

**Contaminated Land
Air Quality
Environmental Audit**

Partnership No: OC 300776

Our ref: R2174-R18-v1

20th August 2024

Barratt Homes Manchester

Adamson House
Towers Business Park
Wilmslow Road
Didsbury
M20 2YY

By e-mail: bradley.massey@barratthomes.co.uk

Dear Brad,

Tetrosyl, Waldmers Wood, Bury.

Phase 2 Early Handover Area

(Phases 2E & Phase 2F - Southwest) Ground Gas / Vapour Risk Assessment

Introduction

The Smith Grant LLP (SGP) Phase 2 Remedial Strategy (report reference: R2174-R11-v6 dated; October 2023) specifies the requirement for ground gas monitoring and sampling of vapours (ref: Section 7.7 and Drawings 06 and 07). With respect to the recommendations, this includes:

Ground Gas Monitoring: will be carried out to assess the gassing regime within all areas of deep fills >3m, including existing, reworked and new fill areas. Drilled boreholes will be equipped with minimum 50mm diameter gas wells with response zones 1-4m depth (where possible over bedrock), placed on a grid spacing of 1 entry per 2,500m² (~50m grid). Testing will be for pressure and flow, methane, carbon dioxide, oxygen and VOC (by PID) concentrations. Monitoring will occur on 6 occasions over a 3-month period following completion of earthworks, with possible extension of the programme should any results indicate a change from the default assumption for building protection measures of CIRIA CS2 conditions.

Volatile organic compound (VOC) vapour monitoring: will take place across all areas where built development is proposed over VOC hotspots (identified hotspot area HS6, and any other suspect areas; the latter will include locations where existing or further site investigations identify elevated VOCs by PID testing that exceed 50 ppm¹).

The VOC monitoring will utilise shallow soil probes with response zone extending from 1m to the water table or 2m below ground level; this may require drilling to competent rock. Monitoring

¹ Others have been responsible for the production of the earthworks completion report and whilst this has not been provided to SGP, it is understood that no previously unexpected VOC contamination was encountered within the Phase 2 Early Handover area.

locations will be spaced at 1 per 25m² over the VOC hotspot area within the wider Phase 2 area (HS6) and at a wider spacing of 1 per 50m² over the remaining Phase 2 site area. VOC monitoring will take place on 3 occasions, with monitoring by PID, with one sample per probe to be collected in Silocan or equivalent container for GC-MS laboratory analysis.

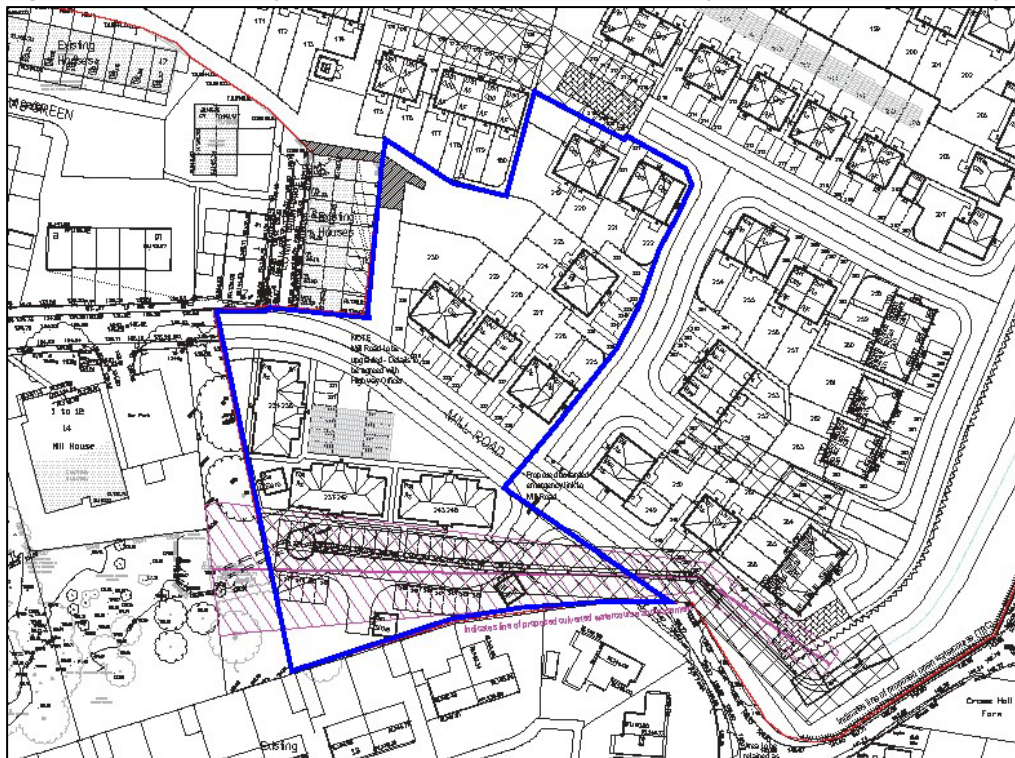
The results of laboratory VOC analysis will be compared against manufacturers' specifications for VOC-resistant membranes and outdoor inhalation health criteria to provide reassurance concerning residual VOC levels. Detailed quantitative risk assessment will be carried out to determine the significance of any exceedances of the above screening levels and need for any change to the assumed house protection measures.

The Phase 2 Remedial Strategy has been submitted to both the Environment Agency (EA) and Bury Metropolitan Borough Council (BMBC). Comments from BMBC received on 15.02.24 did not object to the post-remediation gas and vapour monitoring, hence we assume that this has been accepted.

Scope of report

Preparatory earthworks within the Phase 2 Early Handover Area comprising Remediation Phase 2E and the southwest section of Phase 2F (see figure 1.1 for area boundary and appended drawing 456/ED/05 for Remediation Phasing plan) have been completed. This covers Plots 219-248 according to the most recent development layout plan provided to SGP. This report details the post-remediation gas and vapour monitoring undertaken and this information has been used to undertake a post-remediation gas / vapour risk assessment. Ultimately this is to inform the developer-stage mitigation requirements which will be detailed in the forthcoming Developer-Stage Remediation Strategy for this area. This is a consistent approach which has been adopted in previous phases.

Figure 1.1. Phase 2 Early Handover Area (Blue Outline) overlayed on Excerpt of Site Layout Plan





Site works

SGP carried out the intrusive investigation works between the 30th and 31st May 2024 which consisted of the drilling of 8 continuous tube sample boreholes.

The positions of the exploratory boreholes were identified by SGP in agreement with the developer (Barratt Homes Manchester (BHM)) and the remediation contractor (Urban Regen Limited (URL)). These consisted of semi-regular, non-targeted entries across the area of deep fill in the southwest of the site for ground gas monitoring achieving an approximate 25m grid spacing. Two of these were also utilised for vapour monitoring / sampling where in the vicinity of a previously identified VOC hotspot. Two entries were drilled solely for the purpose of vapour monitoring / sampling in areas where VOC risks had been identified but where deep fills were absent.

The spacing was designed to satisfy that specified for gas / VOC monitoring within the Remedial Strategy, although some amendments were made to the borehole locations to take into account the proposed development layout of the Site. The borehole references and associated monitoring were as follows:

- GP2E01, GP2E03-GP2E05: gas and vapour monitoring
- VP2F01 & VP2F02: vapour monitoring / sampling only
- VGP2E02 & VGP2E06: gas monitoring and vapour monitoring / sampling

The positions of the SGP exploratory holes drilled on site as part of this investigation are indicated on the URL Drilling Locations drawing (ref: 333/07/06/24), enclosed.

The continuous tube sample boreholes were drilled using a tracked, dumper-mounted, ATV Competitor 130 window sampler rig to 5m below ground level (bgl). Boreholes were advanced using a plastic lined, steel tube sampling system driven into the ground by a top drive percussive hammer. A near continuous 87–67mm diameter core sample was recovered of the sampled materials for subsequent examination.

On completion of the boring, all boreholes were utilised for the installation of a 50mm diameter slotted uPVC standpipe from the base of the boreholes up to 1m bgl. The remaining 1m of the borehole was finished with a section of plain, 50mm diameter pipe and a further 1m section of plain pipe was then added to protrude from the ground for ease of identification. The slotted sections of the standpipes were surrounded with pea gravel while expansive bentonite clay was added around the plain pipes and below the slotted sections to seal the boreholes. The standpipes were finished with a rubber bung with a gas tap which was left in the 'closed' position.

A ground gas / vapour monitoring / sampling programme was completed on the following dates: 11.06.24, 20.06.24, 27.06.24, 10.07.24, 25.07.24 and 01.08.24. This included a total of six rounds of ground gas monitoring using a GFM430 gas analyser including flow and well pressure (boreholes GP2E01, VGP2E02, GP2E03-VGP2E05 & VGP2E06). Four rounds of VOC monitoring using a MiniRAE 3000 photoionisation detector (PID) with a 10.6ev strength bulb (11.06.24, 20.06.24, 27.06.24 & 10.07.24 – all entries) and the collection of vapour samples (27.06.24 – VP2F01, VP2F02, VGP2E02 & VGP2E06) was also undertaken.



Summary of Ground Conditions

The following information summarises the findings of the Site investigation carried out by SGP on the 30th and 31st May 2024. The site investigation logs and photographs of the window sampler borehole locations / arisings are provided in Appendices A and B, respectively, and the investigation locations are indicated on drawing 333/07/06/24.

All depths stated in the following sections are from ground level contemporaneous with the site investigation date.

Made Ground

Made Ground was recorded in all window sampler borehole locations from ground level down to depths of between 1.9m bgl (GP2E04) and >5.0mbgl (GP2E01, VGP2E02, GP2E03 & GP2E05). Two main types of made ground were described, as follows:

- Sandy, ashy, gravel fills (typically slightly clayey) with frequent clinker, variable inclusions of sandstone, mudstone, brick, ceramic, plastic, and occasional pockets of very gravelly, sandy, clay (GP2E01, VGP2E02, GP2E03 - GP2E05, & VGP2E06);
- Gravelly to very gravelly, sandy, clay fills with variable inclusions of sandstone, brick, concrete, wood and clinker (VP2F01, VP2F02 & VGP2E06)

Discrete deposits of granular fills were also recorded including a 'brown slightly clayey gravelly sand fill' (GP2E04 – 0.7-1m bgl) and a 'light yellowish brown sandy gravel and cobble sandstone fill' (VP2F02 – 0.45-1.9m bgl).

Boulder Clay

Boulder clay was described in one borehole located along the southern boundary (GP2E04) comprising:

- a 'gravelly sandy clay' from 1.9-3.15m bgl;
- a 'very gravelly very sandy clay with frequent cobbles of sub-angular to angular sandstone' from 3.5-4.2m bgl; and,
- a 'stiff... slightly sandy gravelly clay with frequent cobbles of sandstone' from 3.5->5m bgl

A pocket of 'sandy gravel and cobbles of sub-angular to angular micaceous sandstone' was also present from between 3.15-3.5m bgl within entry GP2E04. The gravel described within the boulder clay comprised a combination of coal, sandstone, and/or mudstone.

Silty Sand

A 'dense light greyish brown very gravelly silty sand... [including] extremely weak laminated sandy siltstone' was described in the two northernmost entries: VPF01 (3.4->5m bgl) and VP2F02 (4.9->5m bgl).

Weathered Bedrock

Weathered sandstone bedrock comprising a 'light yellowish brown sandy gravel and cobbles of sub-angular to angular sandstone' was identified in one entry located at the Phase 2E and 2F boundary (VGP2E06). This stratum was present from 2.95->5m bgl.



Contamination Indicators

No indicators of VOC contamination such as odours, staining or elevated PID readings (>0.1ppm) were recorded throughout the intrusive investigation works.

Results

Ground Gas Monitoring Results

Six rounds of ground gas monitoring have been carried out within four of the six boreholes installed for this purpose (GP2E03, GP2E04, VGP2E02 & VGP2E06), with five rounds completed on GP2E05 (bung removed from standpipe prior to monitoring round 5 – replaced to allow monitoring during round 6) and four rounds on GP2E01 (borehole destroyed after monitoring round 4). Monitoring was completed between 11th June 2024 and 01st August 2024. Of these, three of the monitoring rounds were completed following a fall in surface pressure over the previous two or three days, as detailed below:

- 27.06.24: 1016 to 1007mb (previous 3 days)
- 25.07.24: 1022mb to 1012mb (previous 2 days)
- 01.08.24: 1018 to 1014mb (previous 3 days)

A summary of the gas monitoring data is presented in the Table 1 and copies of the monitoring records are provided in Appendix C.

Methane concentrations were consistently below detection limits (<0.1% v/v) in all boreholes during the monitoring period. Carbon dioxide concentrations were also consistently low ranging from <0.1% v/v to a maximum of 3.8% v/v (VGP2E02).

During the VOC monitoring rounds (11.06.24, 20.06.24, 27.06.24 & 10.07.24), positive concentrations above the limit of detection (0.1ppm) were recorded using the PID on at least one occasion in all entries with the exception of VPF02. The maximum reading of 42ppm was reported in entry VGP2F01 on the 27.06.24. The only other borehole within which a reading above 10ppm was reported was entry GP2E03 at 18.2ppm, however this was only on a single occasion (27.06.24).

Gas flows were consistently below detection limits (<0.1l/hr) with the exception of one negative peak gas flow of -0.9l/hr (20.06.24 - GP2E04), however this quickly settled to a steady flow of <0.1l/hr

Groundwater was identified in only one of the borehole entries during the drilling works (VP2F02) which was suspected to be perched given its absence in nearby entry VP2F01. During the monitoring programme, groundwater was generally absent or only present within the bottom 0.5m of the standpipes (therefore likely perched within the borehole). More significant depths of groundwater (>1m) were recorded in entries VP2F02, GP2E04 and VGP2E06 on at least one occasion.

Guidance published by CIRIA ("Assessing risk posed by hazardous ground gases to buildings", CIRIA C665, 2007), CIEH ("The Local Authority Guide to Ground Gas", CIEH, 2008) and BS 8485:2015+A1:2019 ("Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings") has been referred to in determining potential risks posed by ground gases. Screening assessment criteria of 1% methane, 5% carbon dioxide and 0.07 l/hr gas screening value have been referred to initially. The gas screening value (GSV) has been calculated as

the product of gas concentration and steady flow. A summary of the ground gas monitoring results is provided in the table below:

Table 1 Summary of Ground Gas Results

Well	No. visits	Max CH ₄ (%)	Max CO ₂ (%)	Max Steady Flow (l/hr)	CH ₄ GSV (l/hr)	CO ₂ GSV (l/hr)	CIRIA Classification
GP2E01	4	<0.1	3.5	<0.1	<0.07	<0.07	CS1
VGP2E02	6	<0.1	3.8	<0.1	<0.07	<0.07	CS1
GP2E03	6	<0.1	1.5	<0.1	<0.07	<0.07	CS1
GP2E04	6	<0.1	2.2	<0.1	<0.07	<0.07	CS1
GP2E05	5	<0.1	1.3	<0.1	<0.07	<0.07	CS1
VGP2E06	6	<0.1	0.6	<0.1	<0.07	<0.07	CS1

GSV – Gas Screening Value (=maximum concentration x maximum steady gas flow over monitoring period)

Atmospheric pressure ranged from 989mb to 1008mb during the monitoring rounds

The consistently low methane and carbon dioxide concentrations recorded, as well as the absence of positive flows, indicates a CIRIA CS1 classification for the site (no gas protection measures required) with respect to risks from ground gas.

Vapour Sampling Results

Samples for vapour (speciated hydrocarbons and target list VOC compounds) analysis were collected on 27.06.24 from borehole entries VP2F01, VP2F02, VGP2E02 and VGP2E06. Samples were collected using ‘Bottlevac’ containers (glass containers containing a partial vacuum and quick release coupling) with dedicated sample trains as provided by Element Materials Technology (EMT), Deeside.

Soil vapours from each installation were drawn into the Bottlevac until the pressures in the well and container reached equilibrium.

The methodology for deriving assessment screening criteria for health impacts from VOCs at the receptor is set out in Appendix 9 of the VOC handbook². Tolerable Daily Soil Intake values (TDSIs) or Index Doses (IDs) (for non-carcinogens and carcinogens, respectively) are multiplied by the body weight (13.3 kg) and divided by the inhalation rate (11.85 m³/day) of a female child receptor aged 0-6yrs (time-weighted average) as defined in the EA “Updated technical background to the CLEA model” (ref: SC050021/SR3, 2009). Most of the substances under consideration have toxicological inhalation data published in either “The LQM/CIEH S4ULs for Human Health Risk Assessment” (ref: S4UL3102, 2014 – Copyright Land Quality Management Limited reproduced with permission) or the CL:AIRE “Soil Generic Assessment Criteria for Human Health Risk Assessment” report (January 2010).

The exception to this is benzene for which a UK Air Quality Standard (AQS) is available (5 µg/m³) which has been utilised.

The assessment criteria are inherently conservative as they assume long-term, constant exposure of residents over a 24-hr period for 365 days a year, from a continuous source which does not diminish

² CIRIA C682: The VOCs Handbook: Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination 2009

over time. However, for the most vulnerable receptors (infants and small children), significant amounts of time spent within dwellings may be anticipated.

The IDs and TDSIs (calculated as the tolerable daily intake (TDI) value minus the mean daily intake (MDI) value with respect to inhalation, or 50% of the TDI where the MDI is >50% of the TDI) used in the determination of the inhalation assessment criteria are summarised in the table below.

Table 3. Derivation of Inhalation Assessment Criteria

Contaminant	Index Dose/Tolerable Daily Soil Intake Value ($\mu\text{g}/\text{kg}\cdot\text{bw}\cdot\text{day}^{-1}$)	Assessment Criteria ($\mu\text{g}\cdot\text{m}^3$)
Benzene	1.4 (S4UL)	5 (AQS)
Toluene	1,308 (S4UL)	1,468.05
Ethylbenzene	55.7 (S4UL)	62.51
m/p-xylene	30 (S4UL)	33.67
o-xylene	30 (S4UL)	33.67
Aliphatic Hydrocarbons (C5-C6)	2,500 (S4UL)	2,805.90
Aliphatic Hydrocarbons (C6-C8)	2,500 (S4UL)	2,805.90
Aliphatic Hydrocarbons (C8-C10)	145 (S4UL)	162.74
Aliphatic Hydrocarbons (C10-C12)	145 (S4UL)	162.74
Aromatic Hydrocarbons (C5-C7)*	Benzene	Benzene
Aromatic Hydrocarbons (C7-C8)*	Toluene	Toluene
Aromatic Hydrocarbons (C8-C10)	30 (S4UL)	33.67
Aromatic Hydrocarbons (C10-C12)	30 (S4UL)	33.67
Chloromethane	2.57 (CL:AIRE)	2.88
1,1,1-Trichloroethane	300 (S4UL)	336.70
Tetrachloroethene (PCE)	5.5 (S4UL)	6.17

*Aromatic C5-C7 and C7-C8 correspond to benzene and toluene. As BTEX analysis has been undertaken repetition of these results in the aromatic fraction have not been reported.

Comparison of soil-vapour concentrations determined through Bottlevac sampling are compared to the derived inhalation assessment criteria in Table 3 (where TDSIs or IDs are not available for any of the tested compounds, these have not been included). The EMT laboratory test certificate and the associated results summary table is provided in Appendix D.

Table 4. Comparison of Derived Assessment Criteria to Soil-Vapour Concentrations

Contaminant	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Soil-Vapour Range of concentrations ($\mu\text{g}/\text{m}^3$)	Exceedances
Benzene	5 (AQS)	<3.2-25.6	3: VGP2E02, VP2F01 & VP2F02
Toluene	1,468.05	26.4-64.1	None
Ethylbenzene	62.51	<4.3-4.3	None
m/p-xylene	33.67	<8.7-13	None
o-xylene	33.67	4.3-8.7	None
Aliphatic Hydrocarbons (C5-6)	2,805.90	<33-739	None
Aliphatic Hydrocarbons (C6-8)	2,805.90	45-560	None

Contaminant	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Soil-Vapour Range of concentrations ($\mu\text{g}/\text{m}^3$)	Exceedances
Aliphatic Hydrocarbons (C8-10)	162.74	117-133	None
Aliphatic Hydrocarbons (C10-12)	162.74	<65	None
Aromatic Hydrocarbons (EC5-7)	As Benzene	As Benzene	3: (As Benzene)
Aromatic Hydrocarbons (EC7-8)	As Toluene	As Toluene	As Toluene
Aromatic Hydrocarbons (EC8-10)	33.67	<49*	None*
Aromatic Hydrocarbons (EC10-12)	33.67	<53*	None*
Chloromethane	2.88	<2.1-8.3	3: VGP2E02, VGP2E06 & VP2F01
1,1,1-Trichloroethane	336.70	<5.5-21.8	None
Tetrachloroethene (PCE)	6.17	<6.8*-20.3	1: VGP2E02

*Limit of detection is greater than the screening value

Exceedances of the derived assessment criteria were reported for:

- Benzene at 6.4-25.6 $\mu\text{g}/\text{m}^3$ (criteria = 5 $\mu\text{g}/\text{m}^3$) – VGP2E02, VP2F01 & VP2F02
- Chloromethane at 6.2-8.3 $\mu\text{g}/\text{m}^3$ (criteria = 2.88 $\mu\text{g}/\text{m}^3$) – VGP2E02, VGP2E06 & VP2F01
- PCE at 20.3 $\mu\text{g}/\text{m}^3$ (criteria = 6.17 $\mu\text{g}/\text{m}^3$) – VGP2E02

Risk Assessment

Ground Gas

Although a full six monitoring rounds were not undertaken on borehole entries GP2E01 and GP2E05, the results consistently demonstrated low carbon dioxide and methane concentrations as well as the absence of positive gas flows. This indicates that a CIRIA CS1 classification for the Phase 2 Early Handover Area is appropriate meaning that protection measures are not required with respect to risks from ground gas. VOC protection measures are recommended in any case (see conclusions and recommendations) which would provide sufficient mitigation to any potential ground gas risks.

VOCs

Given the absence of any VOC contamination indicators recorded during the intrusive investigation works, it is inferred that the source of the minor to moderately elevated VOCs (i.e. benzene and chloromethane) is residual contamination following remediation of the VOC hotspots previously identified in the Phase 2 Early Handover Area.

Conclusions

Monitoring undertaken within the Phase 2 Early Handover Area has consistently reported low ground gas concentrations and the absence of positive flows meaning that protection measures with respect to ground gas risks are not required.

Elevated VOCs have been reported across the Phase 2 Early Handover Area which has been attributed to residual contamination following remediation of this part of the site. Based on the current information, VOC protection measures and high-level verification will be required within the Phase 2 Early Handover Area, although further detailed assessment could be considered which may negate this requirement.



Barratt Homes

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Recommendations

It is recommended that the findings of this report are used to produce a Developer-Stage Remediation Strategy which will detail the VOC/Gas protection measures to be installed within all dwellings in accordance with current CIRIA guidance. The Strategy should also detail a verification plan on how the protection measures will be suitably verified, again following current guidance.

Yours sincerely
for: Smith Grant LLP

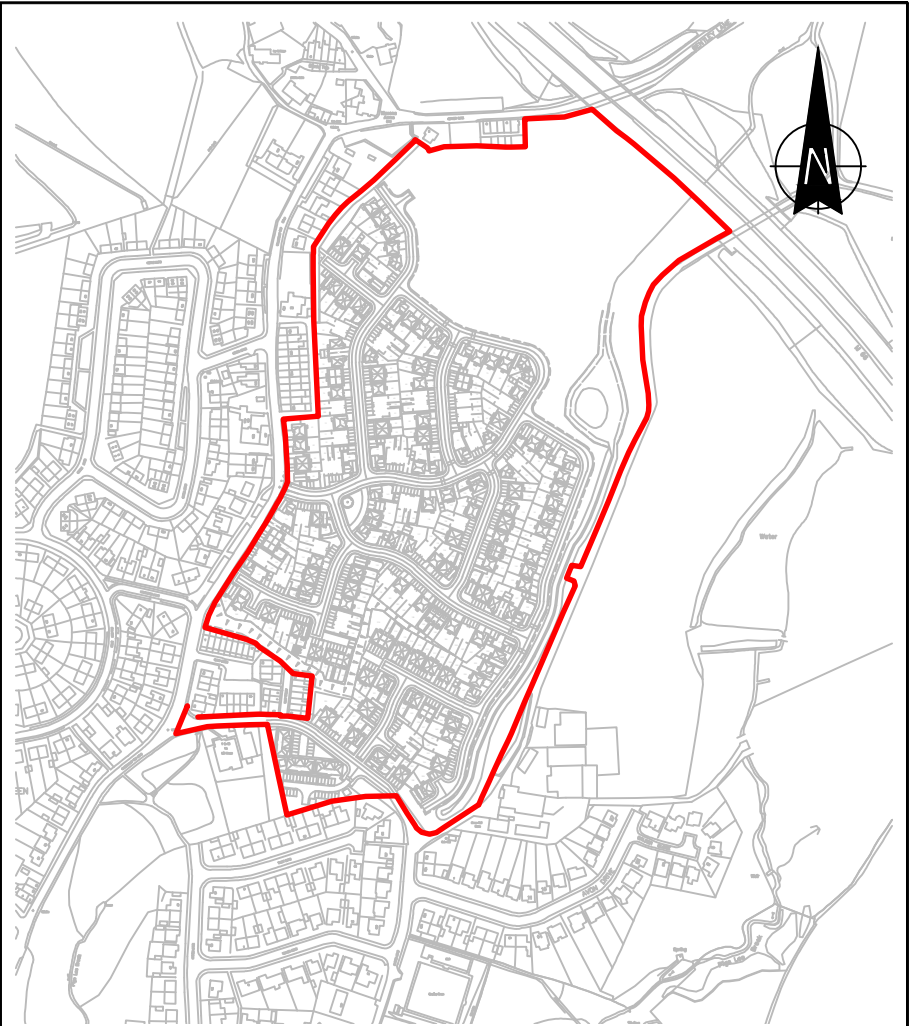
A handwritten signature in black ink, appearing to read "S D Miller", is located below the text "Yours sincerely for: Smith Grant LLP".

S D Miller BSc MCIWEM
(Senior Consultant)

Enclosed:

URL Drawing: Drilling Locations (ref: 333/07/06/24)
456-ED-05_Remediation_TEN_Remediation Phasing Plan_G
Appendix A: Borehole Logs
Appendix B: Site Investigation Photographic Record
Appendix C: Ground Gas monitoring Records
Appendix D: EMT Laboratory Report (24-11074) and Vapour Results Summary

DRAWINGS



Location Plan Scale 1:5000

Notes:
Site boundary
Test Locations

- Notes
1. This plan is to be read in conjunction with the associated Completion Report.
 2. The residential layout depicted on this plan is extracted from drawing '491-ED-08' supplied digitally by Barrat Homes Manchester.
 3. Due to potential live services and issues associated with withdrawal of support, remediation works have been carried out to within circa 1m of the site boundary unless otherwise detailed.
 4. All CBR tests were carried out by Murray Rix.

Survey Information:			
Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OS(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked



Client: Barratt Homes Manchester

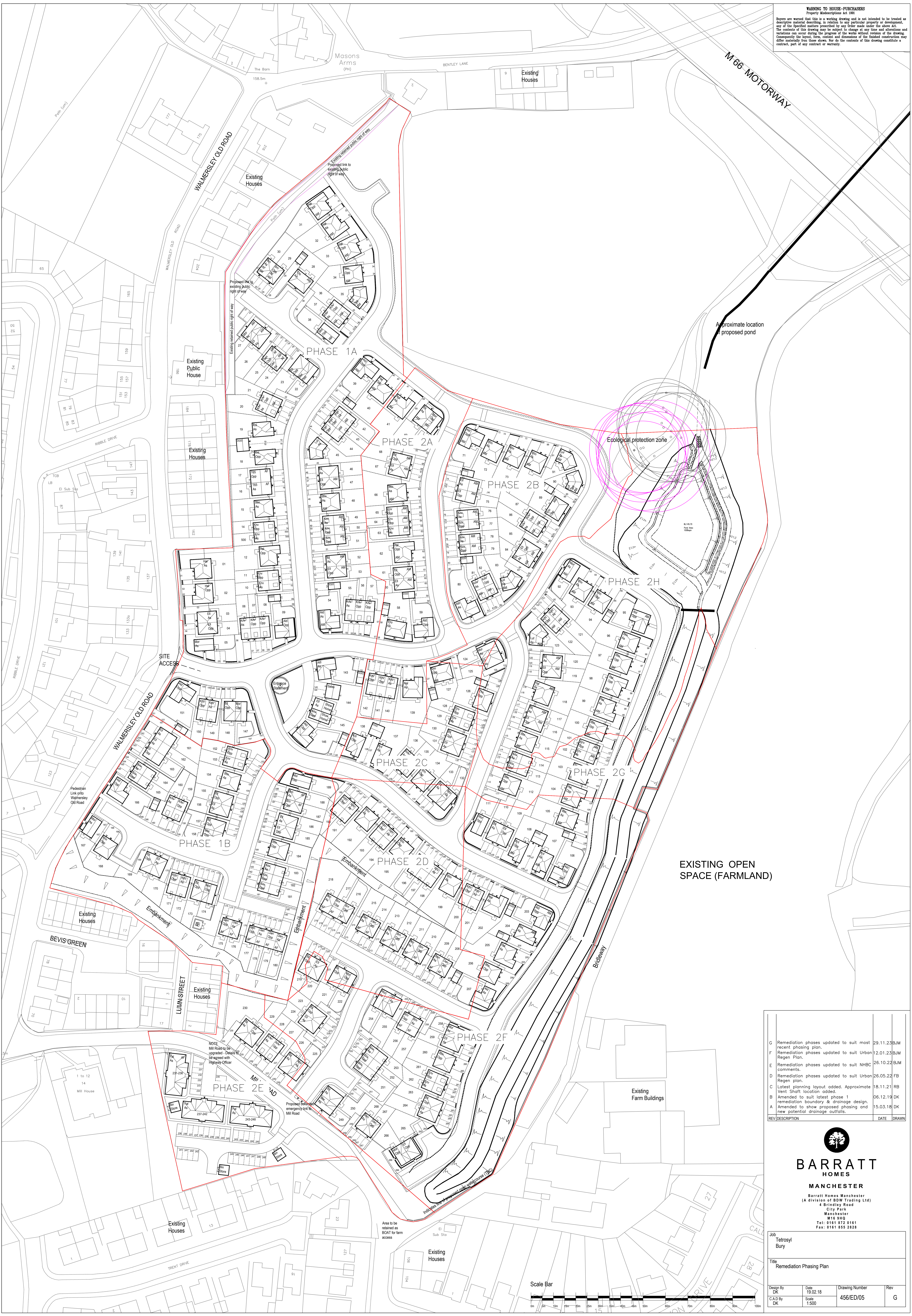
Project: Waldmers Wood Former Tetrosyl Works

Title: Test Locations

Scale:	First Issue:	Drawn:	Checked:
1:200	07/06/2024	R.Corrigan	R.Parry

Drawing No: 333/07/06/24 Revision:

WARNING TO HOUSE-PURCHASERS
Property Misdescriptions Act 1991
Buyers are warned that this is a working drawing and is not intended to be treated as descriptive material describing, in relation to any particular property or development, any of the specified matters prescribed by any Order made under the above Act. The contents of this drawing may be subject to change at any time and alterations and variations may occur during the progress of the works without revision of the drawing. Consequently the layout, form, content and dimensions of the finished construction may differ materially from those shown. Nor do the contents of this drawing constitute a contract, part of any contract or warranty.



G	Remediation phases updated to suit most recent phasing plan.	29.11.23	BUM
F	Remediation phases updated to suit Urban Regen Plan.	12.01.23	BUM
E	Remediation phases updated to suit NHBC comments.	26.10.22	BUM
D	Remediation phases updated to suit Urban Regen plan.	26.05.22	FB
C	Latest planning layout added. Approximate Vent Shaft location added.	18.11.21	RB
B	Amended to suit latest phase 1 remediation boundary & drainage design.	06.12.19	DK
A	Amended to show proposed phasing and new potential drainage outfalls.	15.03.18	DK
REV	DESCRIPTION	DATE	DRAWN



BARRATT HOMES

MANCHESTER

Barratt Homes Manchester
(A division of BDW Trading Ltd)
4 Brindley Road
City Park
Manchester
M16 9JQ
Tel: 0161 872 0161
Fax: 0161 855 2628

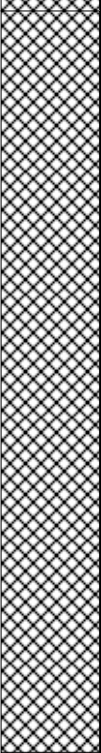
Job
Tetrosyl
Bury

Title
Remediation Phasing Plan

Design By DK	Date 19.02.18	Drawing Number 456/ED/05	Rev G
CAD By DK	Scale 1:500		

APPENDIX A
Borehole Logs

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. GP2E01
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 30.05.24	

PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>				0	Dark grey gravelly clayey ashy sand fill (MADE GROUND) Loose black (locally dark reddish brown) slightly clayey sandy ashy gravel fill including frequent clinker and occasional ceramic and red brick fragments; pocket of greyish brown very gravelly sandy clay with occasional cobbles of sub-angular sandstone from 4.1-4.3m (MADE GROUND)	
				0.1		
					Borehole terminated at 5m bgl	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered		
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata		
	SCALE: 1:500	LOGGED BY: SM	FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. GP2E03
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 30.05.24	

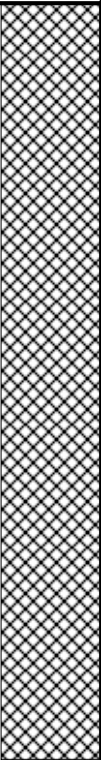
PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>			Limited core recovery between 3-4m bgl	0	Loose black clayey sandy ashy gravel fill including frequent clinker and red brick fragments (MADE GROUND) Brownish grey very gravelly sandy ashy clay fill with pockets of black / blackish brown clayey sandy ashy gravel frequent gravel of clinker frequent cobbles of sandstone and red brick and rare plastic (MADE GROUND)	
		0.25				
					3	Loose black / greyish brown slightly clayey sandy ashy gravel fill including frequent clinker and occasional red brick fragments and cobbles (MADE GROUND)
					Borehole terminated at 5m bgl	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered		
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata		
	SCALE: 1:500	LOGGED BY: SM	FIGURE NO. 1

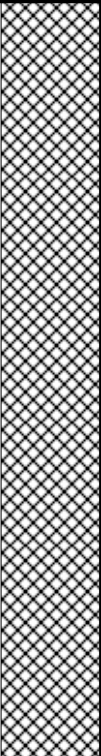
SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. GP2E04
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 30.05.24	

PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>				0	Loose black slightly clayey sandy ashy gravel fill including frequent clinker and occasional cobbles of sandstone (MADE GROUND)	
				0.7	Brown slightly clayey gravelly sand fill (MADE GROUND)	
				1	Loose blackish brown sandy ashy gravel fill (MADE GROUND)	
				1.9	Light brown gravelly SANDY CLAY; gravel is fine to coarse sub-rounded to angular coal and sandstone	
				3.15	Light yellowish brown SANDY GRAVEL and COBBLES of sub-angular to angular micaceous SANDSTONE	
				3.5	Light brown very gravelly very SANDY CLAY with frequent cobbles of sub-angular to angular sandstone; gravel is fine to coarse sub-rounded to angular coal and sandstone	
				4.2	Stiff brown slightly sandy gravelly CLAY with frequent cobbles of sandstone; gravel is fine to coarse sub-rounded to angular sandstone mudstone and coal	
					Borehole terminated at 5m bgl	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered	
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata	
	SCALE: 1:500	LOGGED BY: SM

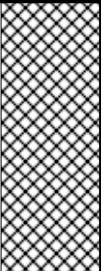
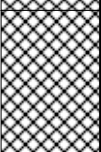
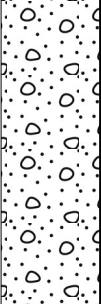
SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM		JOB NO. R2174	WINDOW SAMPLE NO. GP2E05
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester		DATE: 30.05.24	
PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>				0	Loose black / blackish brown slightly clayey sandy ashy gravel fill including frequent clinker and occasional red brick fragments; frequent cobbles of sandstone and red brick in top 0.25m (MADE GROUND)	
					Borehole terminated at 5m bgl	
 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Groundwater not encountered				
		REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata				
		SCALE: 1:500		LOGGED BY: SM		FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VGP2E02
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 30.05.24	

PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>				0	Loose black (locally grey and dark reddish brown) slightly clayey sandy ashy gravel fill including frequent clinker and occasional ceramic and red brick fragments with occasional cobbles of sandstone and mudstone from 2.8-4.5m; pocket of greyish brown very gravelly sandy clay with frequent cobbles of sandstone from 2.9-3.1m (MADE GROUND)	
					Borehole terminated at 5m bgl	

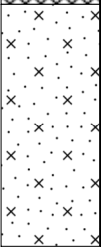
 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered		
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata		
	SCALE: 1:500	LOGGED BY: SM	FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VGP2E06
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 31.05.24	

PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>			Limited core recovery between 4-5m bgl	0	Blackish grey very gravelly sandy clay fill with frequent cobbles of sub-angular to angular sandstone; gravel is fine to coarse sub-rounded to angular of mixed lithology including red brick and concrete fragments (MADE GROUND)	
				1.8	Brownish grey slightly sandy gravelly clay fill; gravel is fine to medium sub-rounded to angular of mixed lithology including clinker (MADE GROUND) Loose black slightly clayey sandy ashy gravel fill including frequent clinker (MADE GROUND)	
				2		
				2.95	Light yellowish brown SANDY GRAVEL and COBBLES of sub-angular to angular SANDSTONE (WEATHERED BEDROCK)	
					Borehole terminated at 5m bgl	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered		
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata		
	SCALE: 1:500	LOGGED BY: SM	FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VP2F01
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 31.05.24	

PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>				0	Greyish brown becoming dark grey very gravelly sandy clay fill with frequent cobbles of sub-angular to angular sandstone and concrete; gravel is fine to coarse sub-rounded to angular of mixed lithology including red brick and concrete fragments (MADE GROUND)	
				2	Greyish brown gravelly sandy clay with occasional inclusions of wood; gravel is fine to coarse sub-angular to angular of mixed lithology including red brick fragments (MADE GROUND - fill or reworked natural)	
				3.4	Dense light greyish brown very gravelly SILTY SAND; gravel is fine to coarse sub-angular to angular sandstone and extremely weak laminated sandy siltstone	
					Borehole terminated at 5m bgl	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Groundwater not encountered		
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata		
	SCALE: 1:500	LOGGED BY: SM	FIGURE NO. 1

SHEET: 1 of 1	LOCATION: Bury	PROJECT: Tetrosyl (Phases 2E & 2F)	ENGINEER: SM	JOB NO. R2174	WINDOW SAMPLE NO. VP2F02
		EXCAVATED BY: ATV Competitor 130	CLIENT: Barratt Homes Manchester	DATE: 31.05.24	

PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
CPT <u>Blows/150mm</u>			Limited core recovery between 3-5m bgl	0	Greyish brown very gravelly sandy clay fill with occasional cobbles of sandstone; gravel is fine to coarse sub-angular to angular of mixed lithology including red brick and concrete fragments (MADE GROUND)	
				0.45	Light yellowish brown sandy gravel and cobble sandstone fill (MADE GROUND)	
				1.9	Greyish brown gravelly sandy clay fill with frequent cobbles of sandstone from 2.9m; gravel is fine to coarse sub-angular to angular of mixed lithology including red brick and concrete fragments (MADE GROUND)	
				4.9	Dense light greyish brown very gravelly SILTY SAND; gravel is fine to coarse sub-angular to angular sandstone and extremely weak laminated sandy siltstone	
					Borehole terminated at 5m bgl	

 Smith Grant LLP Bryn Estyn Business Centre (Suite 16) Bryn Estyn Road, Wrexham, LL13 9TY Tel: 01978 822367 www.smithgrant.co.uk email: consult@smithgrant.co.uk	GROUND WATER: Perched groundwater encountered at ~2-3m bgl		
	REMARKS: Monitoring standpipe installed to 5m bgl (plain pipe from 0-1m bgl, slotted from 1-5m bgl) No odours, staining or elevated PID readings recorded throughout strata		
	SCALE: 1:500	LOGGED BY: SM	FIGURE NO. 1

APPENDIX B

Site Investigation Photographic Record

Phases 2E & 2F Window Sampler Drilling Investigation Photolog

1.



30.05.24: GP2E01 Location

2.



30.05.24: GP2E01 Arisings

3.



30.05.24: VGP2E02 Location

4.



30.05.24: VGP2E02 Arisings

5.



30.05.24: GP2E03 Location

6.



30.05.24: GP2E03 Arisings

7.



30.05.24: GP2E04 Location

8.



30.05.24: GP2E04 Arisings

9.



30.05.24: GP2E05 Location

10.



30.05.24: GP2E05 Arisings

11.



31.05.24: VGP2E06 Location

12.



31.05.24: VGP2E06 Arisings

13.



31.05.24: VP2F01 Location

14.



31.05.24: VP2F01 Arisings

15.



31.05.24: VP2F02 Location

16.



31.05.24: VP2F02 Arisings

APPENDIX C

Ground Gas monitoring Records

Site name:	Tetrosyl		Job number:	R2174		Barometric pressure at:	start:	1007	mb	finish:	1003
Time at:	start	9.20	Date:	11.06.24		Pressure trend (3 days)	1013 - 1008 - 1016 (fall then rise)				
	finish	10.40	Staff:	CM		Instruments:	GFM430				
Record code:	Round 1		Weather conditions:	Dry, mild temp, 7/10 cloud cover					Ground conditions:	Dry	

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs max ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
VP2F02	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
VP2F01	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
VGP2E06	<0.1	<0.1	0.5	0.5	18.8	18.8	<1	<1	<0.1	<0.1	<0.1	<0.01	3.1	4.82	Silty base
VGP2E02	<0.1	<0.1	3.8	3.8	12.1	12.1	<1	<1	2.2	<0.1	<0.1	<0.01	4.7	4.98	-
GP2E01	<0.1	<0.1	3.5	3.5	13.5	13.5	<1	<1	1.6	<0.1	<0.1	<0.01	4.82	5	-
GP2E03	<0.1	<0.1	1.5	1.5	18.3	18.3	<1	<1	<0.1	<0.1	<0.1	<0.01	4.85	4.85	Silty base
GP2E04	<0.1	<0.1	1.4	1.4	18.1	18.1	<1	<1	<0.1	<0.1	<0.1	<0.01	3.87	4.97	Silty base
GP2E05	<0.1	<0.1	1.3	1.3	17.1	17.1	<1	<1	<0.1	<0.1	<0.1	<0.01	Dry	4.9	Silty base
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

bgl = below ground level

Site name:	Tetrosyl		Job number:	R2174	Barometric pressure at:	start:	1008	mb	finish:	1008
Time at:	start	9.30	Date:	20.06.24	Pressure trend (3 days)	1014-1021-1021 (rising)				
	finish	11.00	Staff:	CM	Instruments:	GFM430				
Record code:	Round 2		Weather conditions:	Dry, warm temp, 2/10 cloud cover				Ground conditions:	Very Dry	

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs max ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
VP2F02	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
VP2F01	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
VGP2E06	<0.1	<0.1	0.6	0.6	17.9	17.9	<1	<1	1.6	<0.1	<0.1	<0.01	Dry	4.34	Silty base
GP2E04	<0.1	<0.1	2.2	2.2	16.6	16.6	<1	<1	3.3	-0.9	<0.1	<0.01	4.14	4.94	-
GP2E03	<0.1	<0.1	<0.1	<0.1	20.5	20.5	<1	<1	8.7	<0.1	<0.1	<0.01	Dry	4.81	Silty base
GP2E01	<0.1	<0.1	2.7	2.7	16.5	16.5	<1	<1	8.4	<0.1	<0.1	<0.01	4.9	4.95	-
VGP2E02	<0.1	<0.1	3.3	3.3	15.3	15.3	<1	<1	6.3	<0.1	<0.1	<0.01	4.97	4.96	-
GP2E05	<0.1	<0.1	1	1	18	18	<1	<1	4.3	<0.1	<0.1	<0.01	Dry	4.92	Silty base
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

bgl = below ground level

Site name:	Tetrosyl		Job number:	R2174	Barometric pressure at:	start:	990	mb	finish:	989
Time at:	start	10.45	Date:	27.06.24	Pressure trend (3 days)	1016-1016-1007mb (steady then falling)				
	finish	13.10	Staff:	SM	Instruments:	GFM430				
Record code:	Round 3		Weather conditions:	Warm, windy, 6/8 cloud				Ground conditions:	Dry	

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs max ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
VP2F02	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.01	3.28	4.59	-
VP2F01	-	-	-	-	-	-	-	-	42	<0.1	<0.1	<0.01	Dry	5.4	-
VGP2E06	<0.1	<0.1	<0.1	<0.1	20.7	20.7	<1	<1	0.6	<0.1	<0.1	<0.01	4.31	4.35	-
VGP2E02	<0.1	<0.1	<0.1	<0.1	20.7	20.7	<1	<1	2.3	<0.1	<0.1	<0.01	Dry	5	-
GP2E01	<0.1	<0.1	0.1	0.1	20.5	20.5	<1	<1	3.4	<0.1	<0.1	<0.01	Dry	4.95	-
GP2E03	<0.1	<0.1	0.3	0.3	20.3	20.3	<1	<1	18.2	<0.1	<0.1	<0.01	Dry	4.85	-
GP2E04	<0.1	<0.1	1.1	1.1	19.6	19.6	<1	<1	7.9	<0.1	<0.1	<0.01	4.19	4.98	-
GP2E05	<0.1	<0.1	0.1	0.1	20.5	20.5	<1	<1	8.3	<0.1	<0.1	<0.01	Dry	4.96	-
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

bgl = below ground level

Site name:	Tetrosyl		Job number:	R2174		Barometric pressure at:	start:	994	mb	finish:	992
Time at:	start	15.30	Date:	10.07.24		Pressure trend (3 days)	1012-1014-104mb (static)				
	finish	16.25	Staff:	SM		Instruments:	GFM430				
Record code:	Round 4		Weather conditions:	8/8 cloud / warm / intermittent, light rain					Ground conditions:	Damp / standing water	

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs max ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
VP2F02	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.01	1.81	4.6	-
VP2F01	-	-	-	-	-	-	-	-	17.7	<0.1	<0.1	<0.01	Dry	5.45	-
VGP2E06	<0.1	<0.1	0.4	0.4	14.4	14.4	<1	<1	0.8	<0.1	<0.1	<0.01	4.04	4.34	-
VGP2E02	<0.1	<0.1	0.9	0.9	17.7	17.7	<1	<1	3.9	<0.1	<0.1	<0.01	Dry	5.02	-
GP2E01	<0.1	<0.1	3.5	3.5	14.4	14.4	<1	<1	7.1	<0.1	<0.1	<0.01	Dry	4.98	-
GP2E03	<0.1	<0.1	0.6	0.6	19.5	19.5	<1	<1	7.4	<0.1	<0.1	<0.01	Dry	4.96	-
GP2E04	<0.1	<0.1	1.4	1.4	18.1	18.1	<1	<1	2.8	<0.1	<0.1	<0.01	3.71	4.96	-
GP2E05	<0.1	<0.1	0.4	0.4	18.9	18.9	<1	<1	4.5	<0.1	<0.1	<0.01	Dry	4.94	-
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

bgl = below ground level

Site name:	Tetrosyl		Job number:	R2174	Barometric pressure at:	start:	994	mb	finish:	991
Time at:	start	8.20	Date:	25.07.24	Pressure trend (3 days)	1013-1022-1012 (rise then fall)				
	finish	9.04	Staff:	CM	Instruments:	GFM430				
Record code:	Round 5		Weather conditions:	Warm, dry, 2/10 cloud cover				Ground conditions:	Dry	

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs max ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
VP2F02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP2F01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VGP2E06	<0.1	<0.1	0.1	0.1	20.3	20.3	<1	<1	-	<0.1	<0.1	<0.01	Dry	4.34	-
VGP2E02	<0.1	<0.1	1.6	1.6	17.3	17.3	<1	<1	-	<0.1	<0.1	<0.01	4.97	5.06	-
GP2E01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BH Destroyed
GP2E03	<0.1	<0.1	1.5	1.5	18.5	18.5	<1	<1	-	<0.1	<0.1	<0.01	4.95	5.01	-
GP2E04	<0.1	<0.1	2.2	2.2	17.8	17.8	<1	<1	-	<0.1	<0.1	<0.01	4.06	5.02	-
GP2E05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Bung removed
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

bgl = below ground level

Site name:	Tetrosyl		Job number:	R2174	Barometric pressure at:	start:	1000	mb	finish:	998
Time at:	start	11.00	Date:	1.08.24	Pressure trend (3 days)	1018-1018-1014 (steady then slight fall)				
	finish	12.00	Staff:	CM	Instruments:	GFM430				
Record code:	Round 6		Weather conditions:	Warm, dry, 2/10 cloud cover				Ground conditions:	Dry	

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs max ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
VP2F02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP2F01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VGP2E06	<0.1	<0.1	0.1	0.1	20.5	20.5	<1	<1	-	<0.1	<0.1	<0.01	Dry	4.31	-
VGP2E02	<0.1	<0.1	0.4	0.4	20.2	20.2	<1	<1	-	<0.1	<0.1	<0.01	Dry	5.03	-
GP2E01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BH Destroyed
GP2E03	<0.1	<0.1	0.3	0.3	20.4	20.4	<1	<1	-	<0.1	<0.1	<0.01	4.98	5.12	-
GP2E04	<0.1	<0.1	1	1	19.4	19.4	<1	<1	-	<0.1	<0.1	<0.01	4.24	4.77	-
GP2E05	<0.1	<0.1	<0.1	<0.1	20.8	20.8	<1	<1	-	<0.1	<0.1	<0.01	Dry	5.01	-
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

bgl = below ground level

APPENDIX D

EMT Laboratory Report (24-11074) and Vapour Results Summary

Smith Grant LLP
Suite 16 - Bryn Estyn Business Centre
Bryn Estyn Road
Wrexham
United Kingdom
LL13 9TY



4225



Attention : Scott Miller
Date : 12th July, 2024
Your reference : R2174
Our reference : Test Report 24/11074 Batch 1
Location : Tetrosyl (Phases 2E + 2F)
Date samples received : 27th June, 2024
Status : Final Report
Issue : 202407121005

Four samples were received for analysis on 27th June, 2024 of which four were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 1.014 kg of CO2

Scope 1&2&3 emissions - 2.395 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl (Phases 2E + 2F)
Contact: Scott Miller

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Sample ID: VP2F02
Depth:
EMT Job No: 24/11074
EMT Sample No: 1
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1228 0.55
Sample Train Serial number: ST-274

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		2	9.9	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		1	<2.1	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		1	5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		2	6.4	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		7	26.4	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		<1	<4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		2	<8.7	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		1	4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Canister Serial number: V 1228 0.55
Sample Train Serial number: ST-274

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl (Phases 2E + 2F)
Contact: Scott Miller

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Sample ID: VP2F01
Depth:
EMT Job No: 24/11074
EMT Sample No: 2
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1223 0.55

Sample Train Serial number: ST-233

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT ppbv	RESULT ug/m ³	RL ppbv	MDL ppbv	RL ug/m ³	MDL ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		1574 _{AA}	7783.4 _{AA}	<2	<1	<9.8	<4.9
74-87-3	50.49	Chloromethane		3	6.2	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		16	89.9	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		2	10.9	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		8	25.6	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		17	64.1	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		1	4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		3	13.0	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		1	4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Canister Serial number: V 1223 0.55
Sample Train Serial number: ST-233

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl (Phases 2E + 2F)
Contact: Scott Miller

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Sample ID: VGP2E06
Depth:
EMT Job No: 24/11074
EMT Sample No: 3
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1173 0.55

Sample Train Serial number: ST-277

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		1	4.9	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		4	8.3	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		<1	<5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		1	<3.2	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		<1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		8	30.1	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		<1	<6.8	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		1	4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		3	13.0	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		2	8.7	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Canister Serial number: V 1173 0.55
Sample Train Serial number: ST-277

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6 Please include all sections of this report if it is reproduced 7 of 14

Element Materials Technology

Client Name: Smith Grant LLP
Reference: R2174
Location: Tetrosyl (Phases 2E + 2F)
Contact: Scott Miller

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Sample ID: VGP2E02
Depth:
EMT Job No: 24/11074
EMT Sample No: 4
Matrix: Air
Method: TM68 VOCs in gases (GC-MS)

Canister Serial number: V 1155 0.55
Sample Train Serial number: ST-252

Q* - Qualifiers

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
RL Reporting Limit
ISO 17025 (UKAS) accredited

Cas No	Molecular Weight	Compound	Q*	RESULT	RESULT	RL	MDL	RL	MDL
				ppbv	ug/m ³	ppbv	ppbv	ug/m ³	ug/m ³
75-01-4	62.5	# Vinyl Chloride		<1	<2.6	<1	<1	<2.6	<2.6
75-71-8	120.91	Dichlorodifluoromethane (F-12)		1	4.9	<1	<1	<4.9	<4.9
74-87-3	50.49	Chloromethane		3	6.2	<1	<1	<2.1	<2.1
74-83-9	94.95	# Bromomethane		<1	<3.9	<1	<1	<3.9	<3.9
75-00-3	64.52	# Chloroethane		<1	<2.6	<1	<1	<2.6	<2.6
75-69-4	137.36	# Trichlorofluoromethane (F-11)		<1	<5.6	<1	<1	<5.6	<5.6
75-35-4	96.95	# 1,1-Dichloroethene (1,1 DCE)		<1	<4.0	<1	<1	<4.0	<4.0
75-09-2	84.93	# Dichloromethane (DCM)		<5	<17.4	<5	<5	<17.4	<17.4
156-60-5	96.94	Trans-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
75-34-3	98.97	# 1,1-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
156-59-2	96.94	# cis-1,2-Dichloroethene		<1	<4.0	<1	<1	<4.0	<4.0
594-20-7	112.99	2,2-Dichloropropane		<1.5	<6.9	<1.5	<1.5	<6.9	<6.9
74-97-5	129.38	Bromochloromethane (Int Std)		NA	NA	<1.5	<1.5	<7.9	<7.9
67-66-3	119.39	# Chloroform		<1	<4.9	<1	<1	<4.9	<4.9
71-55-6	133.42	# 1,1,1-Trichloroethane		4	21.8	<1	<1	<5.5	<5.5
563-58-6	110.97	1,1-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
56-23-5	153.84	# Carbon Tetrachloride		<1	<6.3	<1	<1	<6.3	<6.3
107-06-2	98.96	# 1,2-Dichloroethane		<1	<4.0	<1	<1	<4.0	<4.0
71-43-2	78.11	# Benzene		3	9.6	<1	<1	<3.2	<3.2
79-01-6	131.4	# Trichloroethene (TCE)		1	<5.4	<1	<1	<5.4	<5.4
78-87-5	112.99	# 1,2-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
74-95-3	173.83	Dibromomethane		<1.5	<10.7	<1.5	<1.5	<10.7	<10.7
75-27-4	163.83	Bromodichloromethane		<1	<6.7	<1	<1	<6.7	<6.7
10061-01-5	110.97	cis-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
108-88-3	92.13	# Toluene		10	37.7	<1	<1	<3.8	<3.8
10061-02-6	110.97	trans-1,3-Dichloropropene		<1	<4.5	<1	<1	<4.5	<4.5
79-00-5	133.4	# 1,1,2-Trichloroethane		<1	<5.5	<1	<1	<5.5	<5.5
127-18-4	165.85	# Tetrachloroethene (PCE)		3	20.3	<1	<1	<6.8	<6.8
142-28-9	112.99	1,3-Dichloropropane		<1	<4.6	<1	<1	<4.6	<4.6
124-48-1	208.28	Dibromochloromethane		<1	<8.5	<1	<1	<8.5	<8.5
106-93-4	187.86	# 1,2-Dibromoethane		<1	<7.7	<1	<1	<7.7	<7.7
108-90-7	112.56	# Chlorobenzene		<1	<4.6	<1	<1	<4.6	<4.6
630-20-6	167.85	1,1,1,2-Tetrachloroethane		<1	<6.9	<1	<1	<6.9	<6.9
100-41-4	106.16	# Ethylbenzene		1	4.3	<1	<1	<4.3	<4.3
179601-23-1	106.17	# m/p-Xylene		3	13.0	<2	<2	<8.7	<8.7
95-47-6	106.17	# o-Xylene		1	4.3	<1	<1	<4.3	<4.3
100-42-5	104.14	# Styrene		<1.5	<6.4	<1.5	<1.5	<6.4	<6.4
75-25-2	252.77	Bromoform		<1.5	<15.5	<1.5	<1.5	<15.5	<15.5
98-82-8	120.19	Isopropylbenzene		<1	<4.9	<1	<1	<4.9	<4.9

Sample Date: 27 Jun 2024
Date of Receipt: 27 Jun 2024
Date Analysed: 4 Jul 2024

Canister Serial number: V 1155 0.55
Sample Train Serial number: ST-252

B Indicates analyte found in associated method blank
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
RL	Reporting Limit
#	ISO 17025 (UKAS) accredited

QF-PM 3.1.13 v6 Please include all sections of this report if it is reproduced 9 of 14

Client Name: Smith Grant LLP

Reference: R2174

Location: Tetrosyl (Phases 2E + 2F)

Contact: Scott Miller

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/11074

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x2 Dilution

EMT Job No: 24/11074

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM68	Modified TO-15 method. Volatile Organic Compounds (VOCs) sampled using Gas Canisters, BottleVacs or Tedlar bags and analysed using Entech GC-MS.	PM0	No preparation is required.				
TM68	Modified TO-15 method. Volatile Organic Compounds (VOCs) sampled using Gas Canisters, BottleVacs or Tedlar bags and analysed using Entech GC-MS.	PM0	No preparation is required.	Yes			

VOC	Unit	VP2F02	VP2F01	VGP2E06	VGP2E02
Dichlorodifluoromethane (F-12)	ug.m3	9.9	7783.4	4.9	4.9
Chloromethane	ug.m3	2.1	6.2	8.3	6.2
Trichlorofluoromethane (F-11) #	ug.m3	5.6	89.9	5.6	5.6
1,1,1-Trichloroethane #	ug.m3	5.5	10.9	5.5	21.8
Benzene #	ug.m3	6.4	25.6	3.2	9.6
Tetrachloroethene (PCE) #	ug.m3	6.8	6.8	6.8	20.3
Toluene #	ug.m3	26.4	64.1	30.1	37.7
Ethylbenzene #	ug.m3	4.3	4.3	4.3	4.3
m/p-Xylene #	ug.m3	8.7	13	13	13
o-Xylene #	ug.m3	4.3	4.3	8.7	4.3
Volatile Hydrocarbons	Unit	VP2F02	VP2F01	VGP2E06	VGP2E02
Aliphatic >C4-C6	ug.m3	33	739	33	159
Aliphatic >C6-C8	ug.m3	45	560	70	155
Aliphatic >C8-C10	ug.m3	122	117	133	133
Aliphatic >C10-C12	ug.m3	65	65	65	65
Aromatic >C5-EC7 (Benzene)	ug.m3	5.8	25.6	4.8	8.3
Aromatic >EC7-EC8 (Toluene)	ug.m3	27.9	64.1	28.6	37.3
Aromatic >EC8-EC10	ug.m3	49	49	49	49
Aromatic >EC10-EC12	ug.m3	53	53	53	53

Min	Max	SV
4.9	7783.4	-
2.1	8.3	2.88
5.6	89.9	-
5.5	21.8	336.7
3.2	25.6	5
6.8	20.3	6.17
26.4	64.1	1,468.05
4.3	4.3	62.51
8.7	13	33.67
4.3	8.7	33.67
Min	Max	SV
33	739	2,805.90
45	560	2,805.90
117	133	162.74
65	65	162.74
4.8	25.6	5
27.9	64.1	2115.91
49	49	33.67
53	53	33.67