

*Contaminated Land
Air Quality
Environmental Audit*

Partnership No: OC 300776

Our ref: R3340-L20240304-v3
Your ref: Dinting Road, Glossop

31 March 2025

Seddon Homes Ltd.
Birchwood One Business Park
Warrington
WA3 7GB

Dear Karl

**Land off Dinting Road, Glossop
Ground Gas Risk Assessment Appraisal**

Smith Grant LLP (SGP) understand that Seddon Homes (SH) has been granted planning consent for two schemes at the above Site. These relate to:

- HPK/2017/0325 - for the construction of up to 101 dwellings on Land North of Dinting Road, Glossop.
- HPK/2016/0648 – for the construction of up to 37 dwellings on Land North of Dinting Road Glossop.

Copies of site boundary plans relating to the planning boundary of each Consent is appended to this report, however all reporting undertaken considers the Site as a whole. In support of the applications and to satisfy Condition 13 of the Consents which relates to the investigation and assessment of contaminated land and Condition 14 (Remediation), the following reports were produced.

- Phase I Preliminary Risk Assessment (ref. 30241LG-R01), April 2019 – Sutcliffe
- Phase II Interpretive Ground Assessment (ref. 30241LG-R02), August 2019 – Sutcliffe
- Phase III Remediation & Validation Strategy Proposals (ref. 30241-SUT-ZZ-00-RP-G-7301), January 2024

Copies of the above reports have been provided to SGP for review. It is uncertain whether the reports have been accepted by the Local Planning Authority as copies of correspondence could not be accessed on the planning portal, however for the purpose of this appraisal it is assumed that have been approved.

Following submission and review of the reports to the National Homebuilders Council (NHBC) it has been recommended that a review of the ground gas risk assessment is undertaken which may allow



reclassification of the site's current ground gas classification. At present, the site is currently assessed as:

CIRIA CS2 classification due to elevated carbon dioxide (8.5%) and elevated ground gas flow (19.6 l/hr)

SGP have been duly instructed by SH to carry out a reappraisal of the ground gas risk assessment undertaken. This report therefore focusses on the developed conceptual site model, risk assessment and remedial recommendation in relation to ground gas only.

Background – The Preliminary Conceptual Site Model

The Phase 1 Preliminary Risk Assessment (PRA) produced by Sutcliffe includes the review of background information contained within an Envirocheck Report. Appendices relating to the Envirocheck Report were not included within the provided report, however a summary of the reviewed information is presented within the PRA.

On-Site Sources

On-site sources of ground gas are significantly limited given the greenfield history of the Site, with the only potential on-site source being attributed to a former pond in the north, this was first observed in mapping from 1989 and was no longer mapped from 1938, suggesting its infilling sometime between these dates.

Off-Site Sources

Several potential off-site sources of ground gas were identified, associated with:

- an infilled clay / gravel pit (~60m northwest)
- 4 registered landfills within 1000m (the closest of which being located 23m to the northeast which received construction and demolition wastes), and.
- 5 historic landfills within 1000m, the nearest of which is 5m to the northwest and which received inert waste.

No further information relating to the distance and types of waste received at the other landfills were summarised and so SGP has undertaken a more specific review in this instance. Utilising the Groundsure viewer, the 5 historical landfills have been identified as follows:

Table 1. Summary of Landfills

Distance from Site	Landfill Name	Operational Dates	Type of Waste
Immediate North	Land adj Shaw Lane	1980-1986	inert/construction waste based on info from Sutcliffe Report
~40m south	Dinting Lodge Industrial Estate	1992-1993	Inert and industrial
~554m south	Simmondley Lane	1926-1976	Domestic, commercial and industrial waste



~791m northwest	Disused Railway Line	1990-1991	Unknown (area has been developed)
~931m west	Melandra Roast Waste Disposal Site	1977-1981	unknown

Site Geology

The natural underlying geology is mapped as Devensian Till (Boulder Clay), whilst minor organic inclusions may be present within the boulder clay there is no mapped deposits of significant organic materials (e.g. peat)

Preliminary Conceptual Site Model

The Preliminary Conceptual Site model identified that there was a low to moderate risk associated with ground gas from potentially infilled land on the site (former pond), an adjacent railway line and infilled land (landfills, former quarries / pits etc.).

The assessment is considered to be overly conservative with very little consideration of the site geology or the potential sources. The presence of a former pond should rightly be investigated, however according to the Ground Gas Handbook¹, an infilled pond (infilled before 1940) has a very low ground gas generation potential which has not been taken into account, similarly the presence of any soft organic sediments (if present) would most likely require removal as part of site preparatory works.

A railway line has been identified as a potential ground gas source; however, no detail is provided on why this has been identified as a possible source. No organic material will be present, and any made ground (railway ballast) is unlikely to be significant deep. In my opinion, this is not a valid source and should be discounted.

Off-site infilled land has been identified as a potential source, no consideration of the distance to the site or the underlying geology has been taken into consideration. Of the 5 identified landfills, only 2 or within 500m of the site. The closest (Land adj Shaw Lane) accepted inert / construction waste and has since been redeveloped to residential housing (circa 2022), the presence of ground gas generating materials is therefore considered to be low, however it is acknowledged through consultation with High Peak Borough Council (HPBC) that planning was granted through appeal (HPK2016/0614) and that no contaminated land condition was implemented. There therefore remains some uncertainty with regards to the landfill and ground conditions within this area. The second landfill (Dinting Lodge Industrial Estate) is located approximately 40m to the south and accepted inert and industrial waste. The other landfills are considered to be at such a distance where migration of ground gas is unlikely to occur, particularly due to the presence of Devensian Till.

It is considered that the only plausible sources of ground gas which could impact the site is the Dinting Lodge Industrial Estate landfill to the south and Land adjacent to Shaw Lane to the north.

Site Investigation & Ground Gas Risk Assessment

The site investigation consisted of the excavation of 14 trial-pits (TP101-TP114) and the drilling of 15 window sampler boreholes, 7 of which were installed with ground gas monitoring standpipes. Six rounds

¹ Ground Gas Handbook (2009)



of ground gas monitoring were undertaken. A copy of the site investigation location plan is appended to this letter.

Ground Conditions

The ground conditions were generally uniform across the Site, consisting of a sandy topsoil underlain by sandy / gravelly clay with occasional bands of sand. No made ground was encountered and no descriptions of significant organic material were reported. Copies of the logs are provided in Appendix A.

Table 3.1 of the site investigation report confirms that all investigation entries were non-targeted to provide good spatial coverage. It is assumed that at least one of the entries was within the area of the potentially infilled pond, however this is uncertain, and the location of this historical feature was not present on the site investigation plan. In any case, as previously mentioned deep fills are not anticipated and significant organic material capable of generating significant volumes of ground gas are not expected with an infilled pond of this age.

Monitoring Installations

Seven of the boreholes were installed with a monitoring standpipe, a summary of each borehole, the depth of response zone and the recorded groundwater depths are summarised in the table below:

Table 2. Summary of borehole installations and depths to groundwater

Borehole	Depth of Response Zone (m)	Groundwater Height (m bgl)
WS101	1-5	4.36 – Dry
WS103	1-3	2.95 - Dry
WS105	1-4	1.18 - 2.3
WS109	1-3	0.77-1.17
WS111	0-1*	0 (flooded) – 0.3
WS113	1-4	2.53 – 2.99
WS115	1-2	0.36 - 0.63

**Uncertain from logs if response zone extends to surface or just below. Records say base of install is 2m, however this is not the case in the logs.*

The records show variable groundwater across the site with some entries reported as being dry on some occasions (WS101 and WS103) whilst WS111 was flooded on multiple occasions. All the other boreholes show groundwater levels rose and fell over the monitoring period.

Ground Gas Monitoring

A summary of the ground gas monitoring data obtained by Sutcliffe is presented in the table below with the range of carbon dioxide and methane concentrations (% v/v) and the range in flow rates (l/hr). Monitoring records produced by Sutcliffe are provided in Appendix B.

Table 3. Summary of Ground Gas Monitoring Data

Well	No. visits	Range CH ₄ (%)	Range CO ₂ (%)	Flow Range (l/hr)
WS101	6	<0.1-0.2	0.6-1.5	-0.2-0
WS103	5	<0.1-0.2	0.4-0.7	-0.1-0
WS105	4	<0.1	0.5-3.4	0



Well	No. visits	Range CH ₄ (%)	Range CO ₂ (%)	Flow Range (l/hr)
WS109	6	<0.1-0.2	0.9-2.3	-0.2-4.5
WS111	1	<0.1	0.6	0.2
WS113	6	<0.1	2-8.5	0
WS115	5	<0.1-0.2	0.8-2	-5.9-19.6

Concentrations of methane were consistently low and were well below the 1% threshold in which CS₂ measures would apply.

Carbon dioxide was also generally low with the exception of a single occasion in WS113 where the maximum concentration of 8.5% was recorded. This was the only incidence where the concentration exceeded the 5% threshold for CS₂ measures. It is, however, important to note that this maximum carbon dioxide concentration was recorded within the first monitoring round within WS113 and that 5 proceeding rounds recorded concentrations of 1.9-2.2%. On this basis it would suggest that the reading of 8.5% is anomalous, is not representative of the site's gassing regime and should be discarded from the assessment.

Flow rates within the boreholes were highly variable with negative flow rates recorded on multiple occasions within multiple boreholes but also positive flow rates. This is most notable in boreholes WS109 and WS115 where negative flows but also the greatest positive flows were recorded (4.5 l/hr and 19.6 l/hr) respectively. This significant range in values is indicative of the 'piston effect' where the movement of groundwater within the standpipe causes a flow as the groundwater rises and a vacuum as it falls. Table 2 summarises the recorded depths in which groundwater was recorded which does demonstrate its height movement within the boreholes.

It is important to also note that borehole WS115 is located approximately 17m from the northern landfill and WS111 approximately 65m from the southern landfill. Neither borehole recorded any elevated concentrations.

Sutcliffe Ground Gas Risk Assessment

Sutcliffe concluded within their site investigation report that the Site be classed as CIRIA CS₂ (low risk) when deriving the Gas Screening Value (GSV) by adopting the maximum elevated carbon dioxide concentration (8.5%) and the maximum flow rate (19.6 l/hr).

It is also noted that with the Remediation and Validation Strategy the ground gas risk assessment is repeated, however in this iteration it derives the GSV by using the maximum concentration / flows within each borehole rather than site-wide maximum values as per the initial assessment. Again, CS₂ conditions are concluded within borehole WS109 due to the maximum carbon dioxide concentration (2.3%) and maximum flow (4.5l/hr). It is also acknowledged that whilst Sutcliffe reference the maximum carbon dioxide concentration of 8.5% in WS113 within their assessment, they failed to acknowledge that this exceeds the 5% threshold and so within their assessment, CS₂ conditions should also apply to WS113.

Updated Ground Gas Risk Assessment

In our opinion there are three important considerations in revising the ground gas risk assessment for the site:

1. It is not appropriate to use the maximum recorded carbon dioxide concentration of 8.5% (WS113) within the assessment. It has been demonstrated through a review of the data that this was a single incidence during the first round of monitoring and may possibly relate to the drilling installation. Subsequent gas monitoring rounds within WS113 recorded significantly lower concentrations which suggests this is an anomalous result. Also, from a review of possible sources, there are no on-site sources of carbon dioxide (buried organic material or deep made ground) with the only plausible sources being an off-site landfill to the north and south, however there is no evidence of landfill gases migrating onto the site based on the monitoring data from the other boreholes adjacent to the southern off-site landfill (WS103 and WS111) and northern off-site landfill (WS101, WS109 and WS115).
2. Furthermore, WS113 where the anomalous carbon dioxide concentration was reported is some 65m away from the northern off-site landfill. In between this borehole and the landfill is WS115 (approximately 17m from landfill) and no elevated ground gas concentrations were reported. This evidentially confirms that the anomalous reading in WS113 cannot be attributed to ground gas from the northern landfill.
3. It is not appropriate to use the maximum recorded flow rates as it has been demonstrated these are attributed to the piston effect within the boreholes from a variable groundwater height and are not associated with a continuing gassing source. On this basis and having reviewed the data the adopted flow rate for all boreholes should be <0.1 l/hr.

Taking these considerations into account, an updated ground gas risk assessment is presented below:

Table 4. Updated Ground Gas Risk Assessment

Well	No. visits	Max CH ₄ (%)	Max CO ₂ (%)	Max Flow (l/hr)	CH ₄ GSV (l/hr)	CO ₂ GSV (l/hr)	CIRIA Classification
WS101	6	0.2	1.5	<0.1	<0.07	<0.07	CS1
WS103	5	0.2	0.7	<0.1	<0.07	<0.07	CS1
WS105	4	<0.1	3.4	<0.1	<0.07	<0.07	CS1
WS109	6	0.2	2.3	<0.1	<0.07	<0.07	CS1
WS111	1	<0.1	0.6	<0.1	<0.07	<0.07	CS1
WS113	6	<0.1	2.6*	<0.1	<0.07	<0.07	CS1
WS115	5	0.2	2.0	<0.1	<0.07	<0.07	CS1

*Anomalous reading removed (8.5%)

Re-assessment of the data results in the site-wide classification of **CIRIA CS1 (very low risk)** meaning that gas protection measures are not required on the site.

Conclusions



Karl Walker

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It is concluded that following a review of the site setting, potential ground gas sources, confirmed ground conditions and a detailed review of the recorded ground gas monitoring data that re-appraisal of the ground gas risk assessment is appropriate.

It is not appropriate to adopt the maximum recorded carbon dioxide and flow rates on the site, which have been demonstrated through detailed review that they are not representative of site conditions. When these considerations are taken into account and the assessment updated, this re-classifies the whole site as being of very low risk from ground gas which ultimately concludes that gas protection measures are not required within any of the proposed dwellings across either development.

Recommendations

It is recommended that a copy of this assessment is submitted to both the Local Authority and NHBC for their review and approval.

Yours sincerely
for: Smith Grant LLP

A handwritten signature in black ink, appearing to read "D. Wayland", with a stylized flourish at the end.

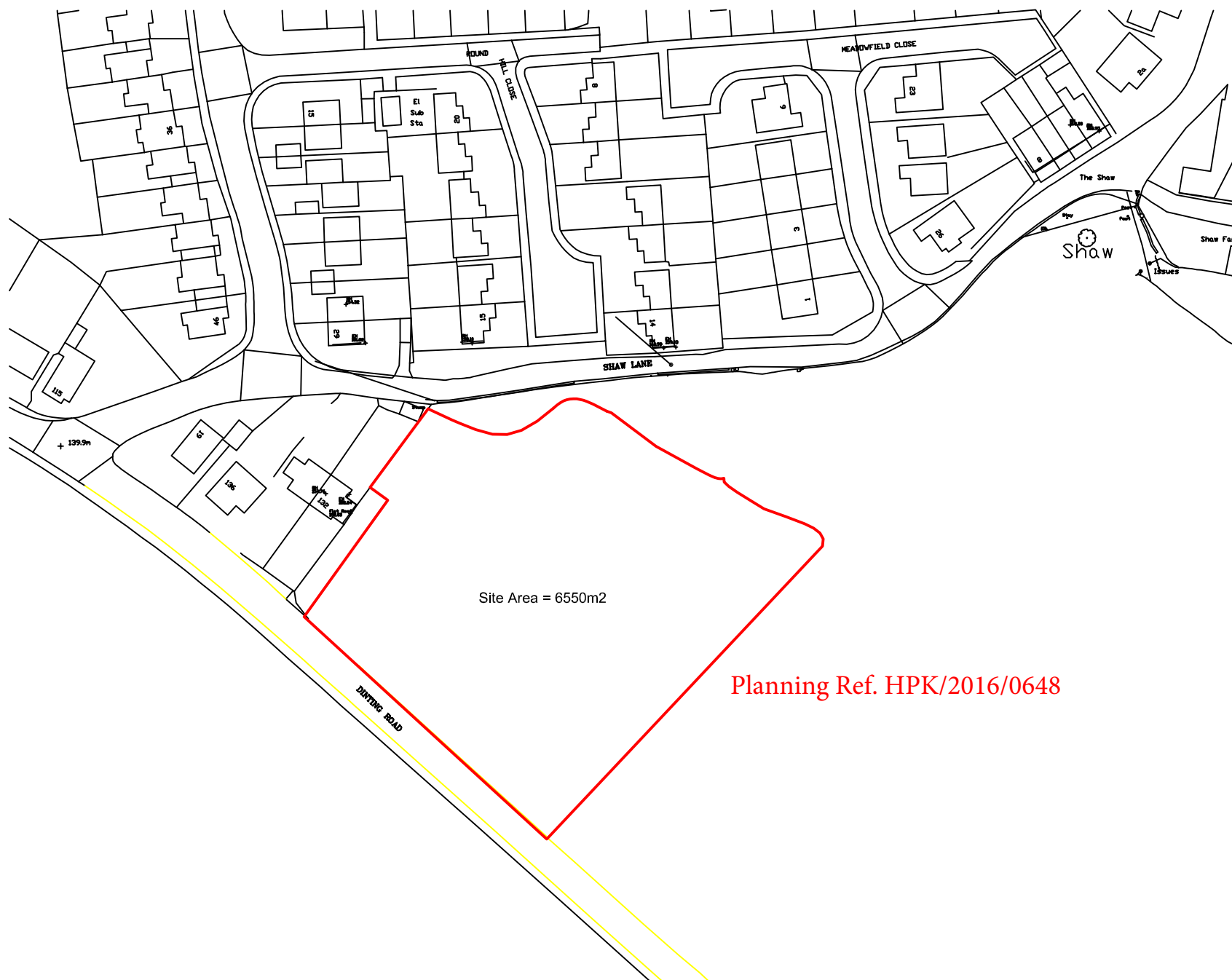
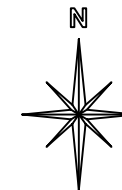
D Wayland BSc MSc AssocCIWM MCIWEM CWEM
(Partner)



Karl Walker

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Planning Boundaries



Site Area = 6550m2

Planning Ref. HPK/2016/0648

Project Title :-
Location Plan

Client :-
Lodley Properties & Developments Ltd

Drawg No :-	Date :- Oct. 16	Rev :-
Scale :- 1:1250	Drawn:- WMC	Checked :-

Site Address :- Dinting Road,
Dinting,
Glossop,
SK13 7UJ

T4 Primrose Bank
Greenfield
Saddleworth
OL3 7JP
Tel: 01457 871202
wmshova@aol.
www.william-mccall.com



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Planning Drawing

REV A 8.6.2017 - Added Shaw Farm & Amended Dinting Road to Location Plan

Project Title :- Proposal Housing Scheme Location Plan			
Client :- Loxley Homes			
Drwg No :- PL 6/17/095	2 of 2	Date :- June '17	Rev :- REV A
Scale :- 1:1250 @ A3	Drawn:- WMC	Checked :-	
Site Address :- Dinting Road Dinting Glossop			
14 Primrose Bank Greenfield Saddleworth OL3 7JP Tel: 01457 871202 www.william-mccall.com enquiries@william-mccall.com		 	

Planning Ref. HPK/2017/0325



Karl Walker

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Site Investigation Location Plan

DO NOT SCALE OFF THIS DRAWING

GENERAL NOTES

This drawing to read in conjunction with all relevant structural and architectural drawings and specifications.

All dimensions to be checked on site by the contractor / fabricator prior to commencement of works.

All dimensions are in millimetres unless stated otherwise.

All works to be carried out in strict accordance with the engineer's specifications, relevant British Standards and where applicable Local Authorities requirements.

For final setting out information relating to grid lines and wall positions refer to the architect's drawings.

P1	05/04/19	KD	PRELIMINARY ISSUE	DB
Rev	Date	Checked	Description	By

NOT WORKING DRAWING



Sutcliffe

18-20 Harrington Street, Liverpool L2 9QA
t: 0151 227 3155 f: 0151 227 3156
e: sutcliffe@sutcliffe.co.uk w: www.sutcliffe.co.uk

Client

HALTON HOUSING TRUST

Project

DINTING ROAD
GLOSSOP

Drawing title

SITE INVESTIGATION ON
EXISTING LAYOUT

Scale at A3	NTS	Drawing number	30241-700
Drawn by	D.BOWEN	Revision suffix	P1
Date	05.04.19		



Karl Walker

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APPENDIX A

Site Investigation Logs

 Sutcliffe Investigations						Site Dinting Road, Glossop		Trial Pit Number TP101
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.90	VANE 60kPa				(0.30) 0.30	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)		
1.10	VANE 72kPa				(1.00)	Light brown with grey and orange brown mottled slightly sandy CLAY. Sand is fine		
1.30	VANE 86kPa				1.30	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology		
1.60	VANE 102kPa				(0.40) 1.70	Complete at 1.70m		
						Remarks Trial pit dry		
						Scale (approx) 1:50	Logged By AT	Figure No. 30241IG.TP101



Dinting Road, Glossop

**Trial Pit
Number**
TP102

Trial Pit

Dimensions

Ground Level (mOD)

Halton Housing

**Job
Number**
30241IG

Location

Dates

21/03/2019

Engineer

AT

Sheet
1/1

Depth
(m)

Sample / Tests

Water
Depth
(m)

Field Records

Level
(mOD)Depth
(m)
(Thickness)

Description

Legend

Water

1.25
1.40
1.60

VANE 76kPa
VANE 118kPa
VANE 130kPa

Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)
Dark brown with grey and orange brown fine to medium grained SAND with clay bands
Light brown with grey and orange brown mottled slightly sandy CLAY. Sand is fine
Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology
Complete at 1.70m

Remarks

Trial pit dry

Scale (approx)

1:50

Logged By

Figure No.

30241IG.TP102

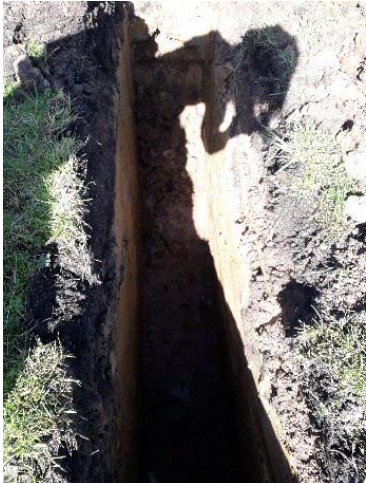


 Sutcliffe Investigations						Site Dinting Road, Glossop		Trial Pit Number TP103	
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.10 1.40	VANE 64kPa VANE 60kPa				0.10 (0.50)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL) Light brown clayey fine to medium grained SAND			
	0.60 (0.90)				Grey with orange brown slightly silty slightly sandy CLAY. Sand is fine				
	1.50 (0.50)				Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology				
	2.00				Complete at 2.00m				
1.90	VANE 130kPa								
						Remarks Trial pit dry			
						Scale (approx) 1:50	Logged By AT	Figure No. 30241IG.TP103	

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP104		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.70	VANE 68kPa				0.10 (0.50)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					0.60 (0.60)	Dark brown clayey fine to medium grained SAND			
					1.20 (0.70)	Light brown and grey slightly silty slightly sandy CLAY. Sand is fine			
1.50	VANE 110kPa					Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
1.80	VANE 130kPa				1.90	Complete at 1.90m			
					Remarks Trial pit dry				
					Scale (approx) 1:50	Logged By AT	Figure No. 30241IG.TP104		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP105		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.30	VANE 74kPa				(0.30) 0.30	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					(1.10)	Light brown with grey and orange brown mottled slightly sandy CLAY. Sand is fine			
1.80	VANE 114kPa				1.40	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
2.20	VANE 130kPa				(0.90)				
					2.30	Complete at 2.30m			
									
Remarks Trail pit dry - slight seepage at base									
Scale (approx) 1:50						Logged By AT		Figure No. 30241IG.TP105	

 Sutcliffe Investigations					Site Dinting Road, Glossop			Trial Pit Number TP106		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing			Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT			Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description			Legend	Water
1.30 1.50 1.90	VANE 62kPa				(0.20) 0.20	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)				
	(0.40) 0.60				Grey and light brown slightly clayey fine to medium grained SAND					
	(0.70) 1.30				Light brown and grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology					
	(0.70) 2.00				Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology					
						Complete at 2.00m				
					Remarks Trial pit dry					
					Scale (approx) 1:50		Logged By AT		Figure No. 30241IG.TP106	

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP107		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 25/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.30 1.40 1.50	VANE 55kPa VANE 55kPa VANE 75kPa				(0.20) 0.20 0.30 (0.90) 1.20 (0.30) 1.50	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL) Grey and light brown slightly clayey fine to medium grained SAND Light brown and grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology Complete at 1.50m		   	
						Remarks Trial pit dry			
						Scale (approx) 1:50		Logged By JS	

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP108		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
						Engineer AT		Sheet 1/1	
		Location		Dates 25/03/2019					
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.50	VANE 40kPa				(0.20)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
1.70	VANE 52kPa				(0.20)	Dark brown clayey fine to medium grained SAND			
2.00	VANE 92kPa				(0.60)	Light brown and grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology			
2.10	VANE 102kPa				1.00	Light brown slightly sandy CLAY with brown fine to medium grained sand bands			
					(1.00)				
					2.00	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
					2.10	Complete at 2.10m			
					Remarks Trial pit dry				
					Scale (approx) 1:50		Logged By JS		Figure No. 30241IG.TP108



Dinting Road, Glossop

**Trial Pit
Number**
TP109

Trial Pit

Dimensions

Ground Level (mOD)

Halton Housing

**Job
Number**
30241IG

Location

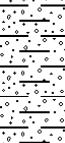
Dates

25/03/2019

Engineer

AT

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20 0.30	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)		
						Brown slightly clayey gravelly fine to medium grained SAND. Gravel is fine to coarse subangular to angular and of mixed lithology		
1.20 1.40	VANE 45kPa VANE 55kPa				(1.60)	Light brown and grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology		
1.90 2.10	VANE 68kPa VANE 104kPa				1.90 (0.40) 2.30	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology		
						Complete at 2.30m		



Remarks

Trial pit dry

Scale (approx)

1:50

Logged By

JS

Figure No.

30241IG.TP109

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP110		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 25/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.50	VANE 112kPa				(0.40)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
1.90	VANE 106kPa				(0.50)	Light brown and grey slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology			
2.10	VANE 130kPa				(1.40)	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
					2.30	Complete at 2.30m			
					Remarks Trial pit dry				
					Scale (approx) 1:50		Logged By AT		Figure No. 30241IG.TP110

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP111		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 25/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.60	VANE 52kPa				(0.20) (0.20) (0.20) (0.40) (0.50) 0.90 (1.40) 2.30	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL) Brown sandy CLAY with pockets of fine to medium grained sand. Sand is fine Light brown slightly silty slightly sandy CLAY. Sand is fine Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology	                                       		
1.00	VANE 40kPa								
1.50	VANE 46kPa								
2.00	VANE 116kPa								
						Complete at 2.30m			
						Remarks Trail pit dry			
						Scale (approx) 1:50	Logged By JS	Figure No. 30241IG.TP111	



Dinting Road, Glossop

**Trial Pit
Number**
TP112

Trial Pit

Dimensions

Ground Level (mOD)

Halton Housing

**Job
Number**
30241IG

Location

Dates

25/03/2019

Engineer

AT

Sheet
1/1

Depth
(m)

Sample / Tests

Water
Depth
(m)

Field Records

Level
(mOD)Depth
(m)
(Thickness)

Description

Legend

Water

(0.20)

0.20

(0.40)

0.60

(2.00)

2.60

Grass over dark brown clayey fine to medium grained SAND
with root material (TOPSOIL)

Brown very sandy gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology

Very stiff brown with grey veining sandy slightly gravelly
CLAY. Sand is fine Gravel is fine to medium subangular to
angular and of mixed lithology

Complete at 2.60m



Remarks

Trail pit collapsed at 1.00m

Scale (approx)

1:50

Logged By

JS

Figure No.

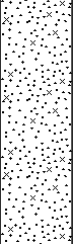
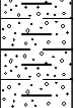
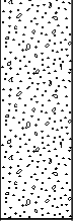
30241IG.TP112

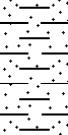
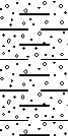
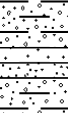
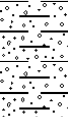
 Sutcliffe Investigations						Site Dinting Road, Glossop		Trial Pit Number TP113			
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG			
						Engineer AT		Sheet 1/1			
		Location		Dates 25/03/2019							
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water			
0.70	VANE 60kPa				(0.20) (0.20) (0.20) 0.40 (0.60) 1.00 (1.00) 2.00	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL) Dark brown very sandy CLAY. Sand is fine Light brown and grey mottled silty CLAY with sand bands Light brown grey slightly sandy slightly gravelly CLAY with occasional cobbles and boulders. Sand is fine Gravel is fine subangular and of mixed lithology Boulder encountered at 1.20m	      				
1.50	VANE 96kPa										
1.70	VANE 70kPa										
						Complete at 2.00m					
						Remarks Trial pit dry					
						Scale (approx) 1:50		Logged By JS		Figure No. 30241IG.TP113	

 Sutcliffe Investigations					Site Dinting Road, Glossop		Trial Pit Number TP114		
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 25/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.60	VANE 70kPa				0.10 (0.30) 0.40	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
1.20	VANE 70kPa				(0.70) 1.10	Brown very sandy CLAY with fine to medium sand bands. Sand is fine to medium			
					(0.90)	Light brown with grey mottling silty sandy CLAY with fine to medium grained sand bands. Sand is fine to medium			
						Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
2.00	VANE 69kPa				2.00	Complete at 2.00m			
					Remarks Trial pit dry				
					Scale (approx) 1:50		Logged By JS		Figure No. 30241IG.TP114

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS101		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 20/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					0.10	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
1.20-1.65	SPT N=5	1,1/1,1,1,2			(2.10)	Firm brown sandy gravelly CLAY. Sand is fine to medium Gravel is fine to medium subangular to angular and of mudstone			
2.00-2.45	SPT N=8	1,2/2,2,2,2			2.20	Firm grey slightly sandy slightly silty CLAY. Sand is fine			
3.00-3.45	SPT N=11	Water strike(1) at 3.00m, no rise after 20 mins. 2,2/2,3,3,3			(1.10)				
					3.30	Very stiff dark grey with brown and orange brown mottle slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular and of mixed lithology			
4.00-4.45	SPT N=27	4,6/7,7,6,7			(0.70)				
					4.00	Very stiff dark brown with orange brown banding slightly mottled slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine subangular and of mixed lithology			
					(1.45)				
5.00-5.45	SPT N=32	5,7/8,8,8,8			5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50	Logged By AT	
							Figure No. 30241IG.WS101		

 Sutcliffe Investigations						Site Dinting Road, Glossop		Number WS102	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 20/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=4		1,1/1,1,1,1,1		(0.25)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)		▼ ₁	
					0.25	Brown clayey fine to medium grained SAND			
					0.80	Brown slightly sandy CLAY. Sand is fine to medium			
					(0.20)	Firm light brown with grey and orange brown mottled slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=8		2,2/2,2,2,2,2		(0.80)			▼ ₁	
					1.80	Firm brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
3.00-3.45	SPT N=12		Water strike(1) at 3.00m, rose to 1.40m in 20 mins. 2,2/2,3,3,4		(1.70)			▼ ₁	
					3.50	Very stiff brown slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
4.00-4.45	SPT N=24		5,5/5,6,6,7		(1.20)				
5.00-5.45	SPT N=32		5,6/7,8,9,8		4.70	Dense brown slightly silty very clayey fine grained SAND			
					(0.75)				
					5.45	Complete at 5.45m			
Remarks							Scale (approx)	Logged By	
							1:50	AT	
							Figure No. 30241IG.WS102		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS103		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 20/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					0.10	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					(0.80)	Brown slightly clayey gravelly fine to medium grained SAND with some cobbles. Gravel is fine to coarse subangular to angular flat and of sandstone			
1.20-1.65	SPT N=5		1,1/1,1,1,2		0.90	Loose brown very clayey gravelly fine to medium grained SAND. Gravel is fine to coarse subangular to angular and of mixed lithology			
2.00-2.45	SPT N=7		2,2/2,2,1,2		(2.10)				
3.00-3.45	SPT N=8		1,2/2,2,2,2		3.00	Firm light brown with yellow brown pockets slightly sandy slightly silty slightly gravelly CLAY. Sand is fine to medium Gravel is fine to coarse subangular to angular and of mixed lithology			
4.00-4.45	SPT N=37		4,6/8,8,11,10		4.00	Very stiff light brown with yellow brown pockets friable slightly sandy slightly gravelly CLAY with fine to medium sand bands. Sand is fine to medium Gravel is fine to coarse subangular to angular and of mixed lithology			
5.00-5.45	SPT N=35		5,7/12,9,7,7		(1.45)				
					5.45	Complete at 5.45m			
Remarks Borehole dry							Scale (approx) 1:50	Logged By AT	Figure No. 30241IG.WS103

 Sutcliffe Investigations						Site Dinting Road, Glossop		Number WS104	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 20/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=19		1,2/3,5,5,6		0.10	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					(1.20)	Brown and light brown grey pockets slightly sandy CLAY. Sand is fine to medium			
2.00-2.45	SPT N=9		Water strike(1) at 2.00m, no rise after 20 mins. 2,2/3,2,2,2		1.30	Very stiff brown slightly sandy slightly silty gravelly CLAY. Sand is fine to medium Gravel is fine to medium subangular to angular and of mixed lithology			▼1
					(1.30)				
3.00-3.45	SPT N=18		2,4/4,4,5,5		2.60	Brown silty slightly sandy CLAY. Sand is fine			
					2.70	Brown silty fine to medium grained SAND			
4.00-4.45	SPT N=16		3,3/3,4,5,4			Very stiff brown slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
					(2.00)				
4.80-4.98	SPT 25*/80 50/100		18,7/20,30		4.80	Brown silty fine to medium grained SAND			
					(0.18) 4.98	Complete at 4.98m			
Remarks							Scale (approx) 1:50	Logged By AT	
							Figure No. 30241IG.WS104		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS105		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 20/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.20-1.65	SPT N=6		1,1/1,1,2,2		0.15 0.13	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
2.00-2.45	SPT N=10		2,2/3,3,2,2		(2.85)	Firm brown and light brown grey pockets slightly sandy CLAY. Sand is fine to medium			
3.00-3.45	SPT N=15		Water strike(1) at 3.00m, no rise after 20 mins. 2,3/3,4,4,4		3.00	Very stiff brown slightly silty slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology		▼1	
4.00-4.45	SPT N=25		4,4/6,6,7,6		(2.01)				
5.00-5.01	SPT 25*/10 50/0		25/50		5.01	Complete at 5.01m			
Remarks							Scale (approx)	Logged By	
							1:50	AT	
							Figure No. 30241IG.WS105		

Sutcliffe Sutcliffe Investigations						Site Dinting Road, Glossop		Number WS106			
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG			
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1			
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water			
1.20-1.65	SPT N=7		Water strike(1) at 1.20m, no rise after 20 mins. 1,1/2,2,2,1		(0.20)	Grass over topsoil.		▼1			
					0.20	Brown slightly clayey fine to medium SAND.					
(0.40)	Brown gray mottled sandy slightly silty CLAY with sand bands.										
0.60											
(0.40)	Soft light brown silty CLAY with pockets of fine sand.										
1.00											
(1.00)	Very stiff brown very silty CLAY.										
2.00											
2.00-2.45	SPT N=11				2,2/3,3,3,2				(1.50)		
3.00-3.45	SPT N=14				3,3/3,4,4,3				3.50	Stiff dark brown slightly silty CLAY with occasional gravel.	
4.00-4.45	SPT N=22				3,4/4,5,6,7				(1.00)		
5.00-5.45	SPT N=23	4,5/6,6,6,5			4.50	Very stiff dark brown gray mottled sandy CLAY with occasional gravel.					
					(0.95)						
					5.45	Complete at 5.45m					
Remarks								Scale (approx) 1:50	Logged By JS		
								Figure No. 30241IG.WS106			

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS107		
Excavation Method Drive-in Windowless Sampler		Dimensions 1mm to		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=7		1,1/1,2,2,2		(0.20) 0.20 (0.30) 0.30 0.50 (0.50) 1.00	Grass over topsoil. Brown slightly clayey gravelly fine to coarse SAND. Light brown grey mottled slightly sandy silty CLAY. Firm light brown CLAY with grey mottling & pockets of orange gravelly sand.	   		
2.00-2.45	SPT N=11		2,2/2,3,3,3		(1.89)				
2.60-2.89	SPT 25*/125 50/160		14,11/16,18,16		2.89	Complete at 2.89m			
Remarks							Scale (approx) 1:50	Logged By JS	
							Figure No. 30241IG.WS107		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS108		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=8		1,2/2,2,2,2		0.20	Grass over topsoil.			
					0.20	Brown very clayey fine to coarse SAND.			
					0.60	Light brown orange grey mottled very sandy slightly silty CLAY with occasional gravel.			
2.00-2.45	SPT N=10		2,2/2,2,3,3		1.00	Soft light brown CLAY with pockets of gray orangey sand.			
					(0.50)				
2.60-2.75	SPT 25*/75 50/75		16,9/40,10		1.50	Very stiff brown sandy CLAY with occasional gravel and frequent cobbles. Clay is friable.			
					(1.25)				
					2.75	Complete at 2.75m			
Remarks							Scale (approx) 1:50		Logged By JS
							Figure No. 30241IG.WS108		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS109		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.20-1.65	SPT N=11		1,1/2,3,3,3		(0.20)	Grass over topsoil.			
					0.20	Brown slightly clayey fine to coarse SAND.			
					(0.30)				
					0.50				
					(0.50)				
2.00-2.45	SPT N=13		2,2/3,3,3,4		1.00	Stiff to very stiff brown CLAY with occasional cobbles & occasional sand bands.			
3.00-3.45	SPT N=15		2,3/3,4,4,4		(4.45)				
4.00-4.45	SPT N=18		4,3/4,4,5,5						
5.00-5.45	SPT N=19		4,4/4,5,5,5		5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50	Logged By JS	
							Figure No. 30241IG.WS109		

 Sutcliffe Investigations						Site Dinting Road, Glossop		Number WS110	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=10	1,2/2,3,3,2			0.10	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					(0.90)	Light brown slightly silty slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=13	2,2/3,3,4,3			1.00	Stiff brown slightly sandy gravelly CLAY. Sand is fine to medium Gravel is fine to medium subangular and of mixed lithology			
					(2.70)				
3.00-3.45	SPT N=17	Water strike(1) at 3.00m, no rise after 20 mins. 3,3/4,4,4,5							
4.00-4.45	SPT N=14	3,2/3,3,4,4			3.70	Stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
					(1.75)				
5.00-5.45	SPT N=18	4,4/5,5,4,4			5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50	Logged By AT	
							Figure No. 30241IG.WS110		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS111		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 21/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.20-1.65	SPT N=12		1,2/3,3,3,3		0.20	Grass over topsoil.			
					0.20	Brown clayey fine to coarse SAND with occasional gravel.			
					(0.40)				
					0.60				
					(0.40)				
					1.00	Stiff brown friable sandy CLAY with occasional cobbles.			
2.00-2.45	SPT N=15		2,3/3,4,4,4		(2.50)				
3.00-3.45	SPT N=15		2,3/3,4,4,4						
4.00-4.45	SPT N=18		4,3/4,4,5,5		3.50	Very stiff brown slightly sandy CLAY with occasional gravel.			
5.00-5.45	SPT N=19		4,4/4,5,5,5		(1.95)				
									
									
					5.45	Complete at 5.45m			
Remarks							Scale (approx)	Logged By	
							1:50	JS	
							Figure No. 30241IG.WS111		

 Sutcliffe Investigations						Site Dinting Road, Glossop		Number WS112	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
						Engineer AT		Sheet 1/1	
		Location		Dates 22/03/2019					
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=9		1,1/2,2,2,3		0.10 (0.90)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL) Light brown slightly silty slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=12		2,2/3,3,3,3		1.00 (2.70)	Stiff brown slightly sandy gravelly CLAY. Sand is fine to medium Gravel is fine to medium subangular and of mixed lithology			
3.00-3.45	SPT N=15		Water strike(1) at 3.00m, no rise after 20 mins. 2,3/3,4,4,4		3.70	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
4.00-4.45	SPT N=15		3,3/3,4,4,4		(1.75)				
5.00-5.45	SPT N=18		3,4/4,4,5,5		5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50		Logged By AT
							Figure No. 30241IG.WS112		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS113		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 22/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.20-1.65	SPT N=11	1,2/2,3,3,3			(0.30)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					0.30	Light brown with grey and orange brown mottled slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=15	2,3/3,3,4,5			(1.00)				
					1.30	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
3.00-3.45	SPT N=16	Water strike(1) at 3.00m, no rise after 20 mins. 5,6/4,4,4,4			(1.20)				
					2.50	Medium dense brown fine to medium grained SAND			
4.00-4.45	SPT N=21	3,4/5,5,6,5			(0.55)				
					3.05	Medium dense brown slightly silty very clayey fine grained SAND			
5.00-5.45	SPT N=20	3,4/5,5,5,5			(0.45)				
					3.50	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
					4.00				
					4.10	Orange brown fine to medium grained SAND			
					(1.35)	Very stiff brown slightly sandy CLAY. Sand is fine to medium			
					5.45	Complete at 5.45m			
Remarks							Scale (approx)	Logged By	
							1:50	AT	
							Figure No. 30241IG.WS113		

 Sutcliffe Investigations						Site Dinting Road, Glossop		Number WS114	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 22/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=10	1,2/2,2,3,3			(0.30)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL)			
					0.30	Light brown and grey slightly silty slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=11	2,2/3,3,3,2			(0.70)				
					1.00	Stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
3.00-3.45	SPT N=14	Water strike(1) at 3.00m, no rise after 20 mins. 2,2/3,3,4,4			(1.90)				
					2.90	Brown slightly silty slightly clayey fine to medium grained SAND			
4.00-4.45	SPT N=14	2,3/3,3,4,4			3.00	Very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology			
					(1.60)				
5.00-5.45	SPT N=16	2,3/3,4,5,4			4.60	Very stiff brown slightly silty sandy CLAY. Sand is fine			
					(0.85)				
					5.45	Complete at 5.45m			
Remarks							Scale (approx)	Logged By	
							1:50	AT	
							Figure No. 30241IG.WS114		

 Sutcliffe Investigations					Site Dinting Road, Glossop		Number WS115		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Halton Housing		Job Number 30241IG	
		Location		Dates 22/03/2019		Engineer AT		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.20-1.65	SPT N=3		1,0/0,1,1,1		0.10 (0.20) 0.30 (0.30) 0.60 (0.40) 1.00 (0.50)	Grass over dark brown clayey fine to medium grained SAND with root material (TOPSOIL) Dark brown very clayey fine to medium grained SAND with clay bands Orange brown clayey fine to medium grained SAND Light brown silty slightly sandy CLAY with root material	   		
2.00-2.45	SPT N=10		Water strike(1) at 2.00m, no rise after 20 mins. 1,2/2,2,3,3		1.50 (0.50) 2.00	Very soft grey silty slightly sandy CLAY with peaty pockets. Sand is fine Soft to firm grey brown slightly sandy gravelly CLAY. Sand is fine Gravel is fine to medium subrounded to rounded and of mixed lithology band of dark grey and black very silty sandy CLAY with organic material from 1.80m to 1.90m	  		
3.00-3.45	SPT N=15		2,3/3,4,4,4		(3.45)	Stiff to very stiff brown with grey veining slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subangular to angular and of mixed lithology	  		
4.00-4.45	SPT N=22		2,3/4,5,6,7				  		
5.00-5.45	SPT N=16		2,2/3,4,4,5		5.45	Complete at 5.45m	  		
Remarks							Scale (approx) 1:50	Logged By AT	Figure No. 30241IG.WS115



Karl Walker

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APPENDIX B

Gas Monitoring Records

	SUTCLIFFE INVESTIGATIONS					GAS MEASUREMENTS AND WATER LEVELS		Sheet No.: 1 of 1		
	TEL: 0151 227 3155							Atmospheric Pressure: 981mb		
	FAX: 0151 227 3156							Weather: Clear/Cloudy		
	VISIT No.: 1							Pressure Trend: Steady		
	CLIENT: Halton Housing							SITE: Dinting Road, Glossop		
Date of Fieldwork: 02.04.19					Logged By: JS		Job No.: 30241LG			
B/H REF	CH ₄		CO ₂	O ₂	Relative Pressure	Flow Rate	P.I.D	Base of Borehole	Water Level	Reduced Water
	%LEL	%by vol	%by vol	%by vol	(mb)	(l/h)		(mbgl)	(mbgl)	(m) A.O.D
WS101		0.1	0.2	21	-0.5	-0.2		5	4.36	
		0.1	1.1	20.6						
		0.1	1.5	19.4						
		0.1	1.5	18.3						
WS103		0.1	0.2	21.1	-0.57	0		3	DRY	
		0.1	0.3	20.9						
		0.1	0.4	20.8						
		0.1	0.4	20.8						
WS105		0.1	1.9	19.2	-0.41	0		4	2.3	
		0.1	1.9	17.4						
		0.1	3.4	17.1						
		0.1	3.4	16.8						
WS109		0.1	0.3	20.8	-0.37	4.5		3.85	0.93	
		0.1	0.8	20.3						
		0.1	0.9	20						
		0.1	0.9	19.8						
WS111		0.1	0.4	21.3	-0.37	0.2		2	0.3	
		0.1	0.5	21.2						
		0.1	0.6	21.1						
		0.1	0.6	21.1						
WS113		0.1	0.2	18.1	-0.4	0		4	2.53	
		0.1	8.3	7.2						
		0.1	8.5	1.6						
		0.1	8.5	1.6						
WS115		0.1	0.3	20.7	-0.36	19.6		2	0.63	
		0.1	0.3	20.7						
		0.1	0.8	20.8						
		0.1	0.8	20.8						
COMMENTS:										
INSTRUMENT USED:			ACCURACY OF INSTRUMENT (% by volume)		CH₄		CO₂		O₂	
					± 0.5% @ 5%		± 0.5% @ 5%			
					± 1.0% @15%		± 1.0% @15%		± 1.0%	
					±3.0% @>15%		±3.0% @>15%			

A = Accumulated Type Sample

l/h = Litres per hour

%LEL = Lower Explosive Limit (for CH₄ in air 100% = 5% by volume)

SS = Steady State Type Sample

mb = Millibar

P = Peak Type Sample

mbgl = Metres Below Ground Level

	SUTCLIFFE INVESTIGATIONS					GAS MEASUREMENTS AND WATER LEVELS		Sheet No.: 1 of 1		
	TEL: 0151 227 3155							Atmospheric Pressure: 999mb		
	FAX: 0151 227 3156							Weather: Cloudy		
	VISIT No.: 3							Pressure Trend: Steady		
	CLIENT: Halton Housing							SITE: Dinting Road, Glossop		
Date of Fieldwork: 01.05.19					Logged By: JS		Job No.: 30241LG			
B/H REF	CH ₄		CO ₂	O ₂	Relative Pressure	Flow Rate	P.I.D	Base of Borehole	Water Level	Reduced Water
	%LEL	%by vol	%by vol	%by vol	(mb)	(l/h)		(mbgl)	(mbgl)	(m) A.O.D
WS101		0.1	0.5	20.6	-0.26	0		5	4.67	
		0.1	1.3	19.2						
		0.1	1.4	18.7						
		0.1	1.4	18.7						
WS103		0.1	0.4	20.8	-0.37	0		3	DRY	
		0.1	0.4	20.6						
		0.1	0.4	20.4						
		0.1	0.4	20.4						
WS105		0.1	1.1	20.3	-0.28	0		4	2.19	
		0.1	2.5	18.3						
		0.1	2.6	17.7						
		0.1	2.6	17.5						
WS109		0.1	0.6	21	-0.25	0		3.85	0.82	
		0.1	1.3	20.5						
		0.1	1.4	20.2						
		0.1	1.4	20.2						
WS111	Flooded									
WS113		0.1	0.3	20.5	-0.31	0		4	2.82	
		0.1	1.8	18.1						
		0.1	2.1	15.7						
		0.1	1.6	16.2						
WS115		0.1	1.3	18.8	-0.28	0.1		4	0.52	
		0.1	1.9	18.6						
		0.2	2	18.5						
		0.2	2	18.5						
COMMENTS:										
INSTRUMENT USED:			ACCURACY OF INSTRUMENT (% by volume)		CH ₄		CO ₂		O ₂	
					± 0.5% @ 5%		± 0.5% @ 5%			
					± 1.0% @15%		± 1.0% @15%		± 1.0%	
					±3.0% @>15%		±3.0% @>15%			

A = Accumulated Type Sample

l/h = Litres per hour

%LEL = Lower Explosive Limit (for CH₄ in air 100% = 5% by volume)

SS = Steady State Type Sample

mb = Millibar

P = Peak Type Sample

mbgl = Metres Below Ground Level

	SUTCLIFFE INVESTIGATIONS					GAS MEASUREMENTS AND WATER LEVELS		Sheet No.: 1 of 1		
	TEL: 0151 227 3155							Atmospheric Pressure: 995mb		
	FAX: 0151 227 3156							Weather: Overcast/Rain		
	VISIT No.: 4							Pressure Trend: Falling		
	CLIENT: Halton Housing							SITE: Dinting Road, Glossop		
Date of Fieldwork: 29.05.19					Logged By: JS		Job No.: 30241LG			
B/H REF	CH ₄		CO ₂	O ₂	Relative Pressure	Flow Rate	P.I.D	Base of Borehole	Water Level	Reduced Water
	%LEL	%by vol	%by vol	%by vol	(mb)	(l/h)		(mbgl)	(mbgl)	(m) A.O.D
WS101		0.1	0.3	20.9	-0.41	0		5	4.9	
		0.1	1.2	20						
		0.1	1.4	19.7						
		0.1	1.5	19.4						
WS103		0.1	0.3	19.9	-0.42	0		3	DRY	
		0.1	0.6	18.8						
		0.1	0.5	19.9						
		0.1	0.5	20.5						
WS105		0.1	0.5	20.6	-0.37	0		4	1.18	
		0.1	0.5	20.6						
		0.1	0.5	20.8						
		0.1	0.5	20.8						
WS109		0.1	1.2	20.1	-0.4	-2.2		3.85	1	
		0.1	1.9	18.7						
		0.1	2.1	17.2						
		0.1	2.3	16.5						
WS111	Flooded									
WS113		0.1	0.4	20.1	-0.39	0		4	2.92	
		0.1	1.3	17.6						
		0.1	1.7	16.6						
		0.1	2	16.6						
WS115		0.1	0.2	21.1	-0.42	-5.9		2	0.45	
		0.1	0.4	20.9						
		0.1	0.7	20.3						
		0.1	0.8	20.2						
COMMENTS:										
INSTRUMENT USED:			ACCURACY OF INSTRUMENT (% by volume)		CH ₄		CO ₂		O ₂	
					± 0.5% @ 5%		± 0.5% @ 5%			
					± 1.0% @15%		± 1.0% @15%		± 1.0%	
					±3.0% @>15%		±3.0% @>15%			

A = Accumulated Type Sample

l/h = Litres per hour

%LEL = Lower Explosive Limit (for CH₄ in air 100% = 5% by volume)

SS = Steady State Type Sample

mb = Millibar

P = Peak Type Sample

mbgl = Metres Below Ground Level

	SUTCLIFFE INVESTIGATIONS					GAS MEASUREMENTS AND WATER LEVELS		Sheet No.: 1 of 1		
	TEL: 0151 227 3155							Atmospheric Pressure: 1001mb		
	FAX: 0151 227 3156							Weather: Clear		
	VISIT No.: 5							Pressure Trend: Steady		
	CLIENT: Halton Housing							SITE: Dinting Road, Glossop		
Date of Fieldwork: 08.07.19					Logged By: JS		Job No.: 30241LG			
B/H REF	CH ₄		CO ₂	O ₂	Relative Pressure	Flow Rate	P.I.D	Base of Borehole	Water Level	Reduced Water
	%LEL	%by vol	%by vol	%by vol	(mb)	(l/h)		(mbgl)	(mbgl)	(m) A.O.D
WS101		0.1	0.8	19.7	0	0		5	DRY	
		0.1	0.8	19.7						
		0.2	0.9	19.3						
		0.2	0.9	19.3						
WS103		0.1	0.2	20	-0.06	-0.1		3	DRY	
		0.1	0.7	19.6						
		0.2	0.8	19.5						
		0.2	0.8	19.5						
WS105		0.1	0.2	20.1	-0.05	0		4	1.2	
		0.1	0.6	20.5						
		0.1	0.6	20.6						
		0.1	0.7	20.6						
WS109		0.1	0.3	20	-0.28	0		4	1.04	
		0.1	2.3	18.1						
		0.2	2.2	17						
		0.2	2.1	16.8						
WS111	Flooded									
WS113		0.1	0.1	20	-0.16	0		4	2.99	
		0.1	1.5	17.3						
		0.1	2.2	16.7						
		0.1	2.2	16.6						
WS115	Not Located									
COMMENTS:										
INSTRUMENT USED:			ACCURACY OF INSTRUMENT (% by volume)		CH₄		CO₂		O₂	
					± 0.5% @ 5%		± 0.5% @ 5%			
					± 1.0% @15%		± 1.0% @15%		± 1.0%	
					±3.0% @>15%		±3.0% @>15%			

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