference to the Met Office rolling weather archive for Heathrow weather station.

GROUNDWATER MONITORING RECORD SHEET

JOB DETAILS			
Site:	Bylth Road, Hayes	Job No:	CG/04668C
Date:	06/03/2013	Engineer:	AMT
Time:	11:00	Client	Ballymore
Weather:	Dry, overcast, slight wind		

MONITORING & SAMPLING DETAILS								
Well / Borehole reference:	BH02A	BH02B	WS03	WS06	BH01			
Monitoring details								
Ground elevation (+mOD)								
Groundwater depth (mbgl)	3.09	Dry	Dry	0.78	3.05			
Groundwater elevation (+mOD)								
Depth to base of well (mbgl)	4.09	1.17	1.13	1.06	4.39			
Diameter of well (m)	0.05	0.05	0.05	0.05	0.05			
Condition of well	Good	Good	Good	Good	Good			
Top of response zone (mbgl)								
Base of response zone (mbgl)								
Free product thickness (m)	none	none	none	see note below	none			
Hydrocarbon sheen noted (Y/N)	N	-	-	Y	N			
Purging details								
Purge method	Bail	-	-	Bail	Bail			
Purged volume (litres)	6	-	-	1	8			
Recharge (good / poor)	Good	-	-	Poor	Good			
Sampling details								
Sampling method								
Volume of water sample taken (litres)	~1	-	-	~0.5	~1			
Volume of free product sample taken (litres)	none	-	-	-	-			
Colour / odours noted*	Orange	-	-	Strong HC odour	Orange			
In-situ measurements								
pH	7.2 (8.17)	-	-	see note below	7.27 (7.81)			
Temperature (°C)	11.8 (11.1)	-	-		11.3 (11.4)			
Dissolved oxygen (mg/l)	7.5	-	-		4.4			
Redox potential (mV)	97	-	-		101			
Electrical conductivity (µS/cm)	1.08 mS	-	-		0.81 mS			
Total dissolved solids (ppt)	0.52	-	-		0.43			
* Respiratory protective equipment to be worn if odours are noted during initial monitoring & on sites which are potentially contaminated								

NOTES	
BH02A - bacterial sheen noted. pH and T measurements from handheld meter are shown in brackets. WS06 - Free product thickness difficult to measure to very thick sludgy nature of sample. Dip meter became clogged and wouldn't measure accurately. Cleaned off on-site with tap. Sample was black and quite thick. Well went dry during purging so only 1 bottle and 1 vial filled. No water qual. data taken. BH01 - pH and T measurements from handheld shown in brackets.	