023/4749/REG/jr

31st March 2025

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Mr O Bottomley
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Dear Oliver

Gynn Lane, Honley – gas risk assessment

Further to issue of our Geoenvironmental Appraisal Report (No. 4749/2, dated September 2024), gas monitoring at the above site has now been completed and we are able to issue this supplementary letter report together with copies of the monitoring results. This letter, which should be read in conjunction with Report No 4749/2, reviews soil-gas conditions, assesses risks and details any mitigation measures required to render the site suitable for the proposed development.

Background

The site is located approximately 4.7 km south of Huddersfield town centre at NGR SE 145 121, and comprises a single parcel of land, roughly square in shape, and covering an area of approximately 2.7 hectares (6.7 acres).

In relation to hazardous gas, the above-mentioned report found:

- A former landfill is located 115m to the northeast
- Shallow mineworkings with associated adits and shafts are present on site

Based on the above, it was considered that the site might be at risk from hazardous gas and therefore monitoring wells were installed in 6 boreholes. Details of the individual installations are provided in Appendix E of this letter report.

The proposed residential development comprises 50 no. two and three storey domestic dwellings, associated gardens, POS, adoptable roads, and sewers, as shown on Drawing 4749/2 in Report No 4749/2. A mixture of foundation types will be used at the site including strip footings, reinforced strip footings and rafts.

Scope of works

The generation potential of the gas source was initially considered to be Moderate consequently, in accordance with CIRIA Report C665, given the proposed residential end use, 12 visits have been completed over a 6 month period, between August 2024 and March 2025.

A standard procedure was followed in accordance with CIRIA guidance; this procedure involved measurement, in the following order of:

- Atmospheric temperature, pressure and ambient oxygen concentration on site immediately prior to and on completion of monitoring
- Methane, oxygen and carbon dioxide concentrations and flow rates using a Gas Data GFM436 infra-red gas analyser
- Standing water level using a dipmeter

Gas monitoring results

The monitoring results are enclosed and summarised below:

Well	Response zone	Range of methane concentrations (% v/v)	Range of carbon dioxide concentrations (% v/v)	Range of steady flow rates (litre/hour)
PH19	1.5 – 4.5m (Sandstone)	N.D	N.D – 0.6	N.D
PH20	1.5 – 4.5m (Sandstone)		0.1 – 1.1	N.D
PH21	1.5 – 4.5m (Mudstone)		N.D – **5.2**	N.D
PH22	1.5 – 4.5m (Sandstone & mudstone)		N.D – 0.9	N.D
PH23	1.5 – 4.5m (Sandstone & mudstone)		N.D – 3.1	N.D
PH24	1.5 – 4.5m (Mudstone & coal)		0.9 – 4.7	N.D – 0.1

Note: Atmospheric pressures varied between 990mb and 1032mb.

Numbers (gas concentrations) in **bold** exceed the CS1 threshold (there are no threshold concentrations for CS2 and above; CS is dictated by Gas Screening Value).

During 5 of the 12 monitoring visits (Visits 2, 4, 8, 10 & 11), atmospheric pressure was falling in the 24 – 48 hour period prior to the monitoring being carried out. Plots of atmospheric pressure versus time, with the monitoring visits indicated, are presented in Appendix D of this letter report.

In accordance with the DETR approach, a gas flow rate of 0.1 litres/hour has been used to calculate gas screening values as the highest recorded sustained flow.

Current guidance

Generic Notes (01 Site Characterisation) outlining how monitoring results are interpreted are enclosed.

In accordance with CL:AIRE's mine gas risk assessment guidance[1], monitoring at each location on each individual occasion was undertaken for at least 10 minutes for flow and a further 10 minutes for gas concentration **or** until a steady sustained rate was reached for a period of more than 2 minutes.

Current gas regime

The proposed residential development comprises 50 two and three storey domestic dwellings, associated gardens, POS, adoptable roads, and sewers. Consequently, the gas regime has been characterised in accordance with the Situation A (Wilson & Card) methodology outlined in CIRIA Report C665[2] and BS8485:2015+A1:2019[3].

No methane was recorded during any of the monitoring visits.

Based on worst-case (peak) gas concentration and steady flow, a Gas Screening Value (GSV)[4] for carbon dioxide of 0.0052 has been calculated. This GSV equates to Characteristic Situation 1 (**CS1**)

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1 *Good Practice for Risk Assessment for Coal Mine Gas Emissions. CL:AIRE. October 2021*
2 *CIRIA C665: Assessing risks posed by hazardous ground gases to buildings (2007).*
3 *Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.*
4 *Gas Screening Values (GSVs) are calculated by the equation: GSV = flow x (gas concentration / 100).*

A single carbon dioxide concentration over 5% was recorded at PH21 during monitoring Visit 6, the exceedance was marginal (5.2%) and highly likely to be the result of aerobic microbial activity within the substrata.

Occasional positive and negative **peak** flows, which rapidly dissipated upon the opening of the gas tap, were recorded. It is considered that these flows are the result of air trapped within the well head space becoming highly pressurised due to variation in groundwater levels and changes in atmospheric pressure between monitoring visits, rather than evidence of driving flow from a plausible source of gas.

The calculated GSV based on the existing data suggests a classification of CS1 with no gas protection measures required. However, consideration of the plausible gas source here (mines gas), the presence of preferential pathways (adits and a shaft), the relatively short monitoring period, and the absence of continuous monitoring data, it is considered prudent to increase the classification to **CS2**. As **basic** radon protection is required, the classification of CS2 is not onerous.

Scope of protection measures

Based on the site characterisation discussed above, the proposed foundation solution, and with reference to the gas protection "scoring" system outlined in BS8485:2015+A1:2019, Lithos consider that the following protective measures should be incorporated in all new buildings:

Charac. situation (Wilson & Card, '99)	Gas "score" req'd by BS8485	Protective measures (Residential) (See footnote for definition of Building Type A)		
		Floor slab (BS8485 "score")	Sub-floor ventilation (BS8485 "score")	Membrane Type (BS8485 score")
2	3.5	*Select one from:* Block & Beam – (0). Reinforced ground bearing slab – (0.5). Reinforced, cast in-situ suspended slab (with minimal and suitably sealed service penetrations & joints) – (1.5). Reinforced ground bearing raft (with limited service penetrations cast into slab). Note: the venting area through any downstand beam should be 3 times greater than that provided by the side ventilation (air bricks) – (1.5).	*Select one from:* Passive sub-floor ventilation; venting layer could be: A min. 150mm clear void (2.5), or A proprietary void former providing an equivalent clear void depth of 60mm; see Section B7 in BS8485 (2.5), or Min. 300mm thick blanket of min. 20mm single size rounded or sub-angular gravel (1.0). Min. ventilation = 1,500 mm²/m run of external wall (via air bricks on each of 2 opposite sides), with 100mm pipes at 1.75m centres or honeycombing of any sub-floor sleeper walls.	Gas resistant membrane meeting all of the following criteria: • sufficiently impervious to gases with a methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheet and joints (tested in accordance with BS ISO 15105-1 manometric method); • sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • sufficiently strong to withstand in-service stresses (e.g. settlement if placed below a floor slab); • sufficiently strong to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc); • capable, after installation, of providing a complete barrier to the entry of the relevant gas; • a minimum 0.4 mm thickness (1600g polyethylene) reinforced membrane (virgin polymer); and • verified in accordance with CIRIA C735∞ (2.0)

Footnotes:

∞ In accordance with CIRIA C735, a Verification Plan should be prepared which outlines the activities (inspection and testing), the relevant personnel, and the type of records to be collected. Gas membranes need to be visually inspected to establish possible damage. For CS3 sites inspection & verification should be carried out by an independent third party. However, whilst conflicts of interest in verification should be avoided, the Developer's staff on site could undertake inspection & verification on CS2 sites. In all circumstances, the verifier should be competent, experienced and suitably trained.

1. Building Type A is defined in Table 3 and Section 7 of BS8485:2015+A1:2019 as: private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Examples include private housing and some retail premises
2. A combination of two or more of the three types of protection measures (slab, ventilation & membrane) should be used to achieve the BS8485 score.
3. The membrane should always be lapped and sealed in accordance with BRE\Environment Agency Report BR 414 (2001) – "Protective Measures for housing on gas-contaminated land". The membrane should be continuous across internal walls & the cavity, and there should be a cavity tray in external walls.
4. In all cases there should be minimum penetration of floor slab by services; any penetrations should be suitably sealed.

In general accordance with CIRIA[5], YALPAG guidance[6] and NHBC guidance[7] a Gas Protection Strategy and Verification Plan (Design Report and Construction Drawings) should be prepared which detail site specific requirements for the gas protection system with respect to the development.

The Design Report should include details which specify the required verification for all elements (design and installation) of the gas protection system. The report should be issued to NHBC and Kirklees Council in advance of the construction phase.

Independent third party verification (i.e. not by the installer or any associated company) of gas protection measures is required in accordance with the guidance, which as a minimum should include visual inspection. In all cases the verifier should be competent, experienced and suitably trained. As stipulated in the CIRIA guidance the frequency of verification will be dictated by the experience of the installer.

BRE\Environment Agency Report BR 414 (2001) – "*Protective Measures for housing on gas-contaminated land*" provides a practical guide to good practice for the detailing and construction of passive soil gas protection measures for new residential development. Of particular relevance are a list of 'Watchpoints', which offer practical information for installation and buildability.

Radon

Requirements with respect radon measures are set out in Building Regulations Approved Document C. Probability bandings (based on the proportion of properties in a given area that exceed the Action Level; currently 200 Bq.m-3) are used to determine whether a property requires no, basic or full measures.

At present Approved Document C advocates basic measures for the probability banding 3% to 10% (full measures if >10%). However, the UK Health Security Agency (HSA) would like to see all new build include basic measures.

In December 2022, the British Geological Survey (BGS), deployed a revised dataset which increased accuracy and also the number of properties falling within radon affected areas. This revised dataset is now referenced by maps on the HSA website.

The HSA website radon map indicates that the site is in an area where **5% to 10%** of homes are estimated to be above the action level, and **basic** radon protection measures are required in new dwellings.

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5 *Good practice on the testing and verification of protection systems for buildings against hazardous ground gases. CIRIA C735, 2014.*

6 *Verification Requirements for Gas Protection Systems - Technical Guidance for Developers, Landowners and Consultants. Yorkshire and Lincolnshire Pollution Advisory Group, December 2016.*

7 *Hazardous ground gas – as essential guide for housebuilders. NHBC Foundation, April 2023*

Basic radon measures comprise a radon resistant barrier* (membrane) laid within the floor construction and across the wall cavity in accordance with BR211:2023[8]. The joints between the sheets that form the membrane and cross the cavity must be sealed, along with all service penetrations, to make the construction as airtight as possible. A separate cavity tray should be installed in the cavity one brick course above the radon membrane. In order to withstand the installation and follow on construction process membranes should be no less than 400 microns thick[9].

BRE211:2023 highlights the importance of good practice and a high standard of workmanship to ensure radon membranes are installed to a high standard.

A building site is a harsh environment and barriers can easily become damaged during construction by operatives or equipment moving across or working over a completed section of barrier. As a consequence, where there is a risk of puncturing the membrane, it should be ensured that the membrane is well protected with sand or lean mix concrete before advancing construction.

The radon protection system should be subject to inspection and verification by a third party inspector that has a full understanding of all elements of the radon protection system.

Verification should be carried out at a minimum frequency of 1 in 10 plots where groundworkers carry out installation, and 1 in 20 plots where accredited installers are used. Plots selected for inspection should be located across the development and not clustered.

We trust the above is sufficient for your present needs, but should you have any queries please contact the undersigned.

Yours sincerely

REDACTED

Julia Reynolds
Principal Engineer
for and on behalf of
LITHOS CONSULTING LIMITED

Enclosures:

Appendix A – General notes
Appendix B – Drawings
Appendix C – Gas monitoring results
Appendix D – Atmospheric pressure graphs
Appendix E – Monitoring well installations

[8] *BRE Report BR211, 2023: "Radon: guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects"*

* *Confirmation of resistance to radon must be obtained from the manufacturer.*

[9] *BS8485:2015+A1:2019. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. January 2019.*

APPENDIX A
General notes

05 – Hazardous gas
Generic notes – geoenvironmental investigations

General

Hazardous gas is considered to be any mixture of potentially explosive, toxic or asphyxiating gases, most notably methane, carbon dioxide and oxygen (deficiency). In addition, radon, a naturally occurring radioactive gas is also considered. Further information about radon is included in Notes 01 – Environmental Setting.

Assessment of potential risks associated with hazardous gas are based on a review of data obtained from the Landmark Information Group, the Environment Agency and the Local Authority and the British Geological Survey. Reference is also made to historical OS plans, which are inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

Where landfilling has occurred within 250m of the site boundary, the Local Planning Authority may request a landfill gas investigation in accordance with the Town and Country Planning General Development Order, 1988.

Sources

Potential sources of hazardous gas include:

- Landfill sites
- Made ground, especially where significant depths are present
- Shallow mineworkings associated with coal extraction
- Geological strata, including peat, organic silts, coal and limestone (reaction with acidic waters), granite (radon)
- Groundwater can sometimes act as a "carrier" for hazardous gas
- Leakages from pipelines or storage tanks
- Sewers, septic tanks and cess pits

Generation

Wherever biodegradable material is deposited, landfill gas (principally a mixture of methane and carbon dioxide) is likely to be generated by microbial activity. Carbon dioxide is an asphyxiant and toxic; methane is flammable and a mixture containing between 5% and 15% methane by volume in air is explosive. Landfill gas in the ground is unlikely in itself to pose a significant risk, though it may damage vegetation. However, infiltration of landfill gas into confined spaces (e.g. cellars, services, etc) may give rise to considerable risk.

There is no typical figure for the length of time that landfill gas will be evolved, but at many sites significant gas generation continues for at least 15 years after the last deposit of waste.

Migration

Gas migration from a landfill site may occur in several ways. It may migrate through adjacent strata; the distance of migration being dependent on the pressure gradients, volume of gas and permeability of the strata. Where there are faults, cavities and fissures within the strata, gas may move considerable distances. Other migration pathways for gas include man-made features such as mine shafts, roadways and underground services.

Gas migration is influenced by a number of climatic factors, such as atmospheric pressure variations, water table level variations and the influence of a covering of snow or ice over the surface of the site and surrounding area.

Gas monitoring procedure

Lithos adopt a standard gas monitoring procedure, in accordance with CIRIA guidance. This procedure involves the measurement, in the following order of:

- Atmospheric temperature, pressure and ambient oxygen concentration
- Gas emission rate
- Methane, oxygen and carbon dioxide concentrations using an infra-red gas analyser
- Standing water level using a dipmeter.

In addition, ground conditions at each sampling location are recorded together with prevailing weather conditions and any other observations such as any vandalism. Where samples of gas are required for laboratory analysis, Gresham Tubes or multi-layer Tedlar / ALTEF sampling bags are used. Gas concentrations in the well are typically recorded immediately before and after retrieval of a sample.

Current guidance

CIRIA Report 151 (1995) identified that there was inadequate guidance on trigger concentrations for ground gases. CIRIA concluded that the most important aspect of a gas regime below or adjacent to a site was the surface emission rate, i.e. how quickly the gas is coming out of the ground. The lower the surface emission rate the lower the risk. CIRIA Report C665 (2007) advocated two methodologies for characterising sites:

A – All developments except low rise housing. The advocated methodology is that proposed by Wilson & Card, 1999

B – Low rise housing. An alternative (traffic light) methodology, derived by Boyle and Witherington, 2006 for NHBC

Both methodologies refer to Gas Screening Values (GSV); previously referred to as limiting borehole gas volume flow. However, the NHBC traffic light guidance will be withdrawn in July 2025, and consequently Lithos typically now only refer to Situation A methodology.

Relevant UK guidance includes:

- BS8485:2015+A1:2019 – Code of Practice for the characterisation & remediation from ground gas in affected developments.
- BS8576:2013 Guidance on investigations for ground gas – permanent gases and volatile organic compounds
- Wilson, Card & Haines (CIEH, 208) The Local Authority Guide to Ground Gas
- CIRIA C665 (2007) Assessing Risks Posed by Hazardous Ground Gases to Buildings
- CIRIA C735 (2014) Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Ground Gases
- CL:AIRE (October 2021) Good Practice for Risk Assessment for Coal Mine Gas Emissions
- CL:AIRE Research Bulletin RB17 (November 2012) A Pragmatic Approach to Ground Gas Risk Assessment
- CL:AIRE Research Bulletin RB13 (February 2011) The Utility of Continuous Monitoring in Detection & Prediction of 'Worst-Case' Ground Gas Concentration
- BRE\Environment Agency Report BR 414 (2001) – "Protective Measures for housing on gas-contaminated land".
- YALPAG (December 2016) - Verification Requirements for Gas Protection Systems - Technical Guidance for Developers, Landowners and Consultants.
- Environment Agency Report LFTGN 03 - Guidance on the management of landfill gas, June 2014
- NHBC Foundation (April 2023) Hazardous Ground Gas – an Essential Guide for Housebuilders (NF94)

Situation A Methodology (All development)s

(Wilson & Card, 1999) revised Table 28 of CIRIA 149 in terms of borehole gas volume flow rate (now GSV) in order to achieve a more consistent design of protection measures. This was done to reflect the importance of recognising the gas surface emission rate. Wilson & Card then developed a method for classifying gassing sites (Table 1 below), which took into account the combined gas concentration and GSV.

Characteristic Situation	Gas Screening Value, CH_4 or CO_2 (l/hr)	Additional limiting factors	Typical source of generation
1	<0.07	Methane not to exceed 1% v/v and carbon dioxide not to exceed 5% v/v	Natural soils with low organic content
2	<0.7	Borehole air flow rate not to exceed 70 litre/hr otherwise increase to Characteristic Situation 3	Natural soil, high peat/organic content
3	<3.5		Old landfill, inert waste, mineworkings flooded.
4	<15	Quantitative Risk Assessment required to evaluate scope of protection measures.	Mineworkings – susceptible to flooding, completed landfill, inert waste
5	<70		Mineworkings unflooded, inactive
6	>70		Recent landfill site

Notes: Borehole flow rate = volume of gas (regardless of composition) which is escaping from well (l/hr). Gas Screening Value (litre/hour) = gas concentration (%) / 100 x borehole flow rate (l/hr). To facilitate design implementation, the limiting values for both methane and carbon dioxide are identical.

APPENDIX B

Drawings



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CLIENT	YORKSHIRE COUNTRY PROPERTIES
JOB TITLE	GYNN LANE, HONLEY
DRAWING TITLE	SITE LOCATION PLAN
DRAWN	CC
DATE	23 05 2024
CHECKED	AG
DATE	23 05 2024
STATUS	FOR COMMENT ☐ DRAFT ☐ FOR APPROVAL ☐ FINAL ☑
SCALE	1:25,000
SHEET	A4
DRAWING NO.	4749/1
REVISION	



NOTES

MONITORING WELL LOCATIONS

APPROXIMATE SITE BOUNDARY

EXPLORATORY HOLE LOCATIONS HAVE BEEN SURVEYED IN (COORDINATES & GROUND LEVEL) ON COMPLETION

REV.	DESCRIPTION	DATE

LITHOS CONSULTING

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Tel 01937 545330

CLIENT

YORKSHIRE COUNTRY PROPERTIES

JOB TITLE

GYNN LANE, HONLEY

DRAWING TITLE

MONITORING WELL LOCATIONS

DRAWN	DATE	STATUS
CC	09 08 2024	FOR COMMENT ☐
CHECKED	DATE	FOR APPROVAL ☐
AG	09 08 2024	DRAFT ☐
		FINAL ☑

SCALE	SHEET	DRAWING NO.	REVISION
1:1000	A3	4749/6B	

APPENDIX C

Gas monitoring results

Visit 1

Job Title:	Job No:
Gynn Lane, Honley	4749
Client:	**Sheet :**
Vivly Living (YCP)	1 of 12

Date:	Arrival Time:	Depart Time:	Operator:
21/08/2024	09:30	10:30	George Costley

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	19.2

Monitoring Point	Groundwater level	Concentrations: Initial / Highest CH_4	Initial / Highest CO_2	Steady concentrations CH_4	Steady concentrations CO_2	Lowest concn O_2	Gas Flow Rates: Initial / Maximum	Steady	Time to fall from highest to steady	Bottom of well	Remarks
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.6	ND	0.6	19.1	0.7	ND	200.0	4.16	Bung Tap left open
PH20	3.65	ND	0.1	ND	0.1	18.4	ND	ND	200.0	4.17	Bung Tap left open
PH21	ND	ND	4.7	ND	4.7	**12.4**	ND	ND	200.0	4.20	Bung Tap left open
PH22	4.21	ND	0.7	ND	0.7	18.8	0.3	ND	200.0	4.24	Bung Tap left open
PH23	ND	ND	0.1	ND	0.1	19.2	ND	ND	200.0	4.15	Bung Tap left open
PH24	ND	ND	ND	ND	ND	19.2	ND	ND	200.0	4.10	Bung Tap left open

Equipment Used:	Next Calibration Date
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter	27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

Site Data:			Weather Station Data (Slaithwaite Station)					
Temp (°C):	12.9 > 15.2		Barometric Pressure Trend:			Rising		
Time:	09:30	10:00	10:30	01:00	07:30	09:30	10:00	10:30	12:30
Pressure (mb):	999	997	997	1010	1012	1013	1013	1013	1013

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

Weather Conditions:	Sunny, Mild
Surface Ground Conditions:	Damp

Remarks: Slaithwaite weather station located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 2

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				2 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
19/09/2024	14:15	15:15	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.4

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	ND	ND	ND	20.5	-0.3	ND	600.0	4.10	
PH20	3.74	ND	0.5	ND	0.5	20.2	ND	ND	600.0	4.17	
PH21	ND	ND	0.3	ND	0.3	20.3	ND	ND	600.0	4.20	
PH22	4.23	ND	0.2	ND	0.2	20.2	ND	ND	600.0	4.25	Bung Sits Above Well
PH23	ND	ND	0.1	ND	0.1	20.0	ND	ND	600.0	4.12	
PH24	ND	ND	4.2	ND	4.2	**13.7**	ND	ND	600.0	4.13	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)					
	Temp (°C):	14.2 > 16.5		Barometric Pressure Trend:			Falling		
Time:	14:15	15:00	15:15	01:00	12:15	14:15	15:00	15:15	17:15
Pressure (mb):	1015	1012	1011	1030	1030	1029	1028	1028	1027
	Weather Conditions:		Sunny, Mild, Slight Cloud						
	Surface Ground Conditions:		Dry						

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

Remarks:

Slaithwaite weather station located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 3

Job Title:							Job No:
Gynn Lane, Honley							4749
Client:							Sheet :
Vivly Living (YCP)							3 of 12
Date:	Arrival Time:	Depart Time:	Operator:				
11/10/2024	14:00	15:30	George Costley				

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.3

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.5	ND	0.5	20.6	ND	ND	600.0	4.15	
PH20	2.81	ND	0.5	ND	0.5	20.3	ND	ND	600.0	4.18	
PH21	ND	ND	0.9	ND	0.9	20.1	ND	ND	600.0	4.14	
PH22	2.74	ND	ND	ND	ND	20.0	ND	ND	600.0	4.11	Bung Sits Above Well
PH23	2.71	ND	0.1	ND	0.1	20.5	ND	ND	600.0	4.16	
PH24	ND	ND	3.9	ND	3.9	**14.9**	ND	ND	600.0	4.12	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)							CH_4	CO_2	O_2
	Temp (°C):	8.2 > 9		Barometric Pressure Trend:			Steady						
Time:	14:00	14:30	15:00	01:00	12:00	14:00	14:30	15:00	17:00	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	1000	998	998	1013	1015	1015	1015	1015	1014	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Cloudy, Cold										
	Surface Ground Conditions:		Wet										

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 4

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				4 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
31/10/2024	10:45	12:15	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.3

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.6	ND	0.6	19.9	ND	ND	600.0	4.15	
PH20	3.06	ND	0.8	ND	0.8	19.5	ND	ND	600.0	4.18	
PH21	ND	ND	3.1	ND	3.1	16.4	ND	ND	600.0	4.24	
PH22	2.71	ND	ND	ND	ND	20.4	ND	ND	600.0	4.08	
PH23	3.88	ND	ND	ND	ND	20.3	ND	ND	600.0	4.17	
PH24	ND	ND	3.6	ND	3.6	16.2	-0.7	ND	600.0	4.14	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)					
	Temp (°C):	10		Barometric Pressure Trend:			Falling		
Time:	10:45	11:30	12:15	00:00	08:45	10:45	11:30	12:15	14:15
Pressure (mb):	1011	1011	1010	1027	1026	1025	1025	1025	1024
	Weather Conditions:		Overcast, Cold						
	Surface Ground Conditions:		Wet						

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 5

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				5 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
14/11/2024	11:30	12:45	George Costley	

LITHOS CONSULTING

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.3

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.1	ND	0.1	20.2	ND	ND	600.0	4.16	
PH20	3.16	ND	0.8	ND	0.8	18.9	ND	ND	600.0	4.18	
PH21	ND	ND	2.7	ND	2.7	**15.7**	ND	ND	600.0	4.22	
PH22	3.20	ND	ND	ND	ND	20.3	ND	ND	600.0	4.12	Bung Sits Above Well
PH23	4.11	ND	0.1	ND	0.1	19.8	ND	ND	600.0	4.13	
PH24	ND	ND	4.6	ND	4.6	**13.9**	ND	ND	120.0	4.13	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)							CH_4	CO_2	O_2
	Temp (°C):	8.3 > 9.6		Barometric Pressure Trend:			Steady						
Time:	11:30	12:00	12:45	04:04	09:30	11:30	12:00	12:45	14:45	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	1017	1017	1017	1032	1033	1033	1033	1032	1032	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Clear Skies, Cold										
	Surface Ground Conditions:		Wet										

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 6

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				6 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
04/12/2024	10:15	11:30	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	17.1

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.6	ND	0.6	16.9	ND	ND	120.0	4.10	
PH20	2.87	ND	0.9	ND	0.9	**15.0**	ND	ND	120.0	4.19	
PH21	ND	ND	**5.2**	ND	**5.2**	**11.3**	ND	ND	120.0	4.21	
PH22	2.31	ND	ND	ND	ND	17.1	ND	ND	120.0	4.03	
PH23	2.98	ND	0.4	ND	0.4	16.7	ND	ND	120.0	4.17	
PH24	ND	ND	4.7	ND	4.7	**14.0**	ND	ND	120.0	4.13	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)							CH_4	CO_2	O_2
	Temp (°C):	5.7 > 6.2		Barometric Pressure Trend:			Steady						
Time:	10:15	11:00	11:30	00:00	08:15	10:15	11:00	11:30	13:30	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	1007	1007	1007	1021	1023	1024	1023	1023	1021	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Overcast, Cold										
	Surface Ground Conditions:		Wet										

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 7

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				7 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
07/01/2025	14:00	15:15	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	15.9

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.3	ND	0.3	**15.9**	ND	ND	120.0	4.15	
PH20	2.47	ND	0.3	ND	0.3	**14.7**	ND	ND	120.0	4.19	
PH21	ND	ND	0.9	ND	0.9	**15.6**	ND	ND	120.0	4.20	
PH22	2.32	ND	0.9	ND	0.9	**14.7**	ND	ND	120.0	3.87	
PH23	2.12	ND	0.8	ND	0.8	**14.2**	ND	ND	120.0	4.13	
PH24	ND	ND	3.3	ND	3.3	**14.3**	0.3	ND	120.0	4.12	

Equipment Used:	Next Calibration Date
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter	27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)							CH_4	CO_2	O_2
	Temp (°C):	0.2 > 0.4		Barometric Pressure Trend:			Rising						
Time:	14:00	14:35	15:15	00:00	12:00	14:00	14:35	15:15	17:15	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	984	980	980	990	996	995	996	996	997	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Clear, Cold,										
	Surface Ground Conditions:		Snowy										

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 8

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				8 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
20/01/2025	15:00	15:45	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	17.8

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.3	ND	0.3	17.6	ND	ND	120.0	4.17	
PH20	2.92	ND	0.8	ND	0.8	16.4	ND	ND	120.0	4.19	
PH21	ND	ND	1.1	ND	1.1	17.2	0.3	ND	120.0	4.25	
PH22	2.40	ND	0.7	ND	0.7	16.4	ND	ND	120.0	4.12	
PH23	2.98	ND	ND	ND	ND	17.8	ND	ND	120.0	5.17	
PH24	ND	ND	4.4	ND	4.4	16.6	0.3	0.1	120.0	4.13	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)					
	Temp (°C):	3.3		Barometric Pressure Trend:			Falling		
Time:	15:00	15:20	15:45	00:00	13:00	15:00	15:20	15:45	17:45
Pressure (mb):	1001	1000	998	1018	1016	1015	1015	1015	1015
	Weather Conditions:		Overcast, Cold						
	Surface Ground Conditions:		Wet						

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 9

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				9 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
03/02/2025	09:00	10:00	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.8

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.5	ND	0.5	20.3	ND	ND	300.0	4.15	
PH20	3.95	ND	0.4	ND	0.4	20.0	ND	ND	300.0	4.24	
PH21	ND	ND	1.9	ND	1.9	19.4	ND	ND	300.0	4.20	
PH22	2.47	ND	0.4	ND	0.4	20.0	ND	ND	300.0	4.01	
PH23	3.06	ND	0.1	ND	0.1	20.7	ND	ND	300.0	4.16	
PH24	ND	ND	2.2	ND	2.2	19.6	0.3	ND	300.0	4.13	

Equipment Used:

Gas Data GFM436 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

Next Calibration Date

27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)					
	Temp (°C):	5.5 > 5.9		Barometric Pressure Trend:			Falling		
Time:	09:00	09:30	10:00	00:00	07:00	09:00	09:30	10:00	12:00
Pressure (mb):	1006	1006	1004	1022	1020	1020	1021	1021	1020
	Weather Conditions:		Slight Cloud, Warm						
	Surface Ground Conditions:		Wet						

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 10

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				10 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
19/02/2025	13:00	14:00	George Costley	

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Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.0

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.6	ND	0.6	19.3	0.1	ND	300.0	4.15	
PH20	ND	ND	1.1	ND	1.1	19.5	0.3	ND	300.0	4.19	
PH21	ND	ND	ND	ND	ND	20.0	ND	ND	300.0	4.22	
PH22	3.95	ND	0.1	ND	0.1	19.8	0.7	ND	300.0	4.00	
PH23	ND	ND	0.1	ND	0.1	19.9	ND	ND	300.0	4.14	
PH24	ND	ND	1.5	ND	1.5	19.3	2.5	ND	300.0	4.13	

Equipment Used:	Next Calibration Date
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter	27/03/2025

Key	
ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)							CH_4	CO_2	O_2
	Temp (°C):	2.1 > 1.9		Barometric Pressure Trend:			Falling						
Time:	13:00	13:30	14:00	00:00	11:00	13:00	13:30	14:00	16:00	Trigger level 1	1.0	5.0	16.0
Pressure (mb):	1001	999	998	1018	1014	1013	1013	1013	1013	Trigger level 2	5.0	10.0	10.0
	Weather Conditions:		Raining, Cloudy, Cold										
	Surface Ground Conditions:		Wet										

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 11

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				11 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
05/03/2025	11:45	12:45	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	20.4

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.6	ND	0.6	20.0	0.7	ND	300.0	4.15	
PH20	2.92	ND	0.8	ND	0.8	19.2	ND	ND	300.0	4.18	
PH21	ND	ND	2.7	ND	2.7	16.4	1.0	ND	300.0	4.24	
PH22	3.50	ND	0.2	ND	0.2	20.3	0.7	ND	300.0	4.03	
PH23	3.14	ND	0.7	ND	0.7	19.4	ND	ND	300.0	4.16	
PH24	ND	ND	2.5	ND	2.5	18.7	ND	ND	300.0	4.12	

Equipment Used:	Next Calibration Date
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter	27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)					
Temp (°C):	7.4 > 8.6			Barometric Pressure Trend:		Falling			
Time:	11:45	12:15	12:45	00:00	09:45	11:45	12:15	12:45	14:45
Pressure (mb):	1004	1004	1002	1019	1018	1018	1017	1017	1016
Weather Conditions:	Sunny, Warm								
Surface Ground Conditions:	Wet								

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

Visit 12

Job Title:				Job No:
Gynn Lane, Honley				4749
Client:				Sheet :
Vivly Living (YCP)				12 of 12
Date:	Arrival Time:	Depart Time:	Operator:	
26/03/2025	09:15	10:00	George Costley	

Gas Monitoring Results:

Ambient Concentration (% Volume):	CH_4:	ND	CO_2:	ND	O_2:	21.2

Monitoring Point	Groundwater level	Concentrations					Gas Flow Rates			Bottom of well	Remarks
		Initial / Highest		Steady concentrations		Lowest concn	Initial / Maximum	Steady	Time to fall from highest to steady		
		CH_4	CO_2	CH_4	CO_2	O_2					
	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	m	
PH19	ND	ND	0.4	ND	0.4	20.9	ND	ND	120.0	4.15	
PH20	3.03	ND	0.7	ND	0.7	20.4	ND	ND	120.0	4.17	
PH21	ND	ND	1.8	ND	1.8	18.6	0.3	ND	120.0	4.24	
PH22	3.53	ND	ND	ND	ND	21.1	0.7	ND	120.0	4.02	
PH23	3.21	ND	3.1	ND	3.1	17.6	ND	ND	120.0	4.14	
PH24	ND	ND	0.9	ND	0.9	20.1	ND	ND	120.0	4.08	

Equipment Used:	Next Calibration Date
Gas Data GFM436 Infrared Gas Analyser Geotechnical Instruments Dipmeter	27/03/2025

Key

ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

	Site Data:			Weather Station Data (Slaithwaite Station)					
	Temp (°C):	7.4 > 8.4		Barometric Pressure Trend:			Steady		
Time:	09:15	09:35	10:00	00:00	07:15	09:15	09:35	10:00	12:00
Pressure (mb):	1006	1008	1008	1024	1025	1025	1025	1025	1024
	Weather Conditions:		Cloudy, cool						
	Surface Ground Conditions:		Wet						

	CH_4	CO_2	O_2
Trigger level 1	1.0	5.0	16.0
Trigger level 2	5.0	10.0	10.0

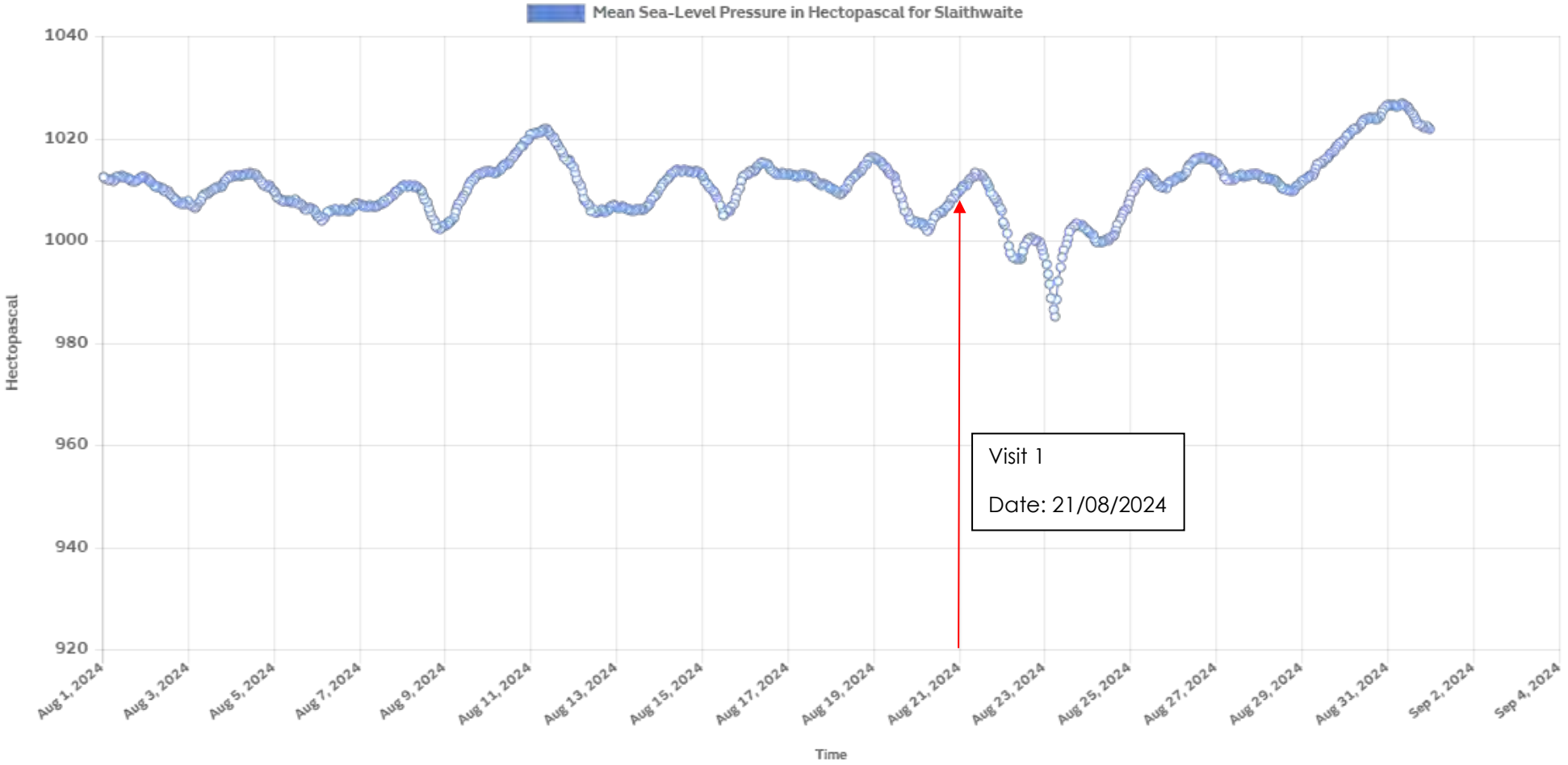
Remarks:

Slaithwaite weather station is located approxmately 5 miles west from the site (Gynn Lane, Honley).

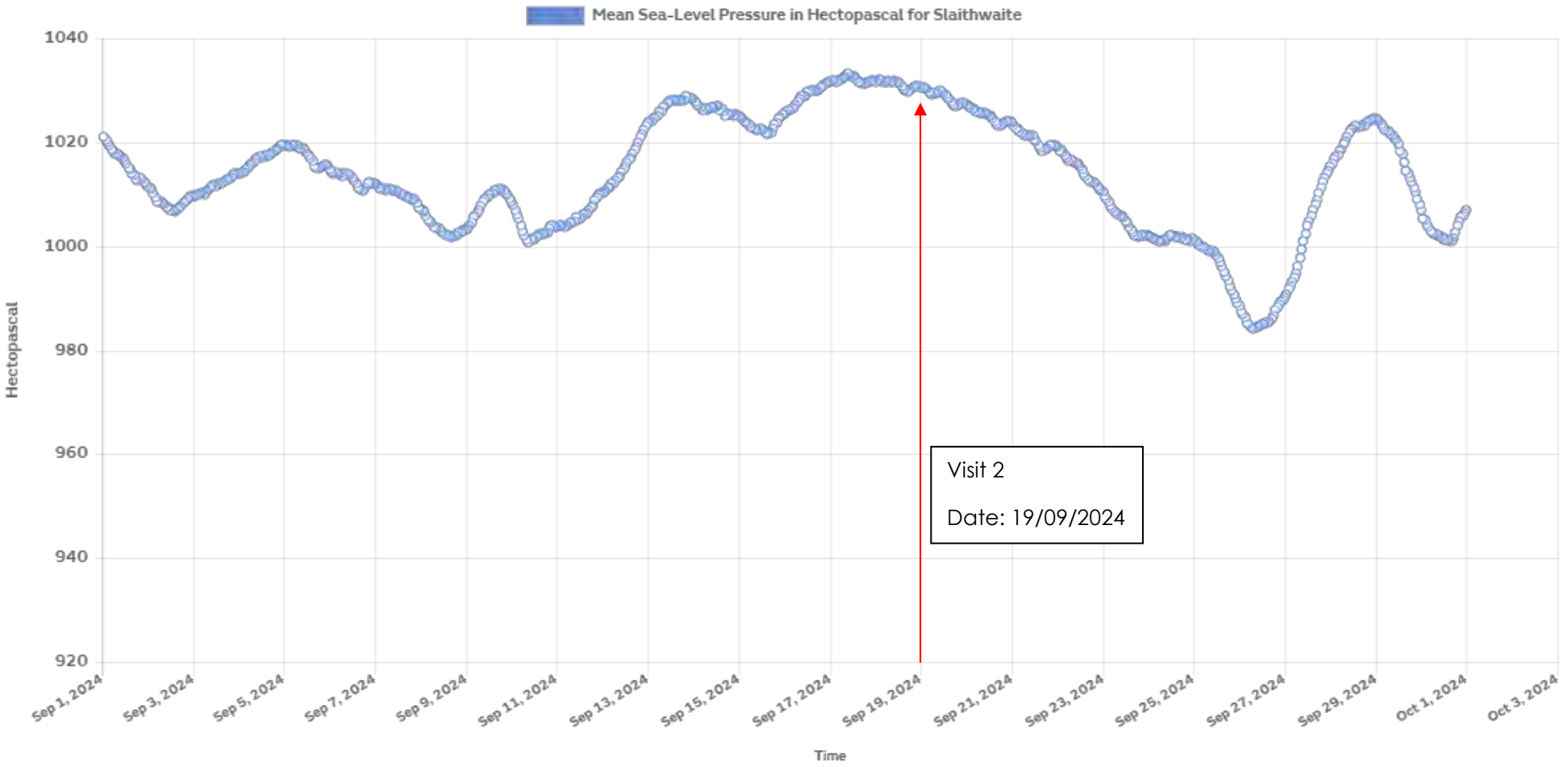
APPENDIX D

Atmospheric Pressure Graphs

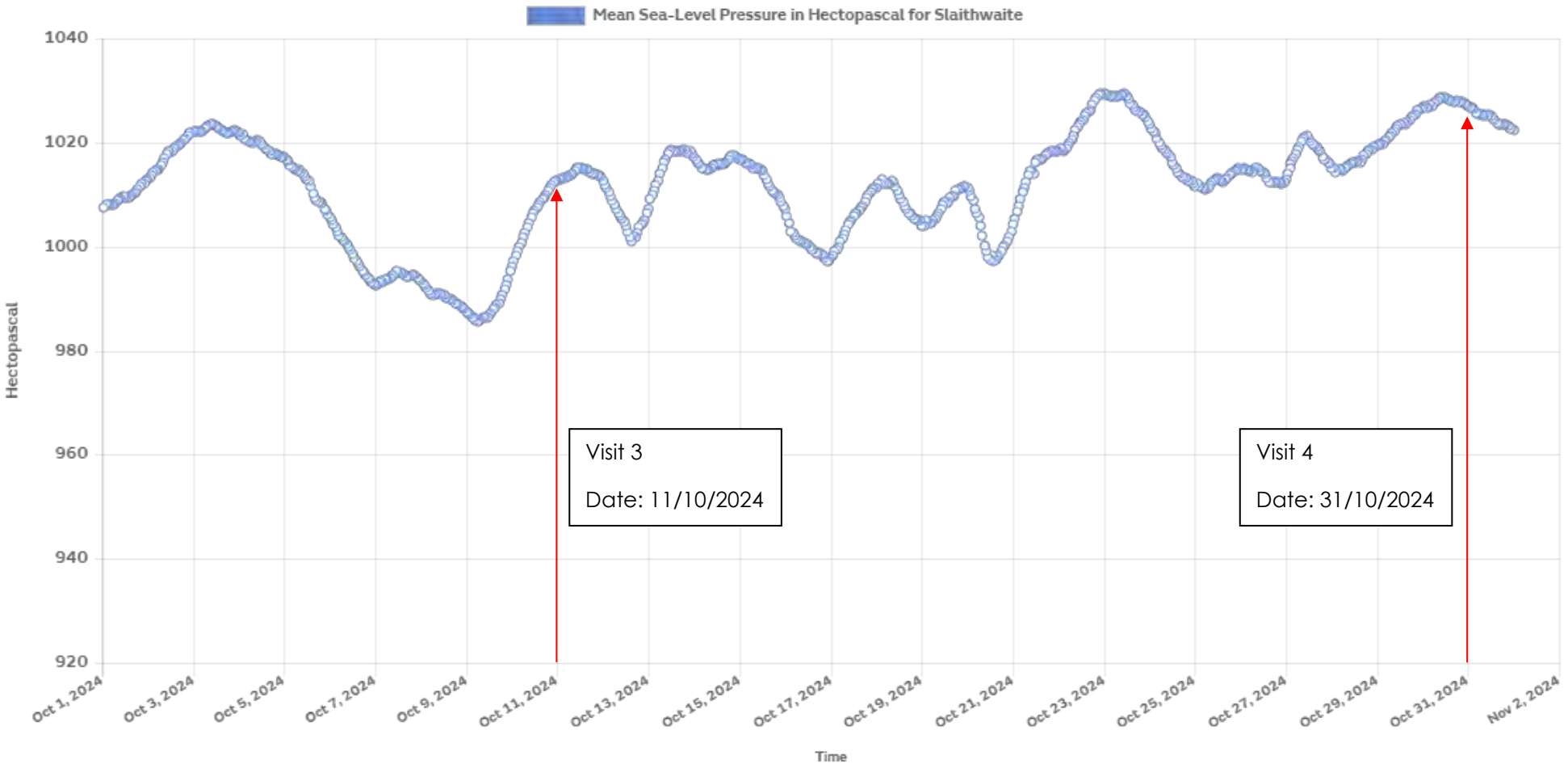
4749 – Gynn Lane, Honley



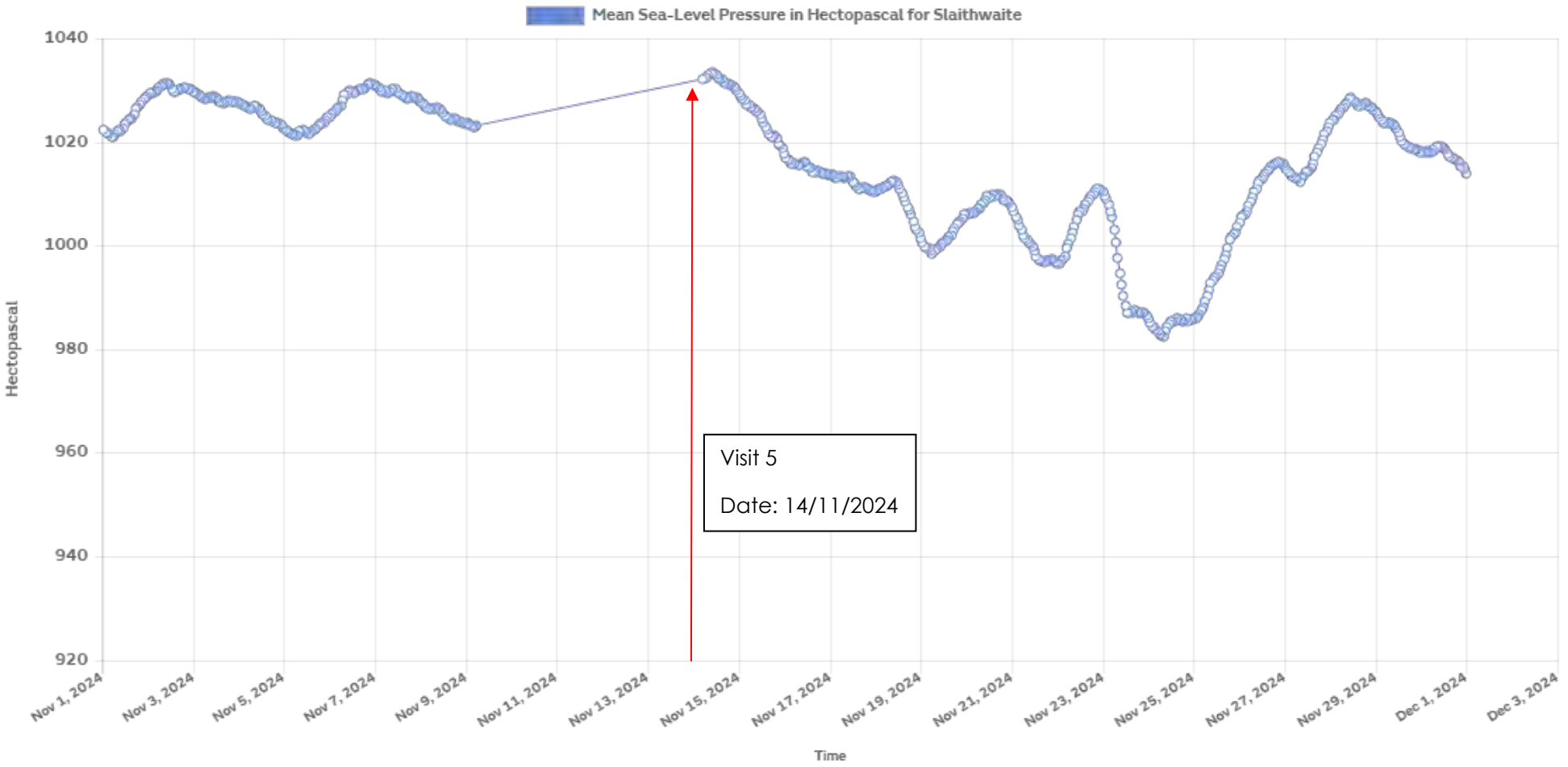
4749 – Gynn Lane, Honley



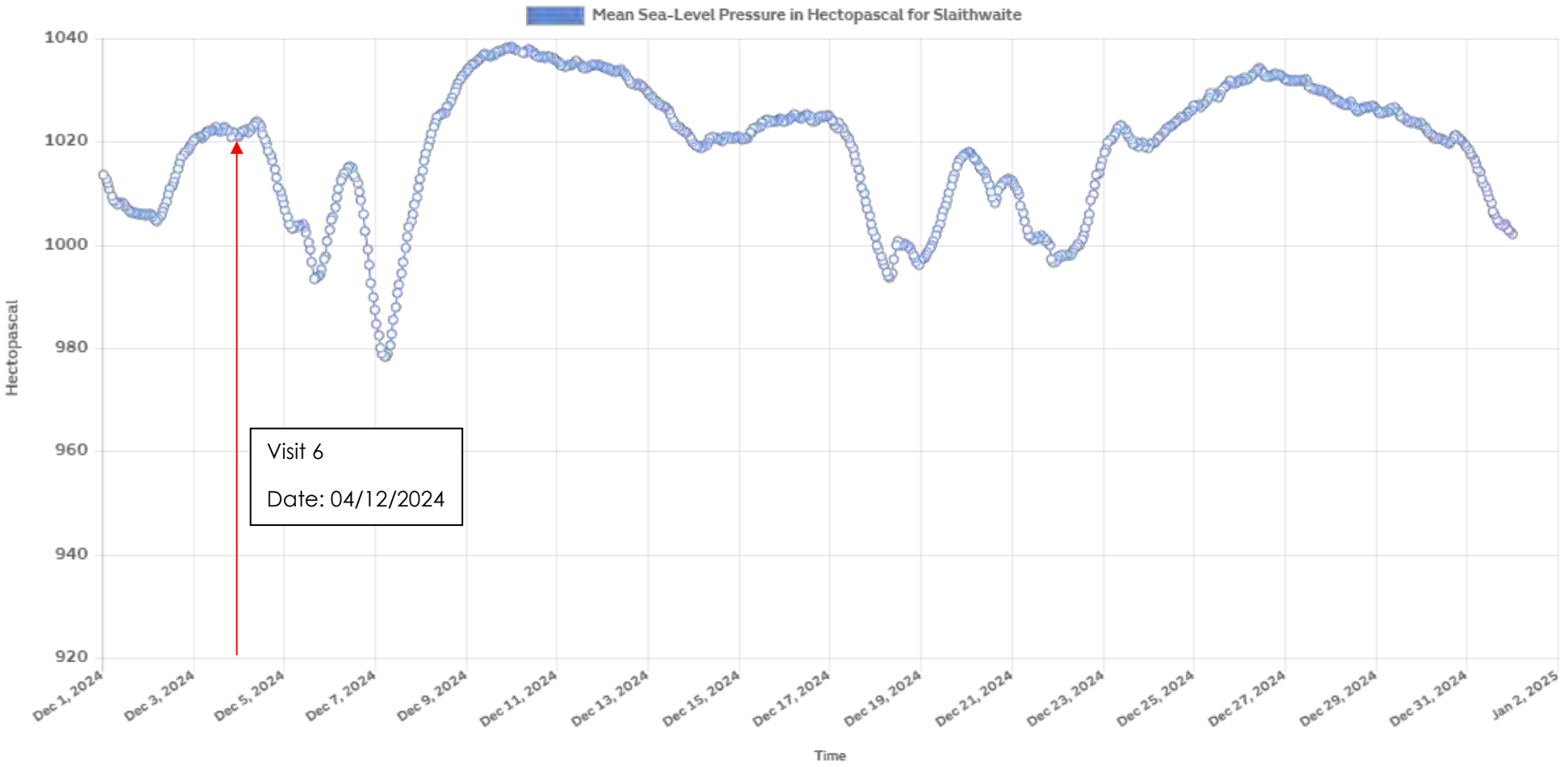
4749 – Gynn Lane, Honley



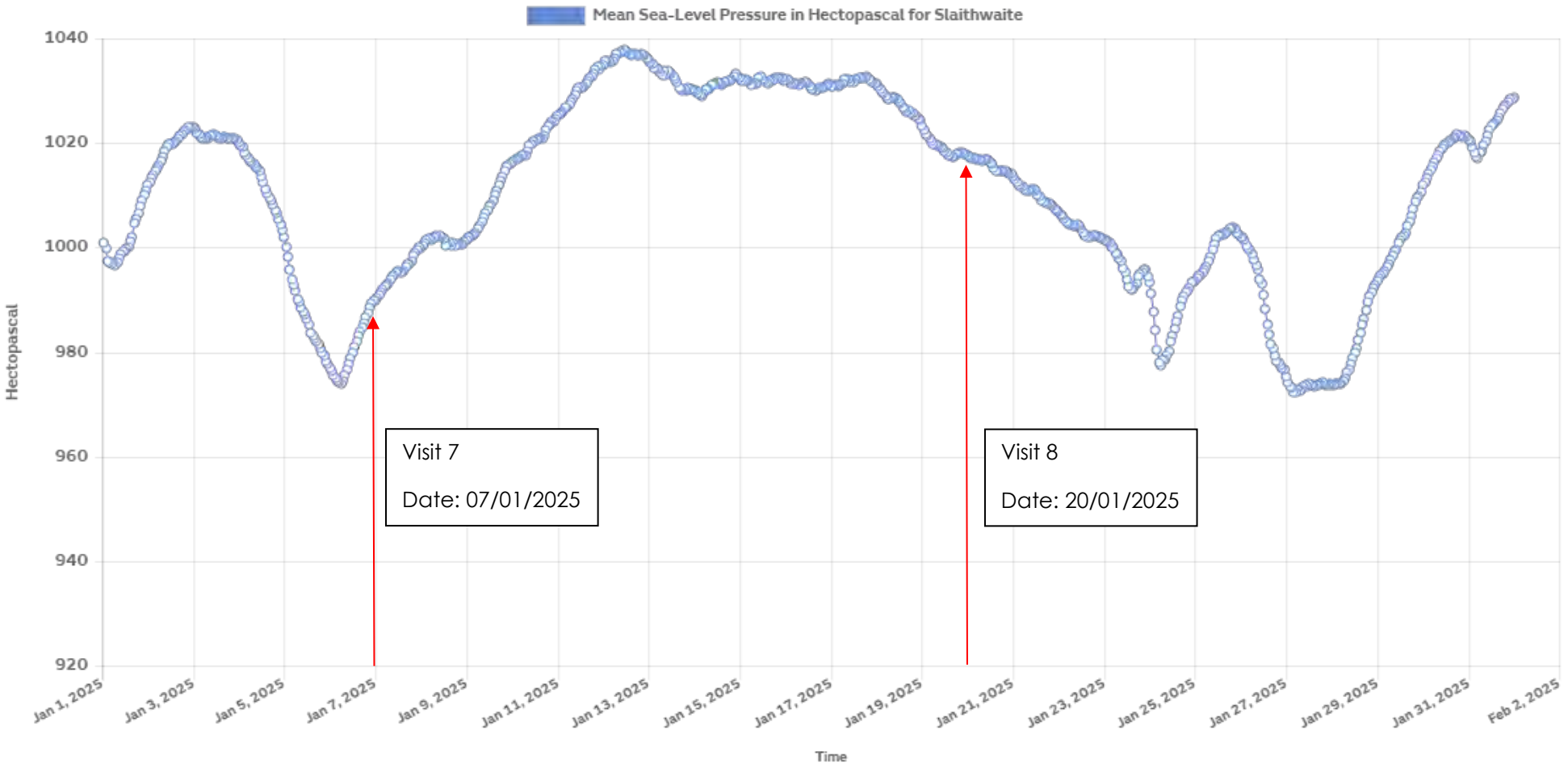
4749 – Gynn Lane, Honley



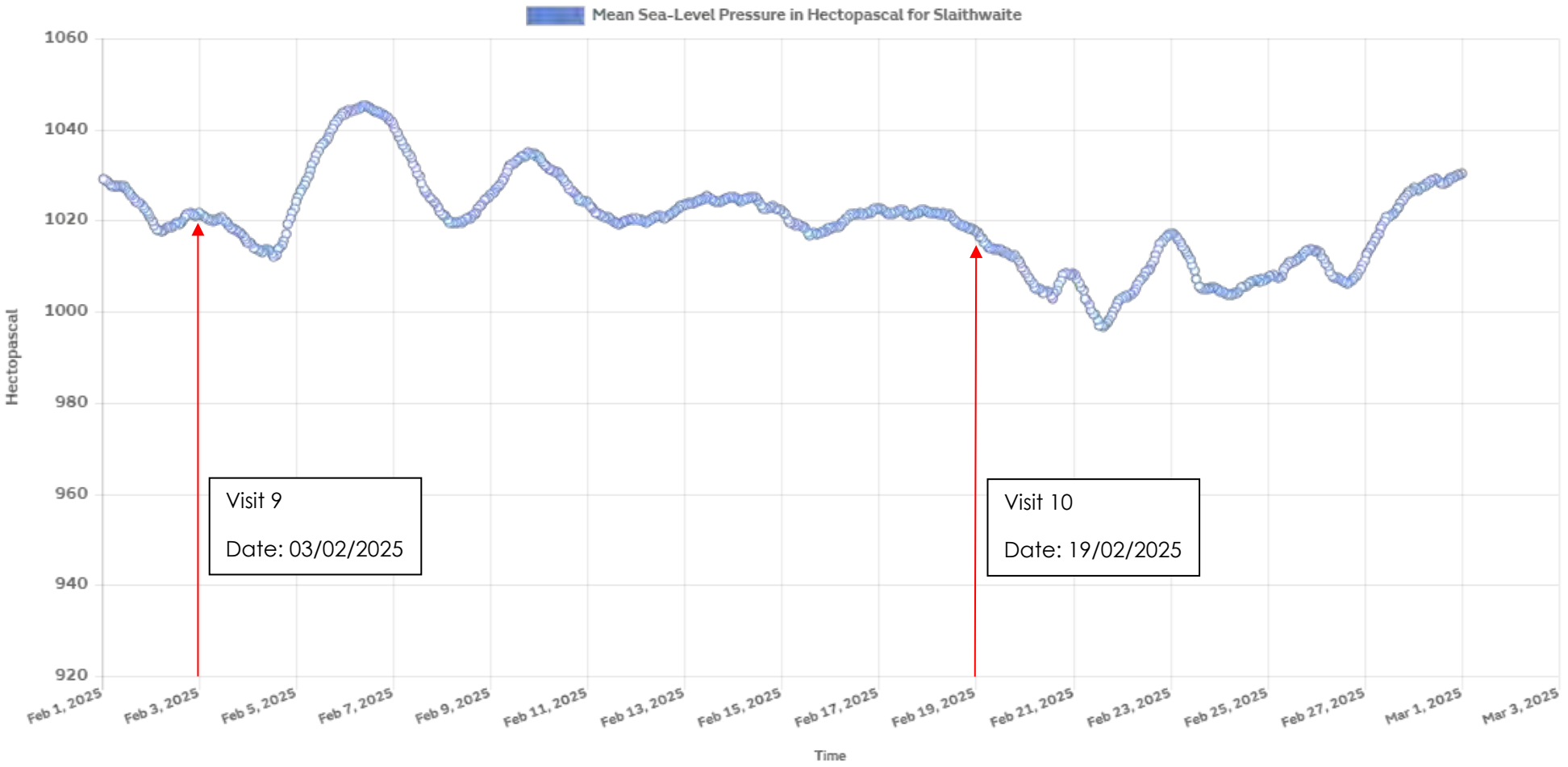
4749 – Gynn Lane, Honley



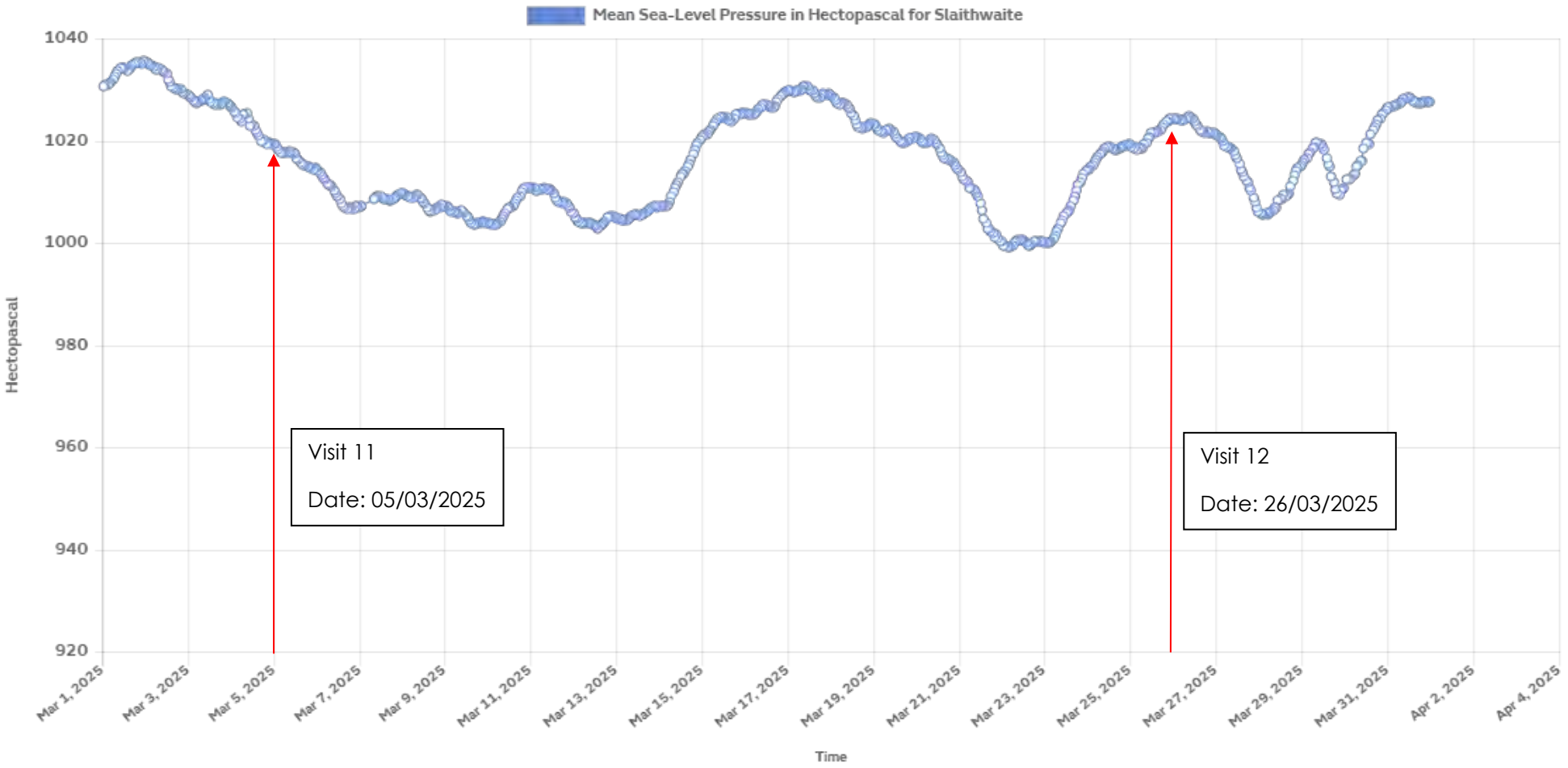
4749 – Gynn Lane, Honley



4749 – Gynn Lane, Honley



4749 – Gynn Lane, Honley



APPENDIX E
Monitoring Well Installations

LITHOS CONSULTING

Borehole Log

Borehole No.
PH19
Sheet 1 of 1

Project Name: Gynn Lane, Honley	Project No. 4749	Co-ords: -	Hole Type PH
Location: Honley		Level:	Scale 1:50
Client: Vivly Living		Dates: 03/08/2024 - 03/08/2024	Logged By CC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Overburden. (RESIDUAL SOIL)
					1.00			Light brown SANDSTONE. (COAL MEASURES)
					4.50			End of borehole at 4.50 m

Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.

AGS

LITHOS CONSULTING

Borehole Log

Borehole No.
PH20
Sheet 1 of 1

Project Name: Gynn Lane, Honley	Project No. 4749	Co-ords: 414508.26 - 412034.42	Hole Type PH
Location: Honley		Level: 116.30	Scale 1:50
Client: Vivly Living		Dates: 03/08/2024 - 03/08/2024	Logged By CC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Overburden. (RESIDUAL SOIL)
					1.00	115.30		Light brown SANDSTONE. (COAL MEASURES)
					4.50	111.80		End of borehole at 4.50 m

Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.

AGS

Borehole Log

Borehole No. **PH21**

Sheet 1 of 1

Project Name: Gynn Lane, Honley	Project No. 4749	Co-ords: 414584.62 - 412038.52	Hole Type PH
Location: Honley		Level: 122.50	Scale 1:50
Client: Vivly Living		Dates: 03/08/2024 - 03/08/2024	Logged By CC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Overburden. (RESIDUAL SOIL)
					1.50	121.00		Light grey MUDSTONE. (COAL MEASURES)
					4.50	118.00		End of borehole at 4.50 m

Remarks

1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.

Borehole Log

Borehole No. **PH22**

Sheet 1 of 1

Project Name: Gynn Lane, Honley	Project No. 4749	Co-ords: 414641.30 - 412069.08	Hole Type PH
Location: Honley		Level: 130.35	Scale 1:50
Client: Vivly Living		Dates: 03/08/2024 - 03/08/2024	Logged By CC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Overburden. (RESIDUAL SOIL)
					1.00	129.35		Light brown SANDSTONE. (COAL MEASURES)
					3.80	126.55		Dark grey MUDSTONE. (COAL MEASURES)
					4.50	125.85		End of borehole at 4.50 m

Remarks

1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.

LITHOS CONSULTING

Borehole Log

Borehole No.
PH23
Sheet 1 of 1

Project Name: Gynn Lane, Honley	Project No. 4749	Co-ords: 414633.61 - 412114.77	Hole Type PH
Location: Honley		Level: 129.45	Scale 1:50
Client: Vivly Living		Dates: 03/08/2024 - 03/08/2024	Logged By CC

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Overburden. (RESIDUAL SOIL)
					1.00	128.45		Light brown SANDSTONE. (COAL MEASURES)
					2.80	126.65		Dark grey MUDSTONE. (COAL MEASURES)
					4.50	124.95		End of borehole at 4.50 m

Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.

AGS

Borehole Log

Project Name: Gynn Lane, Honley	Project No. 4749	Co-ords: 414596.66 - 412120.49	Hole Type PH
Location: Honley		Level: 122.30	Scale 1:50
Client: Vivly Living		Dates: 03/08/2024 - 03/08/2024	Logged By CC

Borehole No. **PH24**

Sheet 1 of 1

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Overburden. (RESIDUAL SOIL)
					1.50	120.80		Light grey MUDSTONE. (COAL MEASURES)
					4.00	118.30		Black COAL. (SOFT BED COAL)
					4.50	117.80		End of borehole at 4.50 m

Remarks

1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not encountered. 3. Exploratory hole surveyed in (level and co-ordinates) on completion.