

GROUNDTECH
CONSULTING

OLD MILL STREET

PERMANENT GROUND GAS RISK ASSESSMENT

ONE HERITAGE GROUP PLC

JULY 2024

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Plans		
Plan Reference	*Revision*	*Title*
GRO-24102-P01	-	*Project Location Plan*
GRO-24102-P03	-	*Exploratory Hole Location Plan*

1.0 INTRODUCTION

The gas monitoring programme has been completed at Old Mill Street in Manchester, please find enclosed the addendum ground gas assessment for the proposed residential development.

This ground gas assessment has been produced in accordance with the new and established guidance documents BS 8485:2019, BS 8576:2013) and CIRIA Report C665 (November 2007) to discharge Land Quality pre-commencement planning conditions.

2.0 SUMMARY OF PREVIOUS INVESTIGATION

2.1 Previous Investigations Summary Information

A Phase I Desk Study was produced by Wardell Armstrong referenced *GM12676* dated *November 2023*.

Through this Phase I Desk Study, multiple sources of ground gases were identified to potentially be present. Historical maps indicated a machine works, a rectory and a textile engineering works all previously present at the site which were later demolished.

Deep Made Ground associated with the previous demolition may be present at the site and is a potential source of ground gas.

Significant industrial development is shown in the surrounding area including a brickfield, coal yard, mills, foundry, iron works and brewery potential sources of ground gases may arise from these works Several historical waste sites within 500m of site that related to Wastepaper Works and Scrapyards with the closest being c.74m south east of site. Depending upon the nature of waste and control, ground gases may arise.

Additionally, the Ashton Canal is indicated to be present c. 70m to the south east of the site which is a potential source of ground gasses.

The site is indicated to be underlain by Glacial and Devensian Till and the solid geology is recorded as the Manchester Marls Formation with the Collyhurst Sandstone Formation encroaching onto the east of site.

The site is not located within an area requiring radon precaution measures.

The risk to site end users was considered to be *Low to Moderate* based on the Wardell Armstrong's Preliminary Risk Assessment information.

Groundtech Consulting completed a Geo-Environmental Appraisal referenced *GRO-24102-5182* dated *7th June 2024* the relevant information is summarised below.

The site is rectangular in shape and was previously levelled to be utilised for the current use of a car park. Black hoarding bounded the north, west and east perimeters of the site and access was from south of site. Four concrete boulders are present parallel to the southern boundary of site.

2.2 Ground Model

Surfacing
The site was entirely surfaced by angular to subangular fine to coarse gravel of crushed tarmac and limestone to a maximum depth of 0.25m bgl.

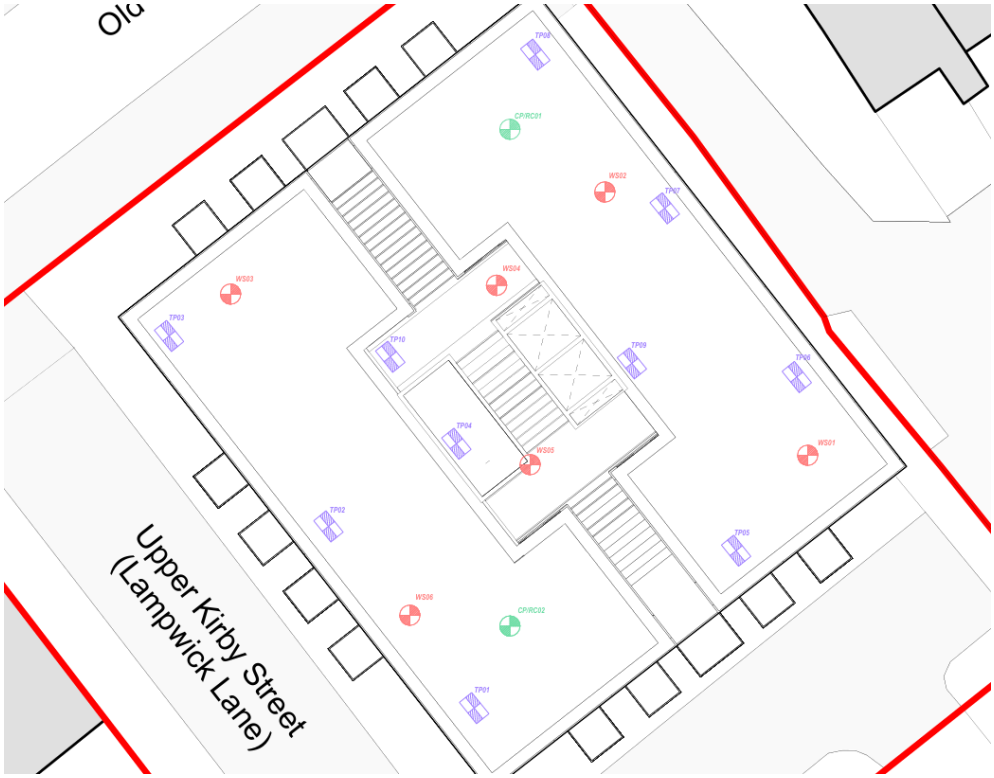
Made Ground
Made Ground was encountered beneath the site in all exploratory holes to depths of between 1.0m and 2.0m bgl. Three main Made Ground populations were encountered during the investigation and are described below:

1. *Soft to firm dark brown sandy gravelly clay with minor constituents of brick, ash and sandstone in WS01, WS02, WS04, WS05, TP01, and TP02 from depths of between 0.2m and 0.25m to between 1.3m and 1.6m bgl.*

2. *Brown sandy angular to subangular fine to coarse gravel of brick and concrete in TP02, TP03, TP05, TP06, TP07, TP09 and TP10 from between 0.2m and 0.3m to depths of between 0.2m and 2.0m bgl.*

3. *Brown, occasionally reddish brown, gravelly fine to coarse sand with minor constituents of brick, concrete and sandstone in CP01, CP02, WS03, WS06, TP04 and TP08 from depths between 0.15m and 0.25m to a maximum depth of 1.65m bgl.*

Black ashy fine to coarse sand was encountered in TP01 between 1.3m and 1.45m bgl in the southwest of the site.



Exploratory Hole Locations

Natural Ground

The natural strata encountered generally confirmed the published geological records. Two main natural stratification encountered during the investigation and are described below:

1. *Firm to stiff grey brown sandy gravelly Clay in all exploratory hole locations at minimum depths of between 1.0m and 1.8m to a maximum depth of 12.0m bgl.*

2. *Dense brown gravelly fine to coarse Sand with minor constituents of mudstone and chert was encountered underlying the clay in CP01 and CP02 between 12.0m and 17.4m bgl.*

Bedrock

Extremely weak red brown Mudstone residually weathered recovered as brown slightly clayey sandy angular to subangular gravel was encountered in CP01 and CP02 at 17.1m and 17.4m bgl respectively.

Rotary coring was undertaken from depths of 19.5m in CP01 and 18.0m in CP02 to depths of 24.0m and 25.5m bgl respectively. Extremely weak red brown Mudstone partially weathered with very close to closely spaced discontinuities was encountered to the base of the boreholes. Recovery was generally good after the first 1.5m of coring to the base of the borehole.

Groundwater

No groundwater was encountered during the Ground Investigation.

The exploratory hole positions are shown on the Exploratory Hole Location Plan *GRO-24102-P03* and the logs are in *Appendix 2.*

3.0 GROUND GAS RISK ASSESSMENT

3.1 Gas Monitoring

During the Ground Investigation works, monitoring standpipes were installed in the following holes and a summary of the installations is provided in the table below.

Location	Depth	Response Zone (m bgl)	Targeted Strata	Reason
WS01	*3.60*	*1.0 – 3.6*	*Made Ground and Clay*	*Ground Gas*
WS03	*3.00*	*1.0 – 3.0*	*Made Ground and Clay*	*Ground Gas*
CP01	*2.00*	*1.0 – 2.0*	*Made Ground and Clay*	*Ground Gas*
CP02	*2.00*	*1.0 – 2.0*	*Made Ground and Clay*	*Ground Gas*

The standpipes consisted of polyvinyl chloride (pvc) pipe - a bentonite seal was placed around the plain pipe and a clean gravel pack was placed around the slotted pipe.

Four ground gas monitoring visits have been completed between 29 May and 16 July 2024. Monitoring of the weather conditions and predicted atmospheric pressures (Met Office Surface Pressure Charts) was carried out up to 72 hours in advance of proposed monitoring visits in order that a reasonable period of data was obtained to determine atmospheric trends, and also to target the 'worst case' scenario.

Permanent gas and flow rate monitoring was carried out using a GFM436 infrared gas monitor with integral electronic flow analyser. The measurements taken are listed below:

- *Oxygen (O_2), carbon dioxide (CO_2) and methane (CH_4) as the percentage volume in air (%v/v).*
- *Hydrogen sulphide (H_2S) and carbon monoxide (CO) as the percentage volume in air (%v/v).*
- *Lower Explosive Limit (% LEL) of methane.*
- *Atmospheric and borehole pressure, including pressure trend.*
- *Flow measurements (l/hr).*
- *Weather and ground surface conditions.*

Both peak and steady state conditions were monitored to understand the behaviour of the permanent ground gas, the steady state conditions were recorded by allowing the gas monitor to run for a minimum of 3 minutes.

Permanent gas and groundwater monitoring results are presented in *Appendix 3.*

3.2 Gas Monitoring Results

During the monitoring period, Methane (CH_4) has been recorded within the standpipes, the concentrations ranged between 0.0%v/v and 8.4% v/v.

Detectable levels of Carbon Dioxide (CO_2) were recorded within the standpipes, the concentrations ranged between 0.0% v/v and 13.4% v/v.

Oxygen (O_2) concentrations ranged between 1.0% v/v and 20.2% v/v.

Peak and steady concentrations recorded for both Methane and Carbon Dioxide are consistent through out the monitoring period

No positive gas flow rates were recorded during the gas monitoring programme.

Groundwater levels were recorded within WS03 ranging from 1.17m to 1.39m bgl during the monitoring period and was occasionally above the response zone of the standpipes. This is likely a result of groundwater becoming perched within the standpipes as a result of the poor drainage conditions of the surrounding strata.

The atmospheric pressure ranged between 998mb and 1005mb during the monitoring period and was carried out during periods of rising and falling barometric pressure.

3.3 Characterisation of the Gas Screening Value (GSV)

In accordance with BS 8485:2019, CIRIA Report C665, November 2007 - an adequate risk assessment can be undertaken based on the following limiting factors:

- *The proposed development has been considered as* ***high sensitivity*** *based on the site being developed with residential apartments (Table 5.5 – Typical/Idealised frequency and period of monitoring, after Wilson et al, 2005).*
- *The risk associated with the generation potential of a source is considered as* ***moderate to low****, (assessment based on the environmental setting) as well as observations noted during the fieldworks.*
- *No flow rates have been recorded (Table 8.5 – Modified Wilson & Card classification). For this site, four of the monitoring visits were targeted to correlate with a falling atmospheric pressure trend. As a comparison, monitoring has also been undertaken during rising*

Based upon the results recorded, in accordance with BS 8485:2019 and CIRIA Report C665 - the risk to the site from ground gases has been assessed by converting the results to gas screening values (GSVs), calculated by multiplying the typical maximum gas concentrations with the recorded maximum positive flow rates. In addition, individual "hazardous gas flow rates" (Qhg) have been derived for each monitoring event.

GSV (l/hr) = max borehole flow rate (l/hr) x max gas concentration (%)

For this assessment, the maximum recorded concentration of carbon dioxide of 13.4%v/v and methane of 8.4% v/v has been used. As no flow rates have been detected, the limit of detection of the gas analyser of 0.1l/hr has been used to calculate the GSV.

Carbon Dioxide GSV = 0.134 (13.4%) x 0.1 = 0.0134 l/hr

Methane GSV = 0.084 (8.4%) x 0.1 = 0.0084 l/hr

3.4 Assessment

Ground gas monitoring was carried out as multiple potential ground gas sources were identified within influencing distance of the site including Made Ground deposits associated with on and offsite historical development and also associated with deep underground coal mining.

Methane has been detected at a maximum concentration of 8.4% v/v and a maximum concentration of carbon dioxide of 13.4 % v/v has been recorded over the monitoring period. A minimum concentration of 1.0% v/v of oxygen was recorded in conjunction with the high concentrations of methane and carbon dioxide.

Groundwater has been encountered in WS03 only during the monitoring period and was encountered above the response zone of the standpipe during the first three monitoring visits. Groundwater was not encountered at any other location.

In order to assess the ground gas regime beneath the site and the need to incorporate ground gas precautions, guidance was taken from BS 8485:2019. Based on the site being developed with residential end use, the Wilson and Card method has been used to carry out the assessment.

When considering the results, in accordance with BS 8485:2019 (Modified Wilson and Card Classification), it can be seen that the GSV values for methane and carbon dioxide correspond with CS1 criteria (GSV of less than 0.7l/hr) however due to the high concentrations of methane and carbon dioxide recorded above the respective threshold values of 1.0%v/v for methane and 5.0%v/v for carbon dioxide and the site has been classified as CS2. The presence of a significant source of ground gas identified beneath the site which includes deep Made Ground deposits associated with former on site and offsite developments as well as the adjacent canal to the south east of the site are considered to be the source of the ground gasses identified at the site.

Characteristic Situation 2

An extract of the Modified Wilson and Card table is presented below:

Characteristic Situation (Wilson and Card)	Methane		Carbon Dioxide	
	Wilson and Card		Wilson and Card	
	Gas Screening Value (l/hr)	Typical Maximum Concentration (%v/v)	Gas Screening Value (l/hr)	Typical Maximum Concentration (%v/v)
1	<0.07	<1	<0.07	<5
2	<0.7	Borehole flow rate not greater than 70l/hr	<0.7	Borehole flow rate not greater than 70l/hr
3	<3.5		<3.5	
4	<15	Quantitative Risk Assessment Required	<15	Quantitative Risk Assessment Required
5	<70		<70	
6	>70		>70	

The proposed residential development is classified as a Building Type B in accordance with BS 8485:2019 and the site is designated as CS2 therefore, 2.5 points of protection are required for the proposed development.

The 2.5 points can be achieved by a combination of two or more of the following three types of protection measures to achieve that score:

Protection Measure	Details	Points of Protection
Structural Barrier/Floor Slab	Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetration	1.5
Ventilation Protection Measures	Passive sub floor dispersal layer of good performance	1.5
Gas resistant Membrane	Gas resistant membrane (including methane) meeting the criteria outlined in Table 7 of BS 8485:2020	2.0

Validation

It is recommended that the gas protection measures installed within the proposed development are validated by a fully qualified person in accordance with CIRIA C735.

3.5 Radon Gas

The site lies in an area where radon protective measures are not required within new structures.

3.6 Conclusions

2.5 points of gas protection measures are required within the proposed residential development at the site.

No radon precautions are necessary.

It is recommended that confirmation of these findings is made with the Local Authority prior to any irrevocable action being taken.

4.0 RELEVANT INDUSTRY REFERENCES

CIRIA C665 "*Assessing Risks Posed by Hazardous Ground Gases to Buildings*" 2007.

Wilson & Card "*Proposed method classifying gassing sites" Ground Engineering"* 1999.

Card & Steve Wilson in "*A pragmatic approach to ground gas risk assessment for the 21st Century*"

CIRIA/Environmental Protection UK Ground gas seminar 2011

BS 8576:2013 '*Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs*)'

BS 8485:2015+A1:2019 '*Code of practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings'*

APPENDIX 1 - Plans



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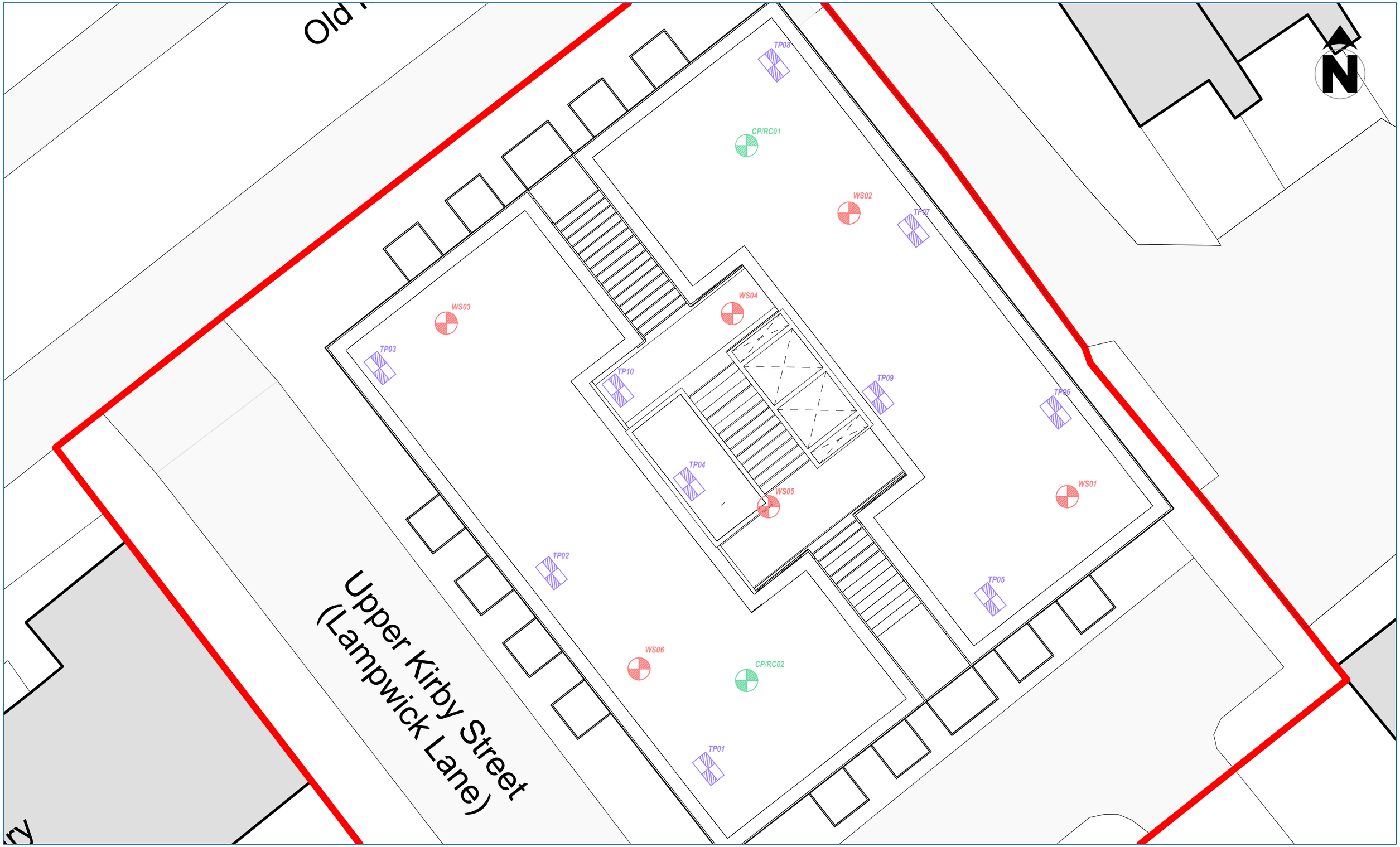
CLIENT	ONE HERITAGE LPC
PROJECT TITLE	OLD MILL STREET, NEW ISLINGTON
PLAN TITLE	PROJECT LOCATION PLAN
DATE	MAY 2024
SCALE	NTS
PLAN NUMBER	GRO-24102-P01

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

Site Location



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CLIENT	ONE HERITAGE GROUP PLC
PROJECT TITLE	OLD MILL STREET, NEW ISLINGTON
PLAN TITLE	EXPLORATORY HOLE LOCATION PLAN
DATE	MAY 2024
SCALE	NTS
PLAN NUMBER	GRO-24102-P03

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

- Rotary Core/Cable Percussive Boreholes
- Window Sample Boreholes
- Trial Pit Locations

APPENDIX 2 - Exploratory Hole Logs

Borehole Log

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Borehole No. **WS01**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: -	Hole Type WS
Location: NEW ISLINGTON		Level:	Scale 1:25
Client: ONE HERITAGE PLC		Dates: 14/05/2024 -	Logged By HM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.25	ES		0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
		1.20 1.20	D	N=2 (1,0/1,0,1,0)				MADE GROUND: Soft dark brown sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone. Sand is fine to coarse.
		1.50	ES		1.45			Firm to stiff dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone and sandstone.
		2.00 2.00 2.00	D ES	N=10 (1,2/2,3,2,3)				
		3.00 3.00	D	N=24 (3,4/5,6,6,7)				
		3.60	D		3.60			End of borehole at 3.60 m

1 2 3 4 5

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 3.60m bgl due to borehole collapse. 5. Monitoring standpipe installed to 3.60m bgl. (2.00m plain, 1.60m slotted).

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Borehole Log

Borehole No. **WS02**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: -	Hole Type WS
Location: NEW ISLINGTON		Level:	Scale 1:25
Client: ONE HERITAGE PLC		Dates: 14/05/2024 -	Logged By HM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
		0.50	ES					MADE GROUND: Soft dark brown sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, ash and sandstone. Sand is fine to coarse.
		1.20 1.20	D	N=2 (1,2/1,1,0,0)	1.30			
		1.40	ES					Soft to firm yellowish brown sandy CLAY. Sand is fine to coarse.
		2.00 2.00 2.00	D ES	N=10 (1,2/2,3,3,2)	1.95			Firm to stiff dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone and sandstone.
		3.00 3.00 3.00	D ES	N=18 (3,4/4,4,5,5)				
		4.00		N=29 (5,5/5,7,8,9)				
		4.50		N=50 (9,10/50 for 295mm)	4.50			End of borehole at 4.50 m

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 4.50m bgl due to SPT refusal. 5. Borehole backfilled with arisings.

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Borehole Log

Borehole No. **WS03**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: -	Hole Type WS
Location: NEW ISLINGTON		Level:	Scale 1:25
Client: ONE HERITAGE PLC		Dates: 14/05/2024 -	Logged By HM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
		0.45	ES					MADE GROUND: Reddish brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and ash.
		1.00	ES					
		1.20	D					
		1.20		N=6 (1,2/2,1,1,2)				
					1.40			Firm to stiff dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
		1.60	ES					
		2.00	D					
		2.00	ES					
		2.00		N=22 (1,2/3,5,7,7)				
		3.00	D		3.00			End of borehole at 3.00 m
		3.00	ES					
		3.00		N=23 (3,4/5,5,6,7)				

1 2 3 4 5

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 3.00m bgl due to borehole collapse. 5. Monitoring standpipe installed to 3.0m bgl (2.00m plain, 1.00m slotted).

Borehole Log

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Borehole No. **WS04**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: -	Hole Type WS
Location: NEW ISLINGTON		Level:	Scale 1:25
Client: ONE HERITAGE PLC		Dates: 14/05/2024 -	Logged By HM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
		0.35	ES					MADE GROUND: Soft greyish brown sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithologies including slate, brick, mudstone and sandstone.
		1.00 1.00	D ES					
		1.20		N=6 (1,2/2,1,1,2)				
					1.60			Firm to stiff dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
		2.00 2.00 2.00	D ES	N=7 (2,2/2,2,1,2)				
		2.50	ES					
		3.00 3.00	D	N=23 (2,3/3,5,7,8)	3.05			End of borehole at 3.05 m

1 2 3 4 5

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 3.00m bgl due to borehole collapse. 5. Borehole backfilled with arisings.

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Borehole Log

Borehole No. **WS05**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: -	Hole Type WS
Location: NEW ISLINGTON		Level:	Scale 1:25
Client: ONE HERITAGE PLC		Dates: 14/05/2024 -	Logged By HM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
		0.35	ES					MADE GROUND: Soft dark brown sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, ash and sandstone. Sand is fine to coarse.
		1.00	ES					
		1.20	D					
		1.20		N=18 (7,12/6,6,3,3)				
					1.45			Firm to stiff dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
		1.50	ES					
		2.00	D					
		2.00	ES					
		2.00		N=8 (1,1/2,2,2,2)				
		3.00	D					
		3.00	ES					
		3.00		N=17 (2,3/3,4,5,5)				
		4.00		N=31 (3,3/7,8,8,8)	4.00			End of borehole at 4.00 m

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 4.00m bgl due to cobble encountered at 4.00m bgl. 5. Borehole backfilled with arisings.

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Borehole Log

Borehole No. **WS06** Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: -	Hole Type WS
Location: NEW ISLINGTON		Level:	Scale 1:25
Client: ONE HERITAGE PLC		Dates: 14/05/2024 -	Logged By HM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
					0.25			MADE GROUND: Light grey concrete.
		0.55	ES					MADE GROUND: Brown clayey gravelly fine to coarse Sand. Gravel is angular to subangular fine to coarse of brick, concrete and mudstone.
		1.00	ES					
		1.20 1.20	D	N=7 (1,1/1,2,2,2)				
		1.60	ES		1.65			Firm to stiff Dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
		2.00 2.00 2.00	D ES	N=12 (2,2/3,3,3,3)				
		3.00 3.00 3.00	D ES	N=27 (3,4/5,6,8,8)				
		3.80		N=50 (8,9/10,10,11,19)	3.80			End of borehole at 3.80 m

1 2 3 4 5

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 3.80m bgl due to SPT refusal. 5. Borehole backfilled with arisings.

Trial Pit Log

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Trialpit No **TP01** Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 1.8 × 0.45, Depth 3.40	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.25	ES					
			HVP=55				MADE GROUND: Firm brown sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, chert, sandstone and concrete. Sand is fine to coarse. Low cobble content of brick
	1.00	ES					
				1.30			MADE GROUND: Black ashy fine to coarse sand.
	1.35	ES					
	1.50	D		1.45			Firm to stiff greyish brown sandy gravelly friable CLAY. Gravel is angular to subangular fine to coarse of mudstone. Sand is fine.
	1.50	ES	HVP=60				
	2.00	D					
	2.00	ES	HVP=150				
	3.00	D					
	3.00	ES	HVP=131				
				3.40			End of pit at 3.40 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.40m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

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Trial Pit Log

Trialpit No **TP02**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 2.15 × 0.45, Depth 3.50	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.50	ES	HVP=47				MADE GROUND: Firm brown sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, chert, sandstone and concrete. Sand is fine to coarse. Low cobble content of brick.
			HVP=39				
				1.25			
				1.35			MADE GROUND: Yellowish brown sandy angular to subangular fine to coarse gravel of mixed lithologies including brick and sandstone. Sand is fine to coarse.
			HVP=70	1.50			MADE GROUND: Brownish grey sandy clayey angular to subangular fine to coarse gravel of mixed lithologies including ash,, hydrated lime, sandstone and brick. Sand is fine to coarse.
	1.55	ES					Firm to stiff greyish brown sandy gravelly friable CLAY. Gravel is angular to subangular fine to coarse of mudstone. Sand is fine to coarse.
	2.00	D					
	2.00	ES					
			HVP=150				
	3.00	D					
	3.00	ES					
			HVP=150				
				3.50			End of pit at 3.50 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.50m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No **TP03**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 1.9 × 0.45, Depth 3.30	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.30	ES					MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse gravel of mixed lithologies including brick, concrete and sandstone. Sand is fine to coarse. High cobble content of brick.
			HVP=45				
	1.35 1.35	D ES					
	2.00 2.00	D ES	HVP=80	2.00			Firm to stiff greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	3.00 3.00	D ES	HVP=111				
				3.30			End of pit at 3.30 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.30m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No **TP04**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 1.95 × 0.45, Depth 3.65	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.25	ES		0.15			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
							MADE GROUND: Brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and sandstone.
	1.20 1.20	D ES	HVP=56	1.10			Firm to stiff greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	2.00 2.00	D ES	HVP=68				
	3.00 3.00	D ES	HVP=102				
				3.65			End of pit at 3.65 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.65m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No **TP05**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): Depth 3.65 — 2 × 0.45	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.40	ES					MADE GROUND: Brown sandy clayey angular to subangular fine to coarse gravel of mixed lithologies including brick and concrete. Sand is fine to coarse. High cobble content of concrete.
				1.00			
	1.10	ES					Firm to stiff brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	1.25	D	HVP=88				
	2.00	D					
	2.00	ES	HVP=123				
	3.00	D					
	3.00	ES	HVP=141				
				3.65			End of pit at 3.65 m

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.65m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

Trial Pit Log

GROUNDTECH CONSULTING

Trialpit No **TP06** Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 1.85 × 0.45, Depth 3.50	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
				0.30			
	0.45	ES					MADE GROUND: Greyish brown clayey sandy angular to subangular fine to coarse gravel of mixed lithologies including brick, ash, concrete and mudstone. Sand is fine to coarse.
			HVP=67				
				1.30			
	1.40	ES					Firm to stiff greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	1.50	D					
	2.00	D					
	2.00	ES					
			HVP=141				
	3.00	D					
	3.00	ES					
			HVP=130				
				3.50			End of pit at 3.50 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.50m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No **TP07**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 2.05 × 0.45, Depth 3.60	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.50	ES					MADE GROUND: Dark brown sandy angular to subangular fine to coarse gravel of mixed lithologies including brick, ash, concrete and ceramic. Sand is fine to coarse.
	1.65	ES		1.60			Firm to stiff greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	1.70	D					
	2.00	D					
	2.00	ES	HVP=92				
	3.00	D					
	3.00	ES	HVP=103				
				3.60			End of pit at 3.60 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.60m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No **TP08**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 1.9 × 0.45, Depth 3.50	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.50	ES					MADE GROUND: Brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and sandstone. High cobble content of brick and concrete.
	1.00	ES					
				1.65			Firm to stiff dark brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	1.85	D					
	2.00	D					
	2.00	ES	HVP=53				
	3.00	D					
	3.00	ES	HVP=142				
				3.50			End of pit at 3.50 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.50m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No **TP09**

Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 1.95 × 0.45, Depth 3.50	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.35	ES					MADE GROUND: Brown sandy clayey angular to subangular fine to coarse gravel of mixed lithologies including brick and concrete. Sand is fine to coarse.
			HVP=84				
				1.25			
	1.40	ES					Firm to stiff greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	1.50	D					
	2.00	D					
	2.00	ES	HVP=115				
	3.00	D					
	3.00	ES	HVP=128				
				3.50			End of pit at 3.50 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.50m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No
TP10
Sheet 1 of 1

Project Name: OLD MILL STREET	Project No. GRO-24102	Co-ords: - Level:	Date 13/05/2024
Location: NEW ISLINGTON		Dimensions (m): 2 × 0.45, Depth 3.35	Scale 1:25
Client: ONE HERITAGE PLC			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
	0.40	ES					MADE GROUND: Brown sandy angular to subangular fine to coarse gravel of mixed lithologies including brick and concrete. High cobble content of concrete.
				1.80			
	1.90	ES					Firm to stiff greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.
	2.00	D	HVP=99				
	2.50	D					
	2.50	ES					
	3.00	D					
	3.00	ES	HVP=145				
				3.35			End of pit at 3.35 m

1 2 3 4 5

Remarks: 1. Location cleared of services using handheld CAT Scanner. 2. No groundwater encountered. 3. Trial Pit terminated at 3.35m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

Rotary Core Log

GROUNDTECH CONSULTING

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 16/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP+RC		HM	1:25	Sheet 1 of 6

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		0.10	D								MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
								0.30			
		0.40	D								MADE GROUND: Reddish brown gravelly fine to coarse Sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and ash.
		1.20 - 1.65	D				(2)				
								1.60			
		2.00 - 2.45	D				(1)				Firm brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone. Sand is fine to coarse.
		3.00 - 3.45	U								
		3.50	D								
		4.00 - 4.45	D				(17)				
		5.00 - 5.45	U								

1 2 3 4 5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 19.5m bgl. 5. Rotary coring follow on to 25.5m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 16/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP+RC		HM	1:25	Sheet 2 of 6

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		5.50	D								Firm brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone. Sand is fine to coarse.
		6.00 - 6.45	B				(16)				
		6.00 - 6.45	D								
		7.50 - 7.95	U								
		8.00	D								
		9.00 - 9.45	D				(30)	9.00			Firm to stiff brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone. Sand is fine to coarse.

6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 19.5m bgl. 5. Rotary coring follow on to 25.5m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 16/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP+RC		HM	1:25	Sheet 3 of 6

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		10.50 - 10.95	U								Firm to stiff brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone. Sand is fine to coarse.
		11.00	D								
							N=50 (25 for 85mm/ 50 for 165mm)	12.00			Brown very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of mixed lithologies including mudstone and chert.
		13.50 - 13.95	D				N=50 (25 for 125mm /50 for 95mm)				

11 12 13 14 15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 19.5m bgl. 5. Rotary coring follow on to 25.5m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 16/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP+RC		HM	1:25	Sheet 4 of 6

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
							N=50 (25 for 115mm/ 50 for 125mm)				Brown very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of mixed lithologies including mudstone and chert.
							N=50 (25 for 125mm /50 for 125mm)	17.10			Extremely weak red brown MUDSTONE residually weathered recovered as clayey subangular to subrounded medium to coarse gravel.
											Between 19.5m and 20.52m bgl no recovery.

16 17 18 19 20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 19.5m bgl. 5. Rotary coring follow on to 25.5m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 16/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP+RC		HM	1:25	Sheet 5 of 6

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		19.50 - 21.00	NR	32	12	0		20.72			Extremely weak red brown MUDSTONE residually weathered recovered as clayey subangular to subrounded medium to coarse gravel.
			NI								
			1								Extremely weak red brown MUDSTONE partially weathered with very close to closely spaced planar rough (5°) discontinuities.
			NI								
			2								
		21.00 - 22.50	NR	97	78	9					*Between 20.8m and 20.9m bgl recovered as clayey angular to subangular fine to medium gravel.*
			NI								*At 20.9m bgl vertical discontinuities are present.*
			17								*Between 21.0m and 21.04m bgl no recovery.*
											Between 21.04m and 21.23m bgl recovered as angular to subangular gravel and cobbles.
											At 21.34 discontinuities are open.
											Between 21.69m and 21.79m bgl discontinuities are stepped.
			NI								*Between 22.29m and 22.5m bgl recovered as clayey angular to subangular fine to coarse gravel.*
		22.50 - 24.00	NR	93	55	26					*Between 22.5m and 22.6m bgl no recovery.*
			NI								*Between 22.6m and 22.75m bgl recovered as angular to subangular fine to coarse gravel and cobbles.*
			3								
			NI								*Between 22.98m and 23.1m bgl recovered as angular to subangular fine to coarse gravel and cobbles.*
			12								*Between 23.7m and 23.8m bgl discontinuities are stepped.*
		24.00 - 25.50	9	100	48	32					

21 22 23 24 25

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 19.5m bgl. 5. Rotary coring follow on to 25.5m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 16/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP01	CP+RC		HM	1:25	Sheet 6 of 6

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
			NI								Extremely weak red brown MUDSTONE partially weathered with very close to closely spaced planar rough (5°) discontinuities.
			2								*Between 25.0m and 25.2m bgl recovered as angular to subangular fine to medium gravel. Between 25.4m and 25.5m bgl recovered as angular to subangular cobbles.*
			NI					25.50			End of Borehole at 25.500m

26
27
28
29
30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 19.5m bgl. 5. Rotary coring follow on to 25.5m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 17/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP02	CP+RC		HM	1:25	Sheet 1 of 5

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		0.00 - 1.20	B					0.25			MADE GROUND: Grey angular to subangular fine to coarse gravel of limestone.
											MADE GROUND: Reddish brown clayey gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and ash.
		1.20 - 1.65	D				N=50 (25 for 0mm/50 for 0mm)	1.50			
											Firm brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone. Sand is fine to coarse.
		2.00 - 2.45	D				(11)				
		2.30 - 2.80	B								
		3.00 - 3.45	U								
		3.50	D								
		4.00 - 4.45	D				(26)				
		5.00 - 5.45	U								

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 18.0m bgl. 5. Rotary coring follow on to 24.0m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 17/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP02	CP+RC		HM	1:25	Sheet 2 of 5

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		5.50	D								Firm brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone. Sand is fine to coarse.
		6.00 - 6.45	D				(32)				
		7.50 - 7.95 7.50 - 8.00	B D				(26)				
		9.00 - 9.45	D				(26)				

6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 18.0m bgl. 5. Rotary coring follow on to 24.0m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 17/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP02	CP+RC		HM	1:25	Sheet 3 of 5

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		10.50 - 10.95	D				(25)				Firm brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone. Sand is fine to coarse.
		12.00 - 12.45	B				N=50 (2,4/50 for 245mm)	12.00			Brown very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of mixed lithologies including mudstone and chert with occasional cobbles of chert.
		13.50 - 13.95	D				N=50 (25 for 20mm/ 50 for 20mm)				
			D								

11 12 13 14 15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 18.0m bgl. 5. Rotary coring follow on to 24.0m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

GROUNDTECH CONSULTING

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 17/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP02	CP+RC		HM	1:25	Sheet 4 of 5

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		15.00 - 15.45					N=50 (25 for 95mm/ 50 for 75mm)				Brown very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of mixed lithologies including mudstone and chert with occasional cobbles of chert.
		16.50 - 16.95	B				N=50 (25 for 0mm/50 for 0mm)				
							N=50 (10,14/ 50 for 95mm)	17.40			Extremely weak red brown MUDSTONE residually weathered recovered as brown clayey subangular to subrounded medium to coarse gravel.
		18.00 - 19.50	NR	10	0	0					*Between 18.0m and 19.35m bgl no recovery.*
			NI								
			NR								*Between 19.5m and 19.8m bgl no recovery.*
			NI					19.95			

16 17 18 19 20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 18.0m bgl. 5. Rotary coring follow on to 24.0m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

Rotary Core Log

Project Name: OLD MILL STREET	Client: ONE HERITAGE PLC	Date: 17/05/2024 - 23/05/2024
Location: NEW ISLINGTON	Contractor:	
Project No. : GRO-24102	Crew Name:	Drilling Equipment:

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP02	CP+RC		HM	1:25	Sheet 5 of 5

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		19.50 - 21.00	8	80	58	8					Extremely weak red brown MUDSTONE partially weathered with very close to closely spaced planar rough (5°) discontinuities. *At 20.52m bgl discontinuities are stepped.*
			NI								*Between 20.95m and 21.0m bgl recovered as angular to subangular fine to coarse gravel. Between 21.0m and 21.2m bgl no recovery.*
		21.00 - 22.50	NR	86	53	23					
			5								
			NI								*Between 21.7m and 21.75m bgl recovered as clayey angular to subangular fine to medium gravel.*
			11								*At 22.07m bgl discontinuities are open.*
			NI								*Between 22.4m and 22.5m bgl recovered as angular to subangular fine to coarse gravel. Between 22.5m and 22.54m bgl no recovery. Between 22.54m 22.7m bgl recovered as angular to subangular fine to coarse gravel and cobbles.*
		22.50 - 24.00	NR	97	52	28					
			NI								
			9								
			NI								*Between 23.6m and 23.65m bgl recovered as angular to subangular fine to medium gravel.*
			3								
			NI					24.00			*Between 23.95m and 24.0m bgl recovered as angular to subangular fine to coarse gravel.* End of Borehole at 24.000m

21 22 23 24 25

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared of services using handheld CAT scanner. 2. Hand dug inspection pit carried out to 1.2m bgl. 3. No groundwater encountered. 4. Cable percussive borehole drilled to 18.0m bgl. 5. Rotary coring follow on to 24.0m bgl. 6. Standpipe installed to 2.0m bgl (1m plain,1m slotted).

APPENDIX 3 - Final Gas Monitoring Results

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	*OLD MILL STREET*				***ENGINEER:***	*Georgia Barnes*						
CLIENT:	*ONE HERITAGE GROUP PLC*				***DATE:***	*29/05/2024*						
JOB NO:	*GRO-24102*											
Pressure Trend:	*Falling*	***Weather:***	*Overcast*			***Equipment:***	*GFM 436*					

Ambient:	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)
Start	20.7	0.0	0.0	0.0	0.0	0.0
Finish	20.7	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
CP01	0.0	0.0	0.00	0.0	0.0	0.0	13.4	13.4	3.0	3.0	0.0	0.0	20.0	20.0	0.0134	0.0000	999	-	N	N/A	N/A	NGW
CP02	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	19.6	19.5	0.0	0.0	0.0	0.0	0.0000	0.0000	1001	-	N	N/A	N/A	NGW
WS01	0.0	0.0	0.00	1.2	1.0	24.0	4.0	4.0	9.3	9.3	0.0	0.0	0.0	0.0	0.0040	0.0012	1000	-	N	N/A	N/A	NGW
WS03	0.0	0.0	0.00	0.0	0.0	0.0	1.3	1.2	15.2	15.2	0.0	0.0	0.0	0.0	0.0013	0.0000	999	-	N	N/A	N/A	1.39

Notes:

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	*OLD MILL STREET*				***ENGINEER:***	*William Sandiford Mitchell*					
CLIENT:	*ONE HERITAGE GROUP PLC*				***DATE:***	*18/06/2024*					
JOB NO:	*GRO-24102*										
Pressure Trend:	*Rising*	***Weather:***	*Overcast*			***Equipment:***	*GFM 436*				

Ambient:	**O_2 (%v/v)**	**CH_4 (%v/v)**	**CO_2 (%v/v)**	**LEL**	**H_2S (ppm)**	**CO (ppm)**
Start	20.7	0.0	0.0	0.0	0.0	0.0
Finish	20.7	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
CP01	0.0	0.0	0.00	0.0	0.0	0.0	11.6	11.3	2.7	2.5	0.0	0.0	0.0	0.0	0.0116	0.0000	0	-	N	N/A	N/A	NGW
CP02	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	18.7	18.3	0.0	0.0	0.0	0.0	0.0000	0.0000	0	-	N	N/A	N/A	NGW
WS01	0.0	0.0	0.00	0.0	0.0	0.0	3.7	3.4	13.8	13.3	0.0	0.0	0.0	0.0	0.0037	0.0000	0	-	N	N/A	N/A	NGW
WS03	0.0	0.0	0.00	0.0	0.0	0.0	0.8	0.8	10.7	9.6	0.0	0.0	0.0	0.0	0.0008	0.0000	0	-	N	N/A	N/A	1.17

Notes:

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	*OLD MILL STREET*	***ENGINEER:***	*Georgia Barnes*
CLIENT:	*ONE HERITAGE GROUP PLC*	***DATE:***	*03/07/2024*
JOB NO:	*GRO-24102*		

Pressure Trend:	*Rising*	***Weather:***	*Overcast*	***Equipment:***	*GFM 436*

	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)
Ambient:						
Start	20.4	0.0	0.0	0.0	0.0	0.0
Finish	20.4	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
CP01	0.0	0.0	0.00	0.0	0.0	0.0	2.4	2.3	17.1	16.9	0.0	0.0	0.0	0.0	0.0024	0.0000	998	-	N	N/A	N/A	NGW
CP02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WS01	0.0	0.0	0.00	8.4	7.8	168.0	9.5	9.1	1.8	1.0	0.0	0.0	0.0	0.0	0.0095	0.0084	998	-	N	N/A	N/A	NGW
WS03	0.0	0.0	0.00	0.0	0.0	0.0	0.9	1.0	18.8	18.5	0.0	0.0	0.0	0.0	0.0009	0.0000	998	-	N	N/A	N/A	1.27

Notes: Could not gain access to CP02 due to site being used as a car park and vehicles were covering the borehole.

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	OLD MILL STREET	**ENGINEER:**	William Sandiford Mitchell
CLIENT:	ONE HERITAGE GROUP PLC	**DATE:**	16/07/2024
JOB NO:	GRO-24102		

Pressure Trend:	Falling	**Weather:**	Overcast
Equipment:	GFM 436		

Ambient:	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)
Start	20.7	0.0	0.0	0.0	0.0	0.0
Finish	20.7	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
CP01	0.0	0.0	0.00	0.0	0.0	0.0	1.3	1.2	20.2	20.1	0.0	0.0	0.0	0.0	0.0013	0.0000	1005	-	N	N/A	N/A	NGW
CP02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WS01	0.0	0.0	0.00	0.0	0.0	0.0	3.8	3.7	19.2	19.4	0.0	0.0	0.0	0.0	0.0038	0.0000	1005	-	N	N/A	N/A	NGW
WS03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: WS03 + CP02 Destroyed. WS01 + CP01 Damaged.

APPENDIX 4 - Limitations

Limitations

This report (Report) forms part of the Services and if applicable Additional Services undertaken by Groundtech Consulting Ltd pursuant to a written contract (Agreement) which contains detailed provisions including express limitations of the liability of Groundtech Consulting Ltd.

This Report was prepared using reasonable skill and care as stated in the Agreement for the purpose including intended end use stated by the Client (Purpose) and the liability of Groundtech Consulting Ltd in respect of the form and content of this Report is no greater than its liability under the Agreement. All records, measurements notes, or any other data (Data) obtained by or for the benefit of the Consultant were obtained at a specific point in time and it may not be assumed by the Client or any person relying on this Report that the Data will remain unaffected by the passage of time, the seasons, weather conditions, changes in the water table or the carrying out and completion of works at the Site.

Unless otherwise agreed this Report has been prepared exclusively for the use and reliance of the Client and may not be relied upon, by any other party except as provided for in the Agreement. A third party who relies on this Report, does so at their own and sole risk and Groundtech Consulting Ltd has no liability to such parties.

Groundtech Consulting Ltd that this Report is to be used for the Purpose. The Purpose was instrumental in determining the scope and of the Services provided. If the Purpose should change, the Client may not be able to rely on the Report without the separate agreement of Groundtech Consulting Ltd.

Since the Report was written, later changes in legislation, statutory requirements and industry best practices have not been considered and this should be allowed for. Ground conditions can also change (see below) and should be investigated if there is any significant delay in acting on the findings of this Report. The period of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions in this Report should not be relied upon in the future without written confirmation from Groundtech Consulting Ltd that it is safe to do so.

The observations and conclusions outlined in this Report are based exclusively on the services that were provided as set out in the agreement between the client and Groundtech Consulting Ltd.

Groundtech Consulting Ltd is not liable for the existence of any condition, the discovery of which would require additional investigation outside the agreed scope of works or core competency. The Report is based upon Groundtech Consulting Ltd's observations of existing physical conditions at the Site gained from site reconnaissance together with interpretation of information including documentation, obtained from third parties and from the Client on the history and usage of the Site. The findings and recommendations contained in this Report are based in part upon information provided by third parties, and Groundtech Consulting Ltd have relied upon such information assuming it to be correct.

Groundtech Consulting Ltd accepts no responsibility for errors or inaccuracies in third party information presented in this Report. Groundtech Consulting Ltd was not authorised to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services or Additional Services. Groundtech Consulting Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, which may inform the scope of investigation undertaken by Groundtech Consulting Ltd and forms the contract with the client.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions may also vary due to the ground's heterogeneous properties and because investigation exploratory locations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this Report, particularly between exploratory holes. The extent of the limited area depends on the soil and groundwater conditions, together with other constraints such as the position of any existing structures and underground utilities. If so stipulated in the Agreement, geo-environmental testing was carried out for a limited number of parameters based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

Any groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The groundwater level often has not had time to reach equilibrium and a monitoring period is required. Furthermore, groundwater levels are subject to seasonal variation or changes in local drainage conditions and groundwater levels may occur at other times of the year which are higher than were recorded during this investigation.

Any site drawings provided in this Report are preliminary and used to present the general relative locations of features on, and surrounding, the Site.

