



22.1373/LG/LC  
06 December 2022

Nikki Homfray  
HDR Consulting Limited  
240 Blackfriars Road  
London  
SE1 8NW

**BY EMAIL ONLY**

Dear Nikki

**ROMFORD DATA CENTRE – GROUNDWATER SAMPLING**

**Introduction**

Paragon, a Colliers Company (hereafter referred to as Paragon) has been instructed to complete groundwater sampling at three monitoring locations at Romford North Data Centre, 3 King George Close, Eastern Avenue, Romford, RM7 7PN. We understand that these works are required to meet the groundwater monitoring requirements of an existing Environmental Permit and will be included as part of the annual report for the site. The scope of works involved groundwater sampling and chemical analysis of the groundwater samples collected at three locations across the site.

**Fieldwork, Results and Conclusions**

Enitial visited the site on behalf of Paragon on 15 December 2022 and collected groundwater samples in three locations (known as Samples 1, 2 and 3) across the site. The locations are shown on a borehole plan in Appendix 1. The samples were collected using a bailer – a monitoring record is provided in Appendix 2. The samples were submitted for chemical analysis of Total Petroleum Hydrocarbons : Criteria Working Group including Benzene, Toluene, Ethylbenzene And Xylene and Methyl Tert-Butyl Ether (TPH : CWG inc. BTEX & MTBE).

The laboratory results have been presented in Appendix 3 and confirm the concentrations of hydrocarbons in the sampled areas were below the limit of detection.



Please do not hesitate to get in touch with the undersigned if you have any questions.

Yours Sincerely

A handwritten signature in black ink that reads "L. Griffin".

Lara Griffin BSc AMIEnvSc  
Senior Environmental Consultant  
Paragon, a Colliers Company  
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Enclosed

Appendix 1 – Borehole Location Plan  
Appendix 2 – Monitoring Record  
Appendix 3 – Laboratory Results – Groundwater  
Appendix 4 – Extent of Survey and Limitations



## APPENDIX 1: BOREHOLE LOCATION PLAN



- Approx ground-water flow directions
- SI Bore holes  
Xm level BGS
- Ground Water Sample Boreholes
- Underground Tanks
- Site Boundary
- Building

● Sample 2  
Area - Romford South

Works



## APPENDIX 2: MONITORING RECORD

# Ground Gas and Groundwater Monitoring Record Sheet

**JOB DETAILS:**

**Client:** Paragon  
**Site:** Romford North Data Centre  
**Date:** 15/11/2022

**Quote No:**  
**Visit No:** 1 of 1  
**Operator:** Reuben Wills **Project Manager:** Dan Stodgell



Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA			WELL AND WATER DATA		Comments	
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)		Depth of well (m)
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
1 - Car Park	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.93	5.77	No odour, clear colour, no oil, fine sediment, low turbidity
2 - Expansion Space	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.88	6.56	Organic odour, clear colour, no oil, fine sediment, low turbidity
3 - Yard	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.74	5.98	No odour, clear colour, no oil, fin sediment, low turbidity
<b>Max</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	NA	2.88	6.56	
<b>Min</b>	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0.0	0.0	NR	0.0	0.0	0.0	0.0	NA	0.74	5.77	

ND - Not detected  
 NR - Not recorded  
 NA - Non applicable

**METEOROLOGICAL AND SITE INFORMATION:**

(Select correct box with X or enter data, as applicable)

State of ground:  Dry  Moist  Wet  Snow  Frozen

Wind:  Calm  Light  Moderate  Strong

Cloud cover:  None  Slight  Cloudy  Overcast

Precipitation:  None  Slight  Moderate  Heavy

Time monitoring performed:  9:31 Start  10:35 End

Barometric pressure (mbar):  995 Start  994 End

Pressure trend (Daily):  Falling  Steady  Rising

Source:  Online

Air Temperature (Deg. C):  12 Before  12 After



## APPENDIX 3: LABORATORY RESULTS – GROUNDWATER



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**Lara Griffin**

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**e:** lara.griffin@colliers.com

## **Analytical Report Number : 22-97480**

<b>Project / Site name:</b>	Romford North Data Centre	<b>Samples received on:</b>	16/11/2022
<b>Your job number:</b>	221373	<b>Samples instructed on/ Analysis started on:</b>	18/11/2022
<b>Your order number:</b>	221373_LG	<b>Analysis completed by:</b>	28/11/2022
<b>Report Issue Number:</b>	1	<b>Report issued on:</b>	29/11/2022
<b>Samples Analysed:</b>	3 water samples		

**Signed:** \_\_\_\_\_

Dominika Warjan  
Junior Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

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.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.





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Analytical Report Number: 22-97480

Project / Site name: Romford North Data Centre

Your Order No: 221373\_LG

Lab Sample Number	2503753	2503754	2503755
Sample Reference	Sample 1	Sample 2	Sample 3
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	15/11/2022	15/11/2022	15/11/2022
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status

**Monoaromatics & Oxygenates\***

Benzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0

**Petroleum Hydrocarbons**

TPH-CWG - Aliphatic >C5 - C6 <sub>HS,1D,AL</sub>	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 <sub>HS,1D,AL</sub>	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 <sub>HS,1D,AL</sub>	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 <sub>EH,1D,AL,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 <sub>EH,1D,AL,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 <sub>EH,1D,AL,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 <sub>EH,1D,AL,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) <sub>HS+EH,1D,AL,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 <sub>HS,1D,AR</sub>	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 <sub>HS,1D,AR</sub>	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 <sub>HS,1D,AR</sub>	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 <sub>EH,1D,AR,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 <sub>EH,1D,AR,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 <sub>EH,1D,AR,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 <sub>EH,1D,AR,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) <sub>HS+EH,1D,AR,MS</sub>	µg/l	10	NONE	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample  
 \* These compounds have a -ve rail on their standard, but was not detected in any sample in the batch so is reported "non-accredited". All other checks (calibration, SST,AQC) pass.



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Analytical Report Number : 22-97480

Project / Site name: Romford North Data Centre

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' 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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

## Information in Support of Analytical Results

### List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



## APPENDIX 4: EXTENT OF SURVEY AND LIMITATIONS

## EXTENT OF SURVEY AND LIMITATIONS

This report is for your sole use, and consequently no responsibility whatsoever is undertaken or accepted to any third party for the whole or any part of its contents. Colliers accept no responsibility or liability for the consequences of this document being used for any purpose or project other than for which it was commissioned or a third party with whom an agreement has not been executed. Should any third party which to use or rely upon the contents of the report, written approval must be sought from Colliers, a charge may be levied against such approval.

The report has been designed to address potential source, pathway and receptor pollutant linkages associated with the proposed development, by means of intrusive investigation. The content and findings of the report are based on data obtained by employing site assessment methods and techniques, considered appropriate to the site as far as can be interpreted from desk-based materials and a visual walkover of the site. Such techniques and methods are subject to limitations and constraints set out in the report. The findings and opinions are relevant at the time of writing, and should not be relied upon at a substantially later date as site conditions can change. For example, seasonal groundwater levels, natural degradation of contaminants etc.

No liability can be accepted for the conditions that have not been revealed by the exploratory hole locations, or those which occur between each location. Whilst every effort will be made to interpolate the conditions between exploratory locations, such information is only indicative and liability cannot be accepted for its accuracy. By their nature, exploratory holes provide a relatively small and localised snapshot of the ground conditions relative to the size of the site.

Specific comment is made regarding the site's status under Part 2A of the Environmental Protection Act (EPA) 1990, which provides a statutory definition of Contaminated Land and as revised under The Contaminated Land (England) (Amendment) Regulations 2012. Unless specifically stated as relating to this definition, references to 'contamination' and 'contaminants' relate in general terms to the presence of potentially hazardous substances in, on or under the site.

The opinions given within this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. If additional information or data becomes available which may affect the opinions expressed in this report, Colliers reserves the right to review such information and, if warranted, to modify the opinions accordingly. Colliers reserves the right to charge additional fees for; un-anticipated second opinion reviewing of previous reports.

Colliers has prepared this report with reasonable skill, care and diligence. The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted industry practices at this time. The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources. We cannot provide guarantees or warranties for the accuracy of third-party data, which is reviewed in good faith and assumed to be representative and accurate.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed. No liability can be accepted for the effects of any future changes to such guidelines and legislation. In the event that guidance / legislation changes it may be necessary for Colliers to update or modify reports. The risk assessment is completed in line with the relevant land use agreed for the site and the time of completing the works. Changes to site conditions or land use may require a reassessment.

## DEFINITIONS

For the avoidance of doubt, Colliers Building Consultancy Limited (Colliers P&BC) has prepared the following alphabetical list of definitions and reservations to aid the client in understanding the content of our advice and or written reports(s):

Accuracy	Level of agreement between true value and observed value.
ACM's	Asbestos Containing Materials
Conceptual Site Model	<p>Textual and or schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the base of the information from the preliminary investigation and refined during subsequent phases of investigation and which is an essential part of the risk assessment process.</p> <p><b>Note 1:</b> The conceptual exposure model is initially derived from the information obtained by the preliminary investigation. This conceptual model is used to focus subsequent investigations, where these are considered to be necessary, in order to meet the objectives of the investigations and the risk assessment. The results of the field investigation can provide additional data that can be used to further refine the conceptual model.</p>
Contamination	<p>Presence of a substance which is in, on or under land, and which has <u>the potential</u> to cause significant harm or to cause significant pollution of controlled water.</p> <p><b>Note 1:</b> There is no assumption in this definition that harm results from the presence of the contamination.</p> <p><b>Note 2:</b> Naturally enhanced concentrations of harmful substances can fall within this definition of contamination.</p> <p><b>Note 3:</b> Contamination may relate to soils, groundwater or ground gas.</p>
Controlled Water	<p>Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three-mile limit of territorial waters.</p> <p><b>Note 1:</b> See Section 104 of The Water Resources Act 1991.</p>
Enquiries	Any enquiries undertaken by Colliers of local authorities and statutory undertakers are made verbally in respect of environmental issues. Local searches are not undertaken and no responsibility is accepted for any inaccurate information provided. It is further assumed unless otherwise stated that all necessary licences, permits etc. either run with the property or are transferable to a new occupier as appropriate.
Harm	Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case humans, including property.
Hazard	Inherently dangerous quality of a substance, procedure or event.
Pathway	Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor.
Precision	Level of agreement within a series of measurements of a parameter.
Receptor	Persons, living organisms, ecological systems, controlled water, atmosphere, structures and utilities that could be adversely affected by the contaminant(s).

Risk	Probability of the occurrence, magnitude and consequences of an unwanted adverse effect on a receptor.
Risk Assessment	Process of establishing, to the extent possible, the existence, nature and significance of risk.
Sampling	Methods and techniques used to obtain a representative sample of the material under investigation.
Soil	Upper layer of the earth's crust composed of mineral parts, organic substance, water, air and living matter.  <b>Note 1:</b> In general accordance with BS 10175:2001 the term soil has the meaning ascribed to it through general use in civil engineering and includes topsoil and subsoil; deposits such as clays, silt, sand, gravel, cobbles, boulders and organic deposits such as peat; and material of natural or human origin (e.g. fills and deposited wastes). The term embraces all components of soil, including mineral matter, organic matter, soil gas and moisture, and living organisms.
Source	Location from which contamination is, or was, derived.  <b>Note 1:</b> This could be the location of the highest soil or groundwater concentration of the contaminant(s).
Uncertainty	Parameter, associated with the result of a measurement that characterises the dispersion of the values that could reasonably be attributed to the measurement.