Homes England

The Housing and Regeneration Agency

West of Ifield, Crawley
Phase 1 Earthworks Strategy

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Version 1 - Planning submission

July 2025

West of Ifield

Earthworks Strategy

OCTOBER 2023

Prepared By:
Arcadis Consulting (UK) Ltd

Prepared For:
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Appendices

1 Introduction

This report presents an Earthworks Strategy for the West of Ifield development scheme (the “Site”) in West Sussex and focuses on the initial phases of the project. The purpose of this strategy is to provide an overview of the earthworks required for the successful delivery of the project. It outlines the methodology, considerations, and key factors to be taken into account during the planning, design, and execution of the earthwork’s activities.

The project, aims to develop a new residential area, including amenity and commercial spaces. The site presents a range of topographical and geological features that need to be considered during the earthworks process. The successful implementation of an Earthworks Strategy is important to ensure the Site is properly prepared for construction and to minimise potential risks and environmental impact.

The report addresses various aspects, including site investigation, excavation, embankment construction, and soil management, with the objective of optimising efficiency, cost-effectiveness, and sustainability.

1.1 Objectives of the Earthworks Strategy:

1.1.1 Description of the existing site

A description of the existing Site is provided which summarises site investigation works, surveys, and desk studies undertaken to date. These resources provide crucial information about the existing site including site topography, ground conditions, including soil type, geotechnical properties, and any potential hazards. This data will enable the development of appropriate earthworks plans and ensure the safety and stability of the Site.

1.1.2 Description of the proposed development

A description of the proposed development is provided which summarises the expected end use for the Site, this will provide an understanding of the locations for earthworks required to form development parcels and site wide infrastructure such as the site highway network and drainage features.

1.1.3 Earthworks Strategy

The Earthworks Strategy will outline the earthworks activities required to develop the Site. This involves the removal of excess topsoil and materials, and subsequently the reshaping of the terrain to meet the project's design requirements. The strategy will consider the most efficient, sustainable, and environmentally friendly methods for earthmoving, to reduce waste from the Site and requirements for fill materials. Calculations will be provided to identify volumes of cut and fill expected to develop the Site.

1.1.4 Constraints

The Earthworks Strategy will address several constraints specific to the scheme. These include:

- Environmental Impact: The project's location necessitates careful consideration of its environmental impact. The Earthworks Strategy will aim to minimise disruption to local ecosystems, protect watercourses, and restrict noise and dust emissions during the earthworks process.
- Sustainability: The Earthworks Strategy will promote sustainable practices, such as the reuse of excavated materials on-site, responsible waste management, and the implementation of erosion and sediment control measures. These initiatives will reduce the environmental footprint of the project and contribute to its long-term sustainability.

2 Existing Site

2.1 Site Location

The Site is located to the West of Ifield, approximately 2.75 km northwest of Crawley Town Centre, it is bound by Charlwood Road in the northeast, beyond which lies Gatwick Airport. The site lies to the north of the Horsham-Crawley railway line.

The existing residential areas of Ifield and Langley Green, associated with the town of Crawley, are located to the east. Ifield West and ancient woodland are located to the south, with the river Mole and further ancient woodland present to the west. The site is predominantly occupied by a mixture of arable and pastoral fields and includes the Ifield Golf Course and Country Club in its southernmost portion.

2.2 Site Topography

A topographical survey for the Site has been undertaken by Maltby Surveys Ltd (Ref: 14594_UG_1 to 14594_UG_5, dated 14/02/2022) and is included in Appendix A. The ground elevations within the agricultural fields towards the north-east of the Site, at the Crawley Link Road, slope with a steep gradient in a south-easterly direction with levels ranging from 68.1m AOD to 62.1m AOD. Running through the Site, the River Mole is embanked, sitting topographically lower by up to 3m below surrounding ground levels. The existing ditches which bound the agricultural fields throughout the Site are also banked and sit topographically lower than the surrounding field ground levels by up to 1.2m. The agricultural fields towards the south-west of the Site are relatively flat with levels ranging from 66.8m AOD to 69.0m AOD. Within the south of the Site, a golf course is present which sits to the east of Hyde Hill where levels range up to 85m AOD.

2.3 Existing Ground Conditions

2.3.1 Golf Course Area

A Phase 1 and Phase 2 ground investigation survey has been undertaken for the golf course area by Geosphere Environmental (Ref: 6071,SI,GROUND,GF,SG,JD,22-04-22,V2, dated 22/04/2022) and is contained in Appendix B.

The report found that ground conditions were typically proven to comprise nominal amounts of topsoil, overlying cohesive soils of the Weald Clay Formation, extending to a maximum proven depth of 3.45mbgl. Made Ground was encountered above the natural soils within the majority of holes within and in the immediate vicinity of the Compound area, extending to a maximum depth of 0.9mbgl. Groundwater was encountered as seepages within selected exploratory holes during the intrusive works.

Strata	Depth Encountered (mbgl)		Strata Thickness (m)	Extent / Composition
	From	To		
Topsoil	0.0	0.05 – 0.25	0.05-0.25	Typically, Dark brown sandy organic clat
Made Ground	0.0 – 0.2	0.1 – 0.9	0.1 – 0.8	Typically, clay with fine angular brick and concrete gravel
Weald Clay Formation	0.1 – 0.9	0.55 – 3.45	Unproven	Variable in consistency, typically a slightly gravelly clay

2.3.2 Remaining Site

Ground investigation reporting for the remainder of the Site is currently in progress and for the purposes of this report, it is assumed that topsoil thicknesses through the existing arable land are in the region of 300-400mm and is underlain by the Weald Clay Formation found within the golf course area.

3 Proposed Development

West of Ifield is a strategic site for up to 3,250 homes as part of a new, mixed-use community within the administrative area of Horsham District Council, adjacent to the administrative boundary with Crawley Borough Council. The masterplan for the development is contained in Appendix C.

The initial stage of the proposed development comprises of two phases: Phase 1A and Phase 1B, followed by future phases.

- Phase 1A infrastructure works comprise of demolition of existing buildings, provision of the primary highway link between Rusper Road and the Phase 1B road and the school parcels either side of the primary road. Spurs will be provided to connect future phases of the development.
- Phase 1B infrastructure works relate to the Crawley Western Link Road made up of a multi modal sustainable transport link between the Site and Charlwood Road and associated structures across the River Mole and Ifield Brook floodplains. A number of junctions are provided to connect the existing road network and create links for future phases.
- Future Phases: Secondary and tertiary roads will be created from the spurs provided from the highway network in Phase 1A & Phase 1B. Fully serviced development parcels will be formed throughout the Site under Phases 2A and 2B linking to Phase 1A. Within Phases 3-6 the development extends north from the Phase 1 & Phase 2 area.

3.1 Phase 1A Design Considerations

The Phase 1A proposed levels have been driven by considering the existing ground levels within the Site, and the proposed surface water and foul drainage strategy for the Site. A drainage strategy has been produced which summarises how foul and surface water is expected to drain through the Site, and the Phase 1A highway design has been prepared in consideration of this.

The total construction thickness for the Phase 1A primary access route has been taken as 700mm for the purposes of this strategy, however this may be subject to refinement as part of the detailed design.

3.2 Phase 1B Design Considerations

The Western Link Road is proposed to be a two way 40/20MPH link between the Phase 1A area and Charlwood Road. The road will include two-way traffic for cars, a dedicated two-way rapid bus link, and non-motorised user provision along the entire length. The road will include a bridge over the river Mole, a noise bund and noise barriers, sustainable drainage features, and culverts to provide connectivity between existing land drainage features within the Site. The road pavement and foundation design are not yet fully developed for Phase 1B pending completion of the ground investigation. At this stage, for the basis of the earthworks strategy a total road thickness for the Phase 1B is 900mm. Highway surface water drainage has been designed utilising a mixture of SuDS features within the highway corridor, including piped systems, drainage ditches, and strategic attenuation basins.

4 Earthworks Strategy

4.1 General

Proposed development within the Site will take place following removal of the existing buildings, vegetation, and topsoil currently on Site. In addition, a number of earthworks activities are common between the phases. The relevant sections of appropriate industry guidance will be followed where practicable, including 'BS 6031: Code of Practice for Earthworks for the General Control of Site Drainage', 'Site Handbook for the Construction of SUDS (C698)', BS 3882 'Specification for Topsoil and Requirements for Use' and 'Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009)'.

4.1.1 Building Demolition

To the golf course area, a number of existing buildings will be demolished following completion of demolition surveys and where suitable, materials will be crushed and reused as engineered fill on site. A calculation has been undertaken to provide an estimate of the reusable arisings from these buildings, the resulting figure is included in Section 4.5. A Site Waste Management Plan (SWMP) will be produced when a Contractor is appointed which will consider the reuse, recycling, and disposal of materials won from the Site.

4.1.2 Vegetation Clearance

A substantial amount of vegetation clearance will be undertaken to facilitate the future development. Suitable arisings from vegetation clearance from Phases 1A and 1B will be used as part of the landscaping and ecological works associated with these phases.

4.1.3 Topsoil

The topsoil thickness is expected to vary throughout the Site. The ground investigation for the golf course indicates that within the golf course area, topsoil is in the region of 50mm to 250mm thick. In the farmlands which make up the remainder of the site, topsoil is expected to be thicker. Topsoil should be stored for reuse in green landscaping areas and ponds, etc. Where hard landscaping replaces the topsoil, the topsoil should be stored for use in the future development areas.

4.1.4 Reuse of Arisings

The extent site won material that may be reused on the site will be dependent on the findings of the ground investigation for the wider Site. An assumption has been made that 10% of site won material is unsuitable for re-use. This assumption will be reviewed upon receipt of the future ground investigation for the wider site. The

current cut & fill balance requires import of additional fill materials, and it is assumed that all suitable site-won arisings will be able to be used on site.

4.1.5 Embankments and Cuttings

Slopes to embankments and cuttings for both drainage and highway features are designed with 1 in 3 side slopes for stability and ease of maintenance. Suitable site won material may be used to form these slopes subject to appropriate handling and storage.

4.1.6 Earth Moving

Arisings from excavations should be reused as close to their excavated location as possible to reduce the environmental impact of moving large volumes of material around the development. A Soil Management Plan (SMP) will be produced when a Contractor is appointed to detail how arisings are to be managed on Site with consideration of the environmental impact of earth moving operations.

4.2 Phase 1A

Phase 1A will consist of a primary route between Rusper Road and the Crawley Western Link. The road will be constructed so that the formation of the road sits predominantly on the subgrade exposed following the topsoil strip of the site. A section of the primary road crosses an existing land drainage ditch and levels in this area will be locally raised using site won material arising from the construction of the SuDS features within the road corridor.

The road corridor is designed with SuDS features consisting of drainage trenches which will extend beneath the road corridor, producing additional fill materials.

It is anticipated that overall, Phase 1A will require approximately **12,673 m^3** of additional fill material.

4.3 Phase 1B

The eastern section of the Phase 1B road is elevated above existing ground levels to mitigate flood risk associated with the Ifield Brook flood zone to the South. The volume of fill required is minimised by designing the road with a continuous crossfall to the south throughout this section, consistent with the existing topography in this area. A noise bund is proposed along the northern boundary of the highway in this area, requiring a substantial volume of material to produce. There is the potential to reduce the volume of fill materials in this area if a noise barrier is used in place of a bund.

The land raising due to the proposed highway within the flood zone will be offset locally by providing flood compensation areas with reduction in ground levels. The remainder of the required fill materials associated with the raised levels will be offset by site won materials associated with the construction of the strategic attenuation features. The classification of the site-won material will be determined as part of the future ground investigation.

The Phase 1B road crossed the River Mole on a new overbridge. The design of the foundations for this bridge are currently under development and an estimated allowance has been made for arisings from this activity. Either side of the bridge span, the road will be constructed on an embankment connecting to the bridge deck level.

At the western section of the Phase 1B road, the proposed road level is lifted above the existing ground levels in order to provide necessary clearance to culverts required to maintain the land drainage features within the

existing site. The land drainage ditches will be used as discharge points for the highway surface water drainage network and will need to be retained.

Elsewhere along the route, the proposed highway level is set approximately at existing ground level. This would produce a quantity of arisings due to the assumed 300-400m thickness of topsoil being less than the assumed 900mm road construction depth.

It is anticipated that overall, Phase 1B will require approximately **26,874 m^3** of additional fill material.

4.4 Future Phases

The future secondary and tertiary roads and development parcels within Phases 2A and 2B would be constructed with a balance of cut and fill within each parcel and along each road. This is expected to be possible based on the wider site drainage strategy for the scheme and the Phase 1A and 1B levels being set considering the future development levels.

4.5 Earthworks Calculations

A set of earthworks strategy drawings for Phase 1A and 1B are included in Appendix D. These drawings indicate locations of cut and fill across the proposed development. Figures from these earthworks drawings have been utilised to develop the below calculations.

The following earthworks calculations are based on a comparison of the current formation surfaces for the design elements versus the existing site following the topsoil strip. Note that at this stage, the construction depths for the highways and the topsoil strip depths for Phase 1B are subject to further development, however this would not impact the overall principles of this earthworks strategy.

For the purpose of the calculations, an allowance has been made for 10% of the site-won material being unsuitable for re-use. No bulking or compaction factors have been included at this stage on the basis that for most soils there is a minimal overall difference. The earthworks strategy basis will be verified following completion of the ground investigation.

4.5.1 Phase 1A

Activity	Suitable Cut (m^3)*1	Unsuitable Cut (m^3) *2	Fill (m^3)*3	Net (m^3)
Highway formation (not including SuDS excavations)	1,073	119	23,265	22,192Fill
Excavations for SuDS	8,461	940	0	11,340 Cut
Demolition of existing buildings	1,058	118	0	1,058 Cut
Total	**10,592**	**1,177**	**23,265**	**12,673 Fill**
Topsoil	5,851*4		*5	5,817 Cut

*1 No bulking factor has been used to determine cut volume. This will be confirmed following the future ground investigation.

*2 An allowance has been made that 10% of the site-won material will be unsuitable for re-use

*3 No compaction factor has been included fill volume. This will be confirmed following the future ground investigation.

*4 Volume of topsoil from site based upon an average depth of 150mm, based upon Golf Course ground investigation.

*5 Volume of topsoil required for landscaping areas to be confirmed as part of masterplan development.

4.5.2 Phase 1B

Activity	Suitable Cut (m^3) *1	Unsuitable Cut (m^3) *2	Fill (m^3) *3	Net (m^3)
Highway formation (not including SuDS excavations)	6,168	685	57,310	51,142 Fill
Excavations for SuDS in highway	5,076	564	0	5,076 Cut
Excavations for attenuation basins	21,298	2,366	591	20,707 Cut
Noise bund	106	12	8,187	8,081 Fill
Flood compensation	3,583	398	167	3416 Cut

Excavations for bridge foundations	3,150	350	0	3,150 Cut
Total	39,381	4,375	**66,255**	**26,874 Fill**
Topsoil	45,444[*4]		[*5]	45,444 Cut

[*1] No bulking factor has been used to determine cut volume. This will be confirmed following the future ground investigation.

[*2] An allowance has been made that 10% of the site-won material will be unsuitable for re-use

[*3] No compaction factor has been used to determine fill volume. This will be confirmed following the future ground investigation.

[*4] Volume of topsoil from site based upon an estimated depth of 350mm. This will be confirmed following the future ground investigation.

[*5] Volume of topsoil required for landscaping areas to be confirmed as part of masterplan development.

5 Conclusion

This report sets out the Earthworks Strategy for Phase 1A and Phase 1B of the West of Ifield development scheme in West Sussex. The purpose of this strategy is to support the successful delivery of the project by addressing various aspects related to earthworks, including site investigation, excavation, embankment construction, and soil management.

The Earthworks Strategy recognises the importance of understanding the existing site conditions and the proposed development in order to plan and execute the earthworks effectively. It emphasises the need for thorough site investigation and surveys to gather information about the site's topography and ground conditions. This data is important for developing appropriate earthworks plans and ensuring the safety and stability of the site.

Both Phase 1A and Phase 1B require a net import of acceptable fill material although a significant cut to fill balance of material has been achieved across both phases. Phase 1A and 1B also generate a net surplus of topsoil that would be retained on site for landscape use.

Overall, the Earthworks Strategy presented in this report is to be considered for the implementation of the West of Ifield development scheme. By considering the existing site conditions, proposed development, environmental impact, and sustainability, this strategy aims to optimise efficiency, cost-effectiveness, and long-term sustainability of the project.

In conclusion, the Earthworks Strategy outlined in this report provides a framework for the planning, design, and execution of earthworks activities for the West of Ifield development scheme. It ensures that the site is well-prepared for construction while minimising potential risks and environmental impact.

Site Topographical Survey

Appendix A

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SCALE BAR

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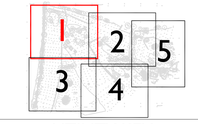
NAVIGATION KEY



UTILITY KEY

- ELECTRIC CABLE
- HV — HV ELECTRIC CABLE
- COM — ELECTRIC & COMMS CABLE IN SAME DUCT
- ER — ER — EARTHING ROD / CABLE
- TS — TS — TRAFFIC SIGNAL CABLE
- TELECOM CABLE
- T — COM — TELECOM & COMMS CABLE IN SAME DUCT
- TV — TV — CABLE TELEVISION
- COM — COM — COMMUNICATION CABLE
- WATER PIPE
- GAS PIPE
- FOUL DRAINAGE
- CONTAMINATED SURFACE
- SURFACE DRAINAGE
- COMBINED DRAINAGE
- PUMPING MAIN
- F — F — FUEL PIPE
- V — V — V — VENT PIPE
- H — H — HEATING PIPES
- ED — ED — ED — UNIDENTIFIED
- EMPTY DUCTS
- SERVICE DUCTS
- TRENCH SCAR
- GROUND DEPRESSION
- SURVEY BOUNDARY

- CABLE / PIPE RISER
- BACKDROP / TRAPPED EXIT
- DRAINAGE VALVE
- END OF TRACE
- HEAD OF RUN / CAPPED
- PIPE INLET / OUTFALL

ABBREVIATIONS

AC	ASBESTOS CEMENT	LP	LAMP POST
AR	ASSUMED ROUTE	MH	MANHOLE
BB	BASE BEND	MW	MONITORING WELL
BD	BACKDROP	OH	OVERHEAD
BH	BOREHOLE	OSA	OFF SURVEY AREA
BR	BRICK	PE	POLYETHYLENE
BTIC	BT INSPECTION CHAMBER	PL	PLASTIC
CATV	CATV INSPECTION CHAMBER	PR	PIPE RISER
CBX	CONTROL BOX	PVC	POLYVINYL CHLORIDE
CI	CAST IRON	RE	RODDING EYE
CL	COVER LEVEL	RWP	RAIN WATER PIPE
CR	CABLE RISER	S/A	SOAKAWAY
CP	CATCHPIT	SI	SPUN IRON
d	DEPTH	ST	STOP TAP
DI	DUCTILE IRON	ST	STEEL
DP	DOWN PIPE	SV	STOP VALVE
ED	EMPTY DUCT	SluV	SLUICE VALVE
EOSC	END OF TRENCH SCAR	SVP	SOIL VENT PIPE
EOT	END OF TRACE	TE	TRAPPED EXIT
ER	EARTHING ROD	TFR	TAKEN FROM RECORD
EP	ELECTRICITY POLE	TL	TRAFFIC LIGHT
FH	FIRE HYDRANT	TP	TELEGRAPH POLE
FL	FLOOD LIGHT	UTCCTV	UNABLE TO CCTV
G	GULLY	UTF	UNABLE TO FIND
GPR	GROUND PENETRATING RADAR	UTL	UNABLE TO LIFT
GRP	GLASS REINFORCED PLASTIC	UTS	UNABLE TO SURVEY
GV	GAS VALVE	VC	VITRIFIED CLAY
HL	HIGH LEVEL	VP	VENT PIPE
HOR	HEAD OF RUN	VR	VAPOUR RECOVERY
IC	INSPECTION CHAMBER	WL	WATER LEVEL
IL	INVERT LEVEL	WM	WATER METER
SWS	SURFACE WATER SEWER	WO	WASH OUT VALVE
CSWS	CONTAMINATED SURFACE WATER SEWER		
FWS	FOUL WATER SEWER		
CWS	COMBINED WATER SEWER		

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CLIENT

Arcadis

PROJECT

Forge Wood High
(IL Field Golf Club)
Rusper Road, Crawley
RH11 0LN

TITLE

Underground
Utility Survey

AMETHYST SURVEYS LIMITED
UTILITY | GPR | CCTV DRAINAGE | PAS:128
TOPOGRAPHICAL | RECORD SEARCHES
CONFINED SPACE ENTRY | CLEARANCE

Unit 2, Davy Court, Central Park
Rugby, Warwickshire
CV23 0UZ

+44 (0)1788 566740
enquiries@amethystsurveys.com
amethystsurveys.com

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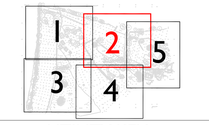

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(IL Field Golf Club)
Rusper Road, Crawley
RH11 0LN

TITLE

Underground
Utility Survey

AMETHYST SURVEYS LIMITED
UTILITY | GPR | CCTV DRAINAGE | PAS:128
TOPOGRAPHICAL | RECORD SEARCHES
CONFINED SPACE ENTRY | CLEARANCE

Unit 2, Davy Court, Central Park
Rugby. Warwickshire
CV23 0UZ

+44 (0)1788 566740
enquiries@amethystsurveys.com
amethystsurveys.com

DATE:	14/02/2022	JOB No:	14594
DRAWING No:	14594_UG_2	REV:	0
DRAWN:	DOT	SURVEYED:	DP
APPROVED:	MD	SCALE:	1:200 @ A0

SCALE BAR

gross

dense woodland

bridge

no other services located within this area via electromagnetic or ground penetrating radar techniques

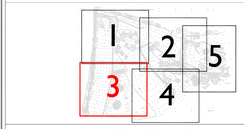
post and wire fence ht 1.00m

unsurfaced track

N

NOTES;

NAVIGATION KEY



UTILITY KEY

- ELECTRIC CABLE
- HV — HV ELECTRIC CABLE
- COM — ELECTRIC & COMMS CABLE IN SAME DUCT
- ER — ER — EARTHING ROD / CABLE
- TS — TS — TRAFFIC SIGNAL CABLE
- TELECOM CABLE
- COM — TELECOM & COMMS CABLE IN SAME DUCT
- TV — TV — CABLE TELEVISION
- COM — COM — COMMUNICATION CABLE
- WATER PIPE
- GAS PIPE
- FOUL DRAINAGE
- CONTAMINATED SURFACE
- SURFACE DRAINAGE
- COMBINED DRAINAGE
- PUMPING MAIN
- F — F — FUEL PIPE
- V — V — V — VENT PIPE
- H — H — HEATING PIPES
- UNIDENTIFIED
- ED — ED — ED — EMPTY DUCTS
- SERVICE DUCTS
- TRENCH SCAR
- GROUND DEPRESSION
- SURVEY BOUNDARY

- CABLE / PIPE RISER
- BACKDROP / TRAPPED EXIT
- DRAINAGE VALVE
- END OF TRACE
- HEAD OF RUN / CAPPED
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ABBREVIATIONS

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AR	ASSUMED ROUTE	MH	MANHOLE
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CLIENT

Arcadis

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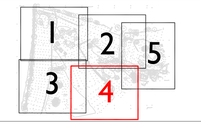
DRAWN:	DOT	SURVEYED:	DP
APPROVED:	MD	SCALE:	1:200 @ A0

5m 0m 5m 10m 15m 20m

DO NOT SCALE FROM PAPER COPIES

NOTES;

NAVIGATION KEY



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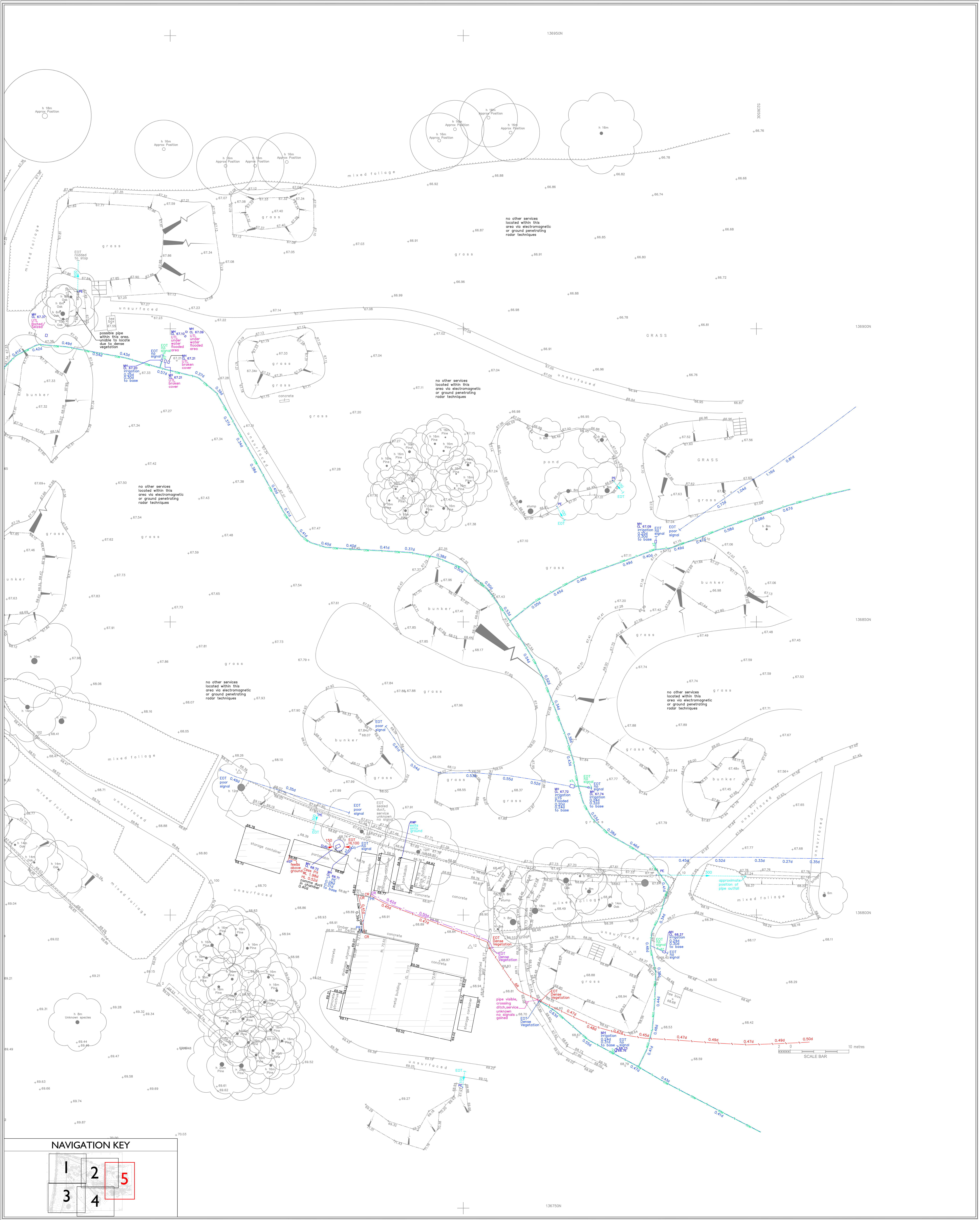

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Golf Course Stage 2 Ground Investigation Report

Appendix B

GEOSPHERE ENVIRONMENTAL

REPORT NUMBER:	6071,SI,GROUND,GF,SG,JD,22-04-22,V2
SITE:	Forge Wood High School, Horsham, RH11 0LN
DATE:	22/04/2022

DOCUMENT CONTROL SHEET

Report Number:	6071,SI,GROUND,GF,SG,JD,22-04-22,V2
Client:	Arcadis LLP
Project Name:	Forge Wood High School, Horsham, RH11 0LN
Project Number:	6071,SI
Report Type:	Phase 2 – Ground Investigation
Status:	Final
Date of Issue:	22 April 2022

Issued By:

Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ.
T: 01603 298 076 / 01473 353 519. W: www.geosphere-environmental.co.uk

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Limit of Reliance:

This report is based on the site findings at the time of the associated walkover/site investigation works and information provided by the client at the time of writing. Should site conditions alter or development proposals alter, a reassessment of the enclosed findings should be undertaken. Refer to Appendix 1 for full details of report limitations.

Prepared By:	**Reviewed:**
Geoff Faro Principal Engineering Geologist	Stephen Gilchrist Principal Geotechnical Consultant
Reviewed:	**Authorised By:**
Jim Dawson Associate Director	Paul Davies Director

VERSION RECORD

Version	Date	Document Revision Details	Prepared By:	Admin
V1	06/04/22	Original Document	GF	CJ
V2	22/04/22	Minor text amendments (date of golf course, spelling correction and site location.)	GF	CJ

EXECUTIVE SUMMARY

Introduction		Geosphere Environmental Ltd was commissioned by the Client: Arcadis LLP, to undertake a Phase 2, Ground Investigation for a proposed educational development at Forge Wood High School, Horsham, RH11 0LN. It was understood that the site (or part of the site) is to be developed into a Secondary and Sixth Form School spanning approximately 8.94 hectares (ha).
Site Location and Description		The subject site was located in Ifield close to Horsham and may be located by National Grid Reference (NGR) 523420, 136840. At the time of the site works, the site was part of an active golf course with a site maintenance compound located in the east.
DESK STUDY DATA REVIEW		
Desk Study Reference		Geosphere Environmental has previously undertaken a Phase 1 – Desk Study and Preliminary Risk Assessment for the site, Report Ref. 6071,SI,DESK,HL,TP,10-02-22,V2. 10 February 2022 (ref. **R.1**).
Geology and Hydrology		The site was detailed to be underlain directly by bedrock Weald Clay Formation (Mudstone), which is considered an unproductive strata for aquifer stores.
History		Historic mapping around 1874 showed the site consisted of multiple, inferred arable, fields, whilst the 1974 map identified two unknown structures to the east of the site, accessed via a "track", with one no longer being shown by 2006 (demolished). The surrounding area was identified, on the earliest map studied (1874), as comprising a number of fields, inferred arable. The 1932 map identified the construction of the Ifield Golf Course, approximately 370m east. From 1968, there was a large-scale residential development south east of the site.
Preliminary Conceptual Site Model		The desk-based research and historical review indicated the majority of potential contaminative hazards to be restricted to the site compound area rather than the site as a whole. Based upon the findings of the desk study, a preliminary low to medium risk was determined in this area and it was recommended that a preliminary intrusive ground investigation was undertaken to determine the extent of any potential contamination within the soil strata.
SITE INVESTIGATION DATA REVIEW		
Site Works		Site works were carried out between 14 to 17 February 2022 and comprised the formation of twenty Window Sampler boreholes, twenty Dynamic Cone Penetrometers tests, three hand excavated trial pits, soil stockpile sampling and the installation of ten ground gas / ground water monitoring wells.

Ground Conditions	Ground conditions were typically proven to comprise nominal amounts of topsoil, overlying cohesive soils of the Weald Clay Formation, extending to a maximum proven depth of 3.45mbgl. Made Ground was encountered above the natural soils within the majority of holes within and in the immediate vicinity of the Compound area, extending to a maximum depth of 0.9mbgl. Groundwater was encountered as seepages within selected exploratory holes during the intrusive works.
Gas Monitoring	Based on the results of the ground gas monitoring, the site has been placed in Characteristic Situation CS1 and therefore no special gas protection measures are required.
Environmental Laboratory Results	When compared against Public Open Spaces screening criteria, 1 (no.) sample exceeded the screening criteria for TPH CWG - Aromatic >C12 - C16, >C16 - C21 and >C21 - C35. This sample was taken from WS18 at a depth of 0.30-0.40m BGL. This location, WS18, targeted the onsite oil tank determined as a potential source in the Phase 1 report (ref **R.1**). A number of soil samples, typically from the compound area, were found as containing asbestos fibres.
Updated Conceptual Model	Overall, a very low risk of soil contamination exists across the site. However, the following sources have been identified as requiring precautionary measures, including: • Soils in the vicinity of the compound area - potentially asbestos containing, with exceedances of hydrocarbons (and lead, when more stringent screening criteria is used); • A stockpile of material within the compound area which has been found to contain asbestos containing material; • Made ground in the vicinity of WS08 which has been found to be asbestos containing, albeit very low levels. • Hydrocarbon contamination - identified from a water sample taken from WS18, although the contamination does not appear to extend significantly with depth or laterally.
Foundation Considerations	A proportion of soils were noted to be desiccated. It is recommended that when the locations of proposed structure(s) are known, the potential influence on cohesive soils from trees is revisited. However, a minimum foundation depth of 0.9m is considered appropriate based upon the volume change potential of the soil. The site and ground conditions are considered suitable for the adoption of a conventional spread foundation bearing within the underlying Weald Clay Formation, where a lower Nett Allowable Bearing Pressure (NABP) of at least

		80kN/m^2 at minimum foundation depth should be adopted, increasing to 180 kN/m^2 at 2.0m.
Floor Slabs		In view of the presence of soils of medium volume change potential, it is recommended that ground floors be suspended for all sensitive structures.
Roadway Pavements		Based on a comprehensive assessment of the site and formation soils, it is recommended that a global CBR value ranging from 4% and 7% is adopted for roadway pavements founded within the natural Weald Clay Formation, reducing to 2% where formations comprise Made Ground. Alternatively, Made Ground may be replaced/reinforced or formation level lowered to a suitable stratum. Further in-situ testing may be warranted.
Concrete Classification		In accordance with BRE Special Digest 1 (ref. **R.3**) A Design Sulphate, (DS), class of DS-2 is considered applicable, with an accompanying ACEC classification of AC-2.
Recommendations		The following works are recommended following this Phase 2 investigation: - • Removal of stockpile of material from site; • A Refurbishment and Demolition (asbestos survey) of the buildings, should be undertaken in accordance with MDHS guidance (ref. **R.9**) and in advance of any disturbance works. The findings of this report should then be followed. • Mapping exercise of potentially infilled / raised areas of the site for inspection / investigation; • Post demolition investigation and removal of significantly impacted soils from the area adjacent to the oil tank and larger compound area; • Associated investigation of the hydrocarbon impact / contamination by hydrocarbons to the local shallow groundwater; for example, assessing that a plume does not exist in the shallow groundwater in between the extant monitoring / sampling points of this preliminary investigation; further risk assessment (for controlled waters) and remedial; • Appropriate consideration to remediate / further investigate soils in the vicinity of the compound area and WS8 in line with the proposed end use and develop and remedial or mitigating actions, such as creating a pathway break; • Implementation of a discovery strategy (See Appendix 12); and • Provision of appropriate welfare facilities, PPE and good personal hygiene for all construction workers involved in ground or further investigation works. It is recommended that this report be submitted to the Local Authority as part of the planning submission for the site.
This Executive Summary only provides a summary of the site data and its assessment. It does not provide a definitive engineering analysis and is for guidance only. It is recommended that the reader reviews the report in its entirety and any material referenced therein.		

CONTENTS

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CONTENTS

APPENDICES

TABLES

Page No.

1. INTRODUCTION

Geosphere Environmental Ltd was commissioned by the Client, Arcadis LLP, to undertake a Phase 2, Ground Investigation for a proposed educational development at Forge Wood High School, Horsham, RH11 0LN.

At the time of report preparation, no proposed development plans were provided. However, it was understood that the site (or part of the site) is to be developed into a Secondary and Sixth Form School spanning approximately 8.94 hectares (ha).

The primary objectives of this ground investigation were to:

- Assess the ground conditions at the site; and
- Assess the potential risk to human health and the environment based on the findings of the investigation.

These were achieved by:

- Undertaking an intrusive investigation of the site, based upon the findings of previous site data and the scope agreed with the client; and
- Logging and sampling the soils on the site and noting any visual or olfactory evidence of contamination;
- Undertaking laboratory chemical analysis of selected soil samples to assess soil quality at the site;
- Undertaking laboratory geotechnical testing of selected soil samples to assess ground conditions at the site;
- Installing monitoring wells with subsequent ground gas and groundwater level monitoring sampling; and
- Updating the Conceptual Site Model and defining suitable remedial/mitigating and verification actions.

Geosphere Environmental has previously undertaken a Phase 1 – Desk Study and Preliminary Risk Assessment for the site, Report Ref. 6071,SI,DESK,HL,TP,10-02-22,V2. 10 February 2022 (ref. **R.1**), a summary of which is provided within Section 2.2.

2. SITE SETTINGS

2.1 Site Location and Description

The subject site was located in Ifield, close to the market town of Horsham and may be located by National Grid Reference (NGR) 523420, 136840.

At the time of the site works, the site was an active golf course and was almost entirely soft standing around 10ha in size and irregular, roughly triangular in shape. The site was made up of greens, fairways etc. associated with the golf course, together with small wooded areas, footpaths, grassed areas, drainage ditches and bunkers, with a footpath located adjacent to the northern site boundary.

The site varied in topography, inferred as both natural and man-made (to form the golf course) and typically fell to the north east and highest at the south west. A pond was present to the north eastern part of the site.

An access track ran to a compound area used by staff who serviced the Golf Course. This area included several portable cabins, a garage area containing vehicles and for vehicle servicing, an oil tank, chemical storage (Container marked mixed hazards and dangerous chemicals), rubble piles, potentially asbestos containing roofing sheets, both on structures and in fragments on the ground, cabins, an oil drum, a wash down area and fuel cans. Another rubble pile was located just off site to the south east, along with an area of burning and a canister containing, what was likely to be, red diesel.

To the north and west of the site was farmland and to the south and east was a continuation of the golf course.

A Site Location Plan is included within Appendix 3 as Drawing reference 6071,SI/001/Rev1.

2.2 Previous Reports

Geosphere Environmental Ltd previously undertook a Phase 1 – Desk Study and Preliminary Risk Assessment for the site, Report Ref. 6071,SI,DESK,HL,TP,10-02-22,V2. 10 February 2022 (ref. **R.1**). The following sections (2.2.1 to 2.2.5) are a summary of the Phase 1 report.

2.2.1 Geological Setting

Details of the geology underlying the site were obtained from the British Geological Survey (BGS) digital mapping at a scale of 1:50,000, which is provided within the Phase 1 report (ref. **R.1**).

The geological map indicated superficial deposits to be absent and directly underlain by bedrock Geology of the Weald Clay Formation (Mudstone).

2.2.2 Underlying Aquifers

The hydrogeological data provided within the Envirocheck Report indicate unproductive strata underlying the site.

The Environment Agency defines unproductive strata as 'rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

2.2.3 Site History Summary

Historic mapping around 1874 showed the site consisted of multiple, inferred arable, fields, whilst the 1974 map identified two unknown structures to the east of the site, accessed via a "track", with one no longer being shown by 2006 (demolished).

The surrounding area was identified, on the earliest map studied (1874), as comprising a number of fields, inferred arable. The 1932 map identified the construction of the Ifield Golf Course, approximately 370m east. From 1968, there was a large-scale residential development south east of the site.

2.2.4 Preliminary Risk Assessment

The desk-based research and historical review identified the following potential hazards onsite that may affect sensitive receptors:

- Made Ground Potentially Asbestos containing roofing sheets including fragments on the ground;
- Oil tank;
- Wash down area;
- Chemical storage;
- Rubble piles; and
- Makeup of footpath with man-made materials.

The majority of these potential hazards appear to be restricted to the compound area rather than the site as a whole.

A small backfilled pond adjacent to the northern boundary was identified as a potential offsite source.

2.2.5 Recommendations from Phase 1 Report

It was recommended that a preliminary intrusive ground investigation is undertaken to determine the extent of any potential contamination within the soil strata. This investigation should be focussed on the compound area, but also include a general spread across the wider gold course area of the site.

3. PHASE 2 - SITE WORKS

3.1 Methodology

This site investigation was carried out in accordance with the practices set out in BS 10175:2011+A2:2017, (ref. **R.7**) and BS 5930:2015+A1:2020 (ref. **R.8**).

The locations of exploratory holes were planned, where possible, to give the best possible coverage within budgetary constraints while targeting any locations highlighted in the desk study and / or site walkover while also causing minimal disturbance to key areas of the golf course and allowing for areas that could not be accessed due to poor ground conditions.

The in-situ CBR testing was undertaken using a Dynamic Cone Penetrometer (DCP) using current guidance and practices set out in the Highways England CD225:2020 and the Transport Research Laboratory (ref. **R.18**). The location of tests was proposed and located onsite by the Client.

3.2 Scope

Site works were carried out between 14 and 17 February 2022 and comprised the following:

- Twenty Window sampled boreholes (WS01 to WS20), extended to depths ranging from 0.45m to 3.45mbgl;
- Twenty Dynamic Cone Penetrometers tests, located at Window Sampler positions;
- Three hand excavated Trial Pits (HP01 to HP03), extended to a depth of 0.1mbgl;
- Sampling of 1 no. soil stockpile (SP01);
- Installation of 10 no. ground gas / ground water monitoring wells; and
- Associated soil logging, sampling, in-situ testing and photo-recording of the recovered material.

The exploratory holes are shown on the Exploratory Hole Location Plan, Drawing ref 6071,SI/003/Rev1 included in Appendix 3.

3.3 Ground Conditions Encountered

The sequence of the strata encountered during the investigation generally confirmed the anticipated geology as interpreted from the British Geological Survey (BGS) digital mapping, at a scale of 1:50,000 included within the Phase 1 report (ref. **R.1**).

The sequence and indicative thickness of the strata encountered are provided in Table 1 overleaf:

Table 1 - Ground Conditions				
Strata	**Depth Encountered (mbgl)**		**Strata Thickness (m)**	**Extent / Composition**
	From	**To**		
Topsoil	0.0	0.05 – 0.25	0.05 – 0.25 (where proven)	**All Exploratory Holes** (except WS17-WS20) Typically, Dark brown sandy organic clay. **WS3, WS8, WS15, WS16 and HP1-HP3** As above, with varying amounts of anthropogenic material.
Made Ground	0.0 – 0.2	0.1 – 0.9	0.1 – 0.8 (not proven in HP1-HP3)	**WS3, WS08, WS15 – WS20, HP1-HP3** Typically, clay with fine angular brick and concrete gravel.
Weald Clay Formation	0.1 – 0.9	0.55 - 3.45	Unproven	**All exploratory holes** (except HP1 – HP3) Variable in consistency, typically a slightly gravelly clay.

3.4 Groundwater

Groundwater was encountered as seepages within WS7 at 1.0mbgl, WS11 at 0.5mbgl and WS12 at 2.0mbgl, during the site investigation. No groundwater was encountered in any of the other exploratory holes during intrusive works.

3.5 Visual and Olfactory Evidence of Contamination

Visual indicators of contamination were encountered within the Made Ground, in the form of anthropogenic material; typically brick.

Olfactory evidence of contamination was recorded within WS18 only in the form of a hydrocarbon odour below 0.15mbgl, becoming weak at 0.3m, very weak below 1.3m and no odour detected below 1.60mbgl.

4. LABORATORY TESTING

4.1 Methodology

Representative disturbed and undisturbed samples were taken at the depths shown on the exploratory hole records and despatched to the laboratory. The exploratory hole logs are included in Appendix 5.

Samples were collected for environmental purposes in amber glass jars and sealable plastic pots and kept in a cool box with cooling aid.

Environmental samples targeted the Made Ground soils encountered, as well as the sources identified in the Desk Study (ref. **R.1**); soil stockpiles, oil tank and areas adjacent to the compound area of the site.

4.2 Environmental Testing Suite

4.2.1 Quality Control

The environmental laboratory used (Derwentside Environmental Testing Services - DETS) is an accredited laboratory by the United Kingdom Accreditation Service (UKAS), and at least 50% of individual parameters are from methods pending accreditation to the Environment Agency Monitoring Certification Scheme (MCERTS) for the range of analyses undertaken as part of this investigation. The MCERTS performance standard for the chemical testing of soil is an application of ISO 17025: 2005, specifically for the chemical testing of soil.

4.2.2 Environmental Testing Suite – Soils

The suite of chemical analyses was based upon the findings of the Phase 1 desk study and site walkover, the conceptual model and observations on site. The chemical analyses were carried out on samples of soil. The nature of the analyses is detailed below:

- Metals screen - arsenic, cadmium, chromium, lead, mercury, selenium, boron (water soluble), beryllium, copper, nickel, vanadium and zinc;
- Organic screen - total petroleum hydrocarbons (TPH) – with specific carbon banding; benzene, toluene, ethylbenzene and xylenes (BTEX); polyaromatic hydrocarbons (PAH) – USEPA 16 suite; monohydric phenols;
- Inorganics screen - cyanide (total), sulphate (water soluble);
- Others - pH, asbestos; and
- Volatile Organic Compounds (VOC).

A copy of the environmental laboratory test results is included in Appendix 8.

4.3 Geotechnical Testing

The geotechnical testing has been chosen based on the soils encountered during the site investigation and was undertaken at a UKAS accredited laboratory; Soil Property Testing Ltd (SPT Ltd).

The following tests were undertaken:

- Moisture content determination;
- Plasticity testing;
- pH and soluble sulphate testing;
- Dry Density moisture content relationship tests;
- Determination of undrained shear strength; and
- Determination of California Bearing Ratio.

A copy of the geotechnical laboratory test results is included in Appendix 9, with pH and Sulphate results included within the environmental laboratory test results presented in Appendix 8.

5. MONITORING

A total of ten combined gas and groundwater monitoring wells were installed as part of the current investigation.

The wells were installed with 63mm HDPE pipework with a gravel filter pack, bentonite seal and bung with gas tap. The wells were positioned to give a general spread across the site as well as targeting the compound area, infilled ponds and Made Ground.

5.1 Ground Gas

Ground gas monitoring was undertaken by a suitably qualified environmental consultant, using a GFM436 landfill gas analyser and a MultiRaeLite Photo-ionisation detector (PID). The main determinants recorded were methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), volatile organic compounds (VOCs) and the flow rate.

Ground gas monitoring was carried out in accordance with current guidance (ref. **R.15**). Six consecutive monitoring visits were undertaken over a period of 25 February 2022 and 30 March 2022 including falling barometric pressure conditions.

The results of ground gas monitoring are included in Appendix 7 and a summary is presented in Table 2 below:

Table 2 - Ground Gas Monitoring Results Summary

Location	Range of Recorded Concentrations						Flow Rate (l/hr)	VOC (ppm)	Atmospheric Pressure (mb)
	Methane (CH_4) [% v/v]		Carbon Dioxide (CO_2) [% v/v]		Oxygen (O_2) [% v/v]				
	(Min)	(Max)	(Min)	(Max)	(Min)	(Max)	(Range)	(Max.)	(Range)
WS2	<0.1	<0.1	0.2	0.3	20.1	20.6	-0.4 to 0.0	0	996-1034
WS3*	<0.1	<0.1	0.3	1.3	18.5	20.2	0.0	0	996-1034
WS4*	<0.1	<0.1	0.1	0.5	15.8	19.9	-0.4 to 0.0	0	995-1034
WS8	<0.1	<0.1	0.5	0.8	20.1	20.4	-0.6 to 0.0	0	997-1035
WS9	<0.1	<0.1	<0.1	0.6	20.1	20.8	-0.6 to 0.0	0	996-1036
WS12*	<0.1	<0.1	1.1	2.6	16.7	19.9	-0.3 to 0.0	0	995-1035
WS16	<0.1	<0.1	<0.1	1.1	20.0	20.6	-0.3 to 0.1	0	995-1034
WS17	<0.1	<0.1	0.1	2.4	19.5	20.5	-0.3 to 0.1	0	995-1036
WS18	<0.1	0.2	<0.1	1.0	18.4	20.1	-0.6 to 0.0	**1**	995-1034
WS19	<0.1	<0.1	<0.1	0.9	20.1	20.5	-0.5 to 0.0	0	995-1032
*Not able to be monitored on every occasional due to area of the well being flooded.									

5.2 Groundwater

The measured groundwater levels were recorded using a dipmeter and the results of monitoring are presented in Table 3 below:

Table 3 – Groundwater Monitoring Results

Monitoring Well	Install Depth (mbgl)	Groundwater Encountered at (mbgl)					
		Visit 1	Visit 2**	Visit 3	Visit 4	Visit 5	Visit 6
		25/02/22	04/03/22	10/03/22	18/03/22	22/03/22	30/03/22
WS2	2.00	0.54	0.70	1.29	1.08	1.04	1.01
WS3	2.00	0.32	0.00*	0.70	0.00*	0.29	0.44
WS4	2.00	0.08	0.00*	0.20	0.17	0.30	0.52
WS8	2.00	0.60	0.56	0.60	0.58	0.60	0.59
WS9	3.00	0.74	0.57	0.72	0.73	0.70	0.62
WS12	2.30	0.34	0.00*	0.50	0.33	0.30	0.28
WS16	2.30	0.94	0.83	0.85	1.03	0.87	0.74
WS17	3.10	1.23	1.07	1.18	1.21	1.32	1.10
WS18	2.00	0.77	0.40	0.73	0.72	0.82	0.71
WS19	2.00	0.46	0.39	0.52	0.55	0.44	0.44

Notes:
n/m – not measured
* well flooded
**Wells purged dry after monitoring on 2nd visit (04/03/22)

It was noted that, during the monitoring period, a hydrocarbon odour was evident within WS18.

6. RISK ASSESSMENT

6.1 Risk to Human Health

6.1.1 Methodology

Following the approach set out in LCRM 2021 (ref. **R.2**) with the formulation of a preliminary conceptual model, this is updated with the results of the intrusive investigation.

6.1.2 Soil Quality Screening Values

The results of the soil analyses have been compared to soil quality screening values where deemed applicable, including:

- The LQM/CIEH S4ULs for Human Health Risk Assessment, (ref. **R.23**); and
- Defra/CL:AIRE Final C4SLs, (ref. **R.22**).

Where the concentrations reported by the laboratory analysis (and thus determined onsite) are at or below the respective screening concentrations, they are considered not to pose a risk and are removed from further consideration, unless otherwise stated in the following sections.

6.2 Elevated Soil Concentrations

As the primary receptor is assessed to be the end users of the school (i.e. students, teachers and other staff), and the primary pathway will be where there is no pathway break (i.e. playing fields) the criteria for Public and Open Spaces 1 (the more stringent of the Public Open Space values) will be used. However, other criteria will be discussed in the following sections. The locations, depths and other relevant information of the elevated concentrations of the specific analytes are summarised below and assessed in more details where necessary/below:

Table 4 - Summary of Soil Analyses and Comparison with Current Screening Values

Analyte	Analyte Concentration Range (mg/kg)		Screening Value (mg/kg) for Land Use	Number of Elevated Concentrations
	Minimum	Maximum	Public Open Space (1% SOM Assumed)	
Arsenic	5	20	79	0
Barium	67	389	N/A	0
Beryllium	0.5	1.3	2.2	0
Water Soluble Boron	<1	<1	21000	0

Cadmium	<0.2	<0.2	120	0
Chromium	19	24	1500	0
Hexavalent Chromium	<2	<2	7.7	0
Copper	6	40	12000	0
Lead	12	345	630	0
Mercury	<1	1.2	120	0
Nickel	6	14	230	0
Selenium	<3	<3	1100	0
Vanadium	26	44	2000	0
Zinc	36	242	81000	0
Naphthalene	<0.1	<0.1	4900	0
Acenaphthylene	<0.1	<0.1	15000	0
Acenaphthene	<0.1	<0.1	15000	0
Fluorene	<0.1	<0.1	9900	0
Phenanthrene	<0.1	<0.1	3100	0
Anthracene	<0.1	<0.1	74000	0
Fluoranthene	<0.1	0.28	3100	0
Pyrene	<0.1	0.24	7400	0
Benzo(a)anthracene	<0.1	<0.1	29	0
Chrysene	<0.1	<0.1	57	0
Benzo(b)fluoranthene	<0.1	<0.1	7.1	0
Benzo(k)fluoranthene	<0.1	<0.1	190	0
Benzo(a)pyrene	<0.1	<0.1	5.7	0
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	82	0
Di-benzo(a,h)anthracene	<0.1	<0.1	0.57	0
Benzo(ghi)perylene	<0.1	<0.1	640	0
Total EPA-16 PAHs	<1.6	<1.6	N/A	0
TPH CWG - Aliphatic >C5 - C6	< 0.01	< 0.01	570000	0
TPH CWG - Aliphatic >C6 - C8	< 0.05	< 0.05	600000	0
TPH CWG - Aliphatic >C8 - C10	< 2	351	13000	0
TPH CWG - Aliphatic >C10 - C12	< 2	1219	13000	0
TPH CWG - Aliphatic >C12 - C16	< 3	6687	250000	0
TPH CWG - Aliphatic >C16 - C21	< 3	8526	250000	0
TPH CWG - Aliphatic >C21 - C34	< 10	6973	56000	0
TPH CWG - Aliphatic >C5 - C34	< 21	23757	N/A	0
TPH CWG - Aromatic >C5 - C7	< 0.01	< 0.01	56000	0
TPH CWG - Aromatic >C7 - C8	< 0.05	< 0.05	56000	0
TPH CWG - Aromatic >C8 - C10	< 2	133	5000	0
TPH CWG - Aromatic >C10 - C12	< 2	860	5000	0

TPH CWG - Aromatic >C12 - C16	< 2	6219	5100	**1**
TPH CWG - Aromatic >C16 - C21	< 3	7730	3800	**1**
TPH CWG - Aromatic >C21 - C35	< 10	4181	3800	**1**
TPH CWG - Aromatic >C5 - C35	< 21	19123	N/A	0
TPH CWG - Total >C5 - C35	< 42	42879	N/A	0
Benzene	< 2	< 2	72000	0
Toluene	< 5	< 5	56000000	0
Ethylbenzene	< 2	1091	24000000	0
m & p-xylene	< 2	4223	41000000	0
o-Xylene	< 2	447	41000000	0
MTBE	< 5	< 5	N/A	0

6.2.1 Hydrocarbons and lead

When compared against Public Open Spaces screening criteria, 1 (no.) sample exceeded the screening criteria for TPH CWG - Aromatic in chain groups >C12 - C16, >C16 - C21 and >C21 - C35. This sample was taken from WS18 at a depth of 0.30-0.40mbgl. This location, WS18, targeted the onsite oil tank determined as a potential source in the Phase 1 report (ref **R.1**). Based upon the setting of the tank adjacent to the equipment storage building in the golf course maintenance compound, it is interpreted that the hydrocarbons stored in the tank is diesel for the equipment, as opposed to heating oil for a heater / boiler within the building; there was no indication of the latter. The hydrocarbon chromatogram pattern and odours are similar.

Olfactory evidence of hydrocarbons at this sampling location recorded the contamination to reduce with depth and this is also seen in the results of the chemical testing where the level of contamination reduces with each sample taken at greater depth. Samples taken from nearby holes (WS19 and WS20) do not show any detectable levels of hydrocarbon contamination suggesting that the contamination encountered at WS18 is from the Oil Tank and does not extend significantly laterally or with depth. (See further discussion within Section 6.4 regarding Controlled Waters). The high concentration in soil at 0.3 to 0.4mbgl (42879mg/kg TPH) does indicate that the sample is obtained from near to the source which may be long- term limited spillages from fuel dispensing as opposed to a previous leak. The recommendations provided in Section 6.4 will assist in determining or confirming the lateral extent of the hydrocarbon in shallow soils.

Comparing the results against more stringent screening criteria (Residential with plant uptake), more exceedances are present with the following analytes exceeding the criteria.

- Lead;
- TPH CWG - Aliphatic >C8 - C10, >C10 - C12, >C12 - C16; and

- TPH CWG - Aromatic >C8 - C10, >C10 - C12, >C12 - C16, >C16 - C21, >C21 - C35.

However, these exceedances are all from the same sample that exceeded when compared against the Public Open Spaces criteria (WS18 at a depth of 0.30-0.40m BGL) strongly suggesting a point source rather than a site wide issue.

6.2.2 Asbestos in soils

16 samples (15 soil and 1 piece of cement sheet named PACM1) were tested for the presence of asbestos. Of the sixteen, asbestos was present in the following 4 samples (3 soil samples):

- WS8, 0.1-0.5mbgl;
- HP01, GL-0.1mbgl;
- SP01 (Composite sample) from stockpile; and
- PACM1.

PACM1, was a sample of cement sheeting collected in hand sample from the ground surface and visually assessed to be a fragment from the adjacent structure. This laboratory testing determined that the material contained Chrysotile.

HP01, was a shallow soil sample (GL to 0.1m BGL) collected from the compound area (where the PACM roofs were present) and also was found to contain asbestos in the form of chrysotile as a bundle at 0.003% content.

A sample collected from a stockpile of soil material was also found to be asbestos containing with the material identified as "chrysotile present in visible thermoplastic tile fragments, at 2.995% content.

All of the samples found to be asbestos containing were from around the compound area or identified point sources (i.e the stockpile) with one exception; WS08 at a depth of 0.1 to 0.5mbgl was found to contain Asbestos as a bundle of Chrysotile at <0.001% content. Made Ground was identified in this area and it was inferred that this was placed to locally raise up the ground for the "teeing off" area on the golf course in the north westernmost corner. Site knowledge of previous activities in this area may be able to confirm this inference.

6.2.3 Soil Quality and Contamination Discussion

Overall, based on the results of the ground investigation and the Phase 1 report (ref. **R.1**) there is typically a very low risk of contamination across the site that may cause harm to sensitive receptors. However, the following sources have been identified as being a risk:

- Soils in the vicinity of the compound area (marked on the Exploratory Hole Location Plan, Drawing ref 6071,SI/003/Rev1 included in Appendix 3) as being asbestos containing and with localised of hydrocarbon contamination (WS18) (with an exceedance of the lead concentration when more stringent screening criteria is used);

- The stockpile of material within the compound area which has been found to contain asbestos containing material; and
- Made ground in the vicinity of WS08 which has been found to be asbestos containing, albeit very low concentration.

The main identified receptors are end users for the school and construction workers.

Controlled waters were also a receptor from the identified hydrocarbon contamination at WS18 with a water sample taken from the well showing that it includes detectable concentrations of hydrocarbon. However, the contamination does not appear to extend significantly with depth or laterally, based upon the absence of detectable concentrations of hydrocarbon within the water samples from the adjacent monitoring wells (WS17 to the NE and WS19 to the SE).

Once plans for the proposed school are known an assessment of the requirement and method of remediation in the area should be finalised relevant to the end use of the area. For example; If the proposed end use for this area is a school playing field where a pathway to end users would be present then the remediation required would differ to if the areas was proposed for use as a car park (where a pathway break would be present).

Irrespective of the end use, investigation and remediation of the impacted soils in the vicinity of the oil tank (WS18) should be undertaken to reduce / remove risk to controlled waters. See section 6.4.

6.3 Ground Gas

The results of the soil gas monitoring have been compared with current guidance (refs. **R.15** or **R.16**). The results show detectable methane generation within soils, and some generation of carbon dioxide. Limited and variable gas flow was detected within the wells across the site.

A Gas Screening Value (GSV) has equated for each of the monitoring points taking the highest recorded flow, Carbon Dioxide and Methane across the monitoring visits. The results are presented in Table 5 overleaf:

Table 5 - Ground Gas Screening Values (GSV)

Location	Maximum Recorded Values			Gas Screening Values	
	Methane (CH_4) [% v/v]	Carbon Dioxide (CO_2) [% v/v]	Flow Rate (l/hr)	Methane l_{CH4}/hr	Carbon Dioxide l_{CO2}/hr
WS2	0.1	0.3	0.4	0.0004	0.0012
WS3	0.1	1.3	0.1	0.0001	0.0013
WS4	0.1	0.5	0.4	0.0004	0.002
WS8	0.1	0.8	0.6	0.0006	0.0048
WS9	0.1	0.6	0.6	0.0006	0.0036
WS12	0.1	2.6	0.3	0.0003	0.0078
WS16	0.1	1.1	0.3	0.0003	0.0033
WS17	0.1	2.4	0.3	0.0003	0.0072
WS18	0.2	1.0	0.6	0.0012	0.006
WS19	0.1	0.9	0.5	0.0005	0.0045

Notes:-

- Where no detectable flow has been recorded, the limit of detection of the apparatus (0.1l/hr) has been used;
- Where a negative value for flow is higher than the maximum recorded positive value, the negative value has been converted to a positive as an indication of a potential maximum positive flow
- Where no detectable Methane has been recorded, the limit of detection of the apparatus (0.1%$_{CH4}$) has been used.

The site has been placed in Situation A (All other developments) in line with CIRIA C665 (ref. **R.16**). Alternatively, the school scheme, if considered under BS8485;2015+A1 2019) would be likely to be a Type B or Type C building setting; this should be confirmed as the design progresses.

Based upon the results, the site has been placed in Characteristic Situation CS1 and no special gas protection measures are required for proposed structures.

6.3.1 VOCs in soils

No detectable concentrations of VOC were recorded within the soil gas monitoring (via calibrated PID with a detection limit of 1ppm) with the exception of 1ppm measured at WS18 on two of the six monitoring occasions. This is to be anticipated considering the soils impact by hydrocarbons (assessed to be diesel fuel) at this location, with the associated relatively low volatility of this hydrocarbon type.

Based upon this, there is a low risk posed to structures and end uses from these VOC concentrations. If a school structure is proposed over or near to this WS18 location, it is anticipated that some form of remedial works with regard to hydrocarbons may be required, concomitant with the construction works.

6.4 Risk to Controlled Waters

The results of the testing on the soil samples show hydrocarbon concentrations (TPH of 42879mg/kg) in WS18 (only) which decreases with depth from this shallow sample (0.3 to 0.4mbgl) to 69mg/kg TPH at 0.4 – 0.6mbgl, 838mg/kg at 0.9 – 1.0mbgl, then <42 mg/kg at 1.5mbgl. As outlined above this indicates vertically limited impact only to the soil column.

Water samples have been collected from WS17, WS18 and WS19. The results show some hydrocarbon contamination within WS18 only with both samples from the adjacent wells (WS17 and WS19) below the limits of detection for TPH.

Groundwater was measured at between 0.4mbgl and 0.7mbgl at WS18. Water monitoring at WS17 indicates deeper groundwater levels; WS19 shallower. This indicates that groundwater flow regime may be to the north or north-east. Further assessment may be required.

The concentration of hydrocarbons in the sample from WS18 is 1721µg/L (TPH) with the distribution of detectable hydrocarbon EC groups being both aromatic and aliphatic, increasing from C10 through to C34/C35, a pattern coincident with the soils analysis and the suspected diesel fuel source.

No evidence of free product was noted during water sampling.

The results of the post field work monitoring show VOCs within the vadose zone were below the limit of detection in all wells except WS18 which had a maximum of 1ppm VOCs.

Whilst there is a risk to wider controlled waters from hydrocarbon impaction adjacent to the onsite oil tank, based on the results of the testing it is of limited lateral and vertical extent and not indicative of a significant fuel leak or gross contamination. However, it cannot be discounted that a plume of hydrocarbons from this source has not migrated, for example, directly north or south and not been detected by this investigation.

The hydrogeological setting is generally low risk and sensitivity, with regard to the potential for hydrocarbon contamination to migrate or impact groundwater resources (clay / mudstone strata and Unproductive aquifer). The clays encountered across the site and at WS18 are likely to have very low hydrocarbon transmissivity properties. For consideration is the local and wider hydrological setting: the topography slopes down from south to north toward a stream or ditch at the northern boundary (at a distance of ~150 from WS18); this is a tributary of the River Mole. The likelihood of hydrocarbon contamination migrating in or along the top of the clay strata this distance, without being noted by the current site users, is unlikely but cannot be fully discounted. The hydrocarbon attenuation or retardation properties of the clay are likely to be high.

Additional investigation is recommended in the area which should be undertaken during or after demolition of the structures in the vicinity. The ground investigation should aim to delineate the extent of hydrocarbon contamination in both the soils and groundwater. Based upon the results of this targeted phase of investigation it may be possible to determine a remedial (and validation) strategy; it may also be necessary to determine the risk to controlled waters in detail, via a DQRA; additional data and parameters may be required however.

The groundwater analysis (laboratory report 22-02703) includes analysis of a group of parameters (sulphate, dissolved oxygen, iron and manganese) that may be utilised (and investigated further) to assess the suitability for in-situ hydrocarbon remediation options, if remedial actions are required. These parameters were analysed in order to obtain a "baseline" at this preliminary stage.

Potentially, further investigation works could be overseen by a Geoenvironmental consultant which could supervise removal of impacted soils (to an extent appropriate for the proposed land use in the vicinity) along with sampling for remaining material for validation purposes.

6.5 Risk to Plants

A review of the commonly occurring phytotoxic chemicals copper, nickel and zinc, has been undertaken based upon BS3882 topsoil and BS 8601 subsoil guidance documents.

Concentrations of metals were recorded at concentrations below the thresholds considered to have phytotoxic effects. A low risk is posed to plants if soft landscaping is proposed within this scheme and site won soil is utilised.

6.6 Risk to Services - Pipes

A comparison of the laboratory results has been made against the Contaminated Land Assessment Guidance, published by Water UK (ref. **R.12**). Note, the full range of thresholds given in this guidance have not specifically been tested for.

Typically, across the site, no specific protection is envisaged. However, in the vicinity of WS18, the results reported from the laboratory exceed those for standard PE pipe. If pipes are to be lain in the vicinity of WS18 then further investigation, remediation and / or pipe protection measures may be required.

It is advised that the UK Water Industry Research Guidance (ref. **R.13**) is adopted and consultation with the local water company is sought prior to laying any services.

6.7 Updated Conceptual Site Model

Following the findings of the site investigation the Preliminary Conceptual Site Model for the site has been reviewed and the conclusions are presented in the Updated Conceptual Site Model in Table 6 overleaf:

Table 6 – Updated Conceptual Site Model

Sources	PATHWAYS: Root Uptake	Direct Contact	Ingestion	Respiration	Gas Accumulation	RECEPTORS: Plants	End Users	Structures (Concrete)	Services/Utilities	Construction Workers	Controlled Waters (GW)	Risk Rating	Comments
Made Ground/Man-made footpaths	U	U	U	L	U	Mi	Mo	Mi	Mo	Mo	Mo	MR	The majority of the site is assessed as being of negligible risk to end users. Asbestos has been proven at WS8 and Made Ground may be present on other areas not accessed in this investigation.
Compound area (Oil Drum/Oil Tank, Vehicle Storage and wash down area, Chemical storage)	U	L	L	U	U	Mi	Mo	Mi	Mo	Mo	Mo	MR	A highly localised risk from the oil tank has been proven. Based on the results of the other testing, other potential sources appear to have not impacted the ground. Investigation or inspection should be undertaken after demolition of the compound structures. See "Further works"
Asbestos sheeting at surface and in roofing materials	N	N	N	L	N	N	S	N	N	S	N	HR	The roofing materials of at least one structure within the compound have been found to be asbestos containing, in addition, asbestos has been found within the soils adjacent to the structure.
Rubble Piles	N	N	N	L	N	N	S	N	N	S	N	HR	A composite sample from the rubble pile onsite was found to contain asbestos. Visually, this material is not assessed as being suitable for reuse and should be appropriately removed from site.
Small backfilled pond adjacent to the North and onsite adjacent to WS1	N	N	N	N	N	N	N	N	N	N	N	NR	Based upon the results of the ground gas monitoring and the cohesive soils encountered on the site, there is a negligible risk that should backfilled ponds be present, that the ground gas could significantly migrate

Legend:-
See Comparison of Consequence Against Probability within Appendix 4 for Key to Legend.

Probability:	
Negligible (N)	
Unlikely (U)	
Likely (L)	
Highly Likely (HL)	

Consequence (Severity):	
Negligible (N)	
Mild (Mi)	
Moderate (Mo)	
Severe (S)	

Risk Rating:	
Very High Risk	VH
High Risk	HR
Moderate Risk	MR
Low Risk	LR
Negligible Risk	NR

7. Geotechnical Considerations

7.1 Proposed Development

It was understood that the proposed development of the site was to be for the purposes of an educational facility.

Whilst proposed development plans were provided at the time of reporting, it was assumed that the proposed development will include educational structures, access roads, car parking, MUGA, Hard standing playground and playing fields.

It has not been detailed the number of storeys proposed for the structures, although for preliminary discussion, it has been assumed that each structure will comprise two storeys and will have vertical loadings in the region of 80kN/m^2.

Should the above assumed design differ from that of the proposed, the following assessment and recommendations are revisited and updated appropriately.

7.2 Summary of Ground Conditions

Ground conditions typically comprised nominal amounts of Topsoil, overlying cohesive soils of the Weald Clay Formation, extending to a maximum proven depth of 3.45mbgl.

In addition to the above, Made Ground was encountered within boreholes located within, and in the immediate vicinity of, the Compound area (WS15 to WS20), as well as WS3 and WS8, extending to a maximum depth of 0.9m BGL.

Groundwater seepages were present within a number of boreholes during the intrusive works, with monitored depths indicating shallow groundwater conditions, although given the predominant soil conditions, it is likely this is confined to the Made Ground rather than being intrinsic of an aquifer source.

7.3 Foundations

7.3.1 Ground Desiccation

The results of geotechnical classification testing indicate the Weald Clay Formation to typically contain soils that are of intermediate to high plasticity and low to medium volume change potential.

The implications of the above are discussed in detail within the guidance of NHBC Chapter 4.2 (ref. **R.20**) although for the purposes of this section, the guidance recommends that excavations for conventional trench fill foundations are extended to a minimum of 0.90 mbgl.
It is assumed that the final plans will include for a number of trees to be retained as well as the potential for new planting, therefore foundations constructed in the vicinity will likely require extending to depth due

to the potential for desiccation within cohesive soils and the resulting soil instability related to changing soil moisture conditions. This is applicable to trees that are retained, removed or proposed for the site as part of any development plans.

The guidance provided within BRE Digest 412 'Desiccation on clay soils' (ref. **R.5**) indicates that, for general guidance, the onset of desiccation occurs when the moisture content of a cohesive soil is lower than 0.4 times the liquid limit of that soil. A summary of the comparison between the recorded moisture content and the onset of desiccation is provided within Table 7 below:

Table 7 – Comparison of Soil Moisture and Onset of Desiccation within Soil Samples

Location	Depth of Sample (mbgl)	Moisture Contents	Liquid Limit	Onset of Desiccation	Sample Desiccated (Y/N)
WS3	0.6	23.9	45	18.0	N
WS3	1.2	22.8	53*	21.2	N
WS5	0.6	26.3	50	20.0	N
WS5	1.5	20.3	53*	21.2	**Y**
WS6	1.5	19.4	49	19.6	**Y**
WS6	2.0	19.4	49*	19.6	**Y**
WS9	0.6	22.4	42	16.8	N
WS9	1.4	23.7	53*	21.2	N
WS10	0.4	25	53*	21.2	N
WS10	1.0	24.6	53	21.2	N
WS10	1.8	17.3	50*	20.0	**Y**
WS12	0.5	28	58	23.2	N
WS12	1.5	25.6	58*	23.2	N
WS12	2.55-2.85	24.6	50*	20	N
WS13	1.1	17.8	51	20.4	**Y**
WS13	1.8	17.6	51*	20.4	**Y**
WS14	0.5	29.3	59	23.6	N

Notes:
* - Assumed Value

From the above results, varying degrees of desiccation exist within the soils. Therefore, where foundations are located in the vicinity of trees, it is recommended that the guidance provided within NHBC Chapter 4.2 (ref. **R.20**) is adhered to for outline design. Whilst the NHBC guidance provides outline advice for the stated foundation design, it is recommended that advice from a professional structural engineer is sought to confirm the requirement for any deeper foundation design (piles) based Upon the influence of trees.

Should a piled foundation be required, it is recommended that a deep ground investigation is undertaken to confirm the properties of the soils for design.

7.3.2 Foundation Options

The site and ground conditions are considered suitable for the adoption of a conventional spread foundation bearing within the underlying Weald Clay Formation.

A global Nett Allowable Bearing Pressure (NABP) of 140kN/m^2 would be considered appropriate at minimum foundation depths, although consideration should be given to decreasing this value to 80kN/m^2 as a precautionary approach given the presence of localised softer areas of bedrock soil. However, by 2.0mbgl foundations may be designed to a value of 180 kN/m^2. The NABP, is the permissible strength of the soil above existing overburden pressure, which may be calculated on the basis of a soil density of 19kN/m^3.

At the above NABP, settlements are unlikely to exceed in the region of 25mm. Settlements in cohesive materials are likely to comprise of a small amount of immediate settlement and a larger amount of consolidation settlement, which will occur over a period of time.

A minimum foundation depth of 0.9m is considered appropriate based on the following provisos:

- Where influenced by trees, foundations will need designing in accordance with NHBC Chapter 4.2 "Building near Trees", (ref. **R.20**). A number of potentially high-water demand trees exist onsite and the soils are of low and medium volume change potential;
- Where Made Ground exists at formation level, either existing or as a result of the removal of existing foundations or other underground structures, foundations should be extended to depth into undisturbed natural strata by at least 150mm;
- Should foundations extend beyond 2.5m due to the influence of trees, an alternative foundation solution should be adopted, i.e. Piles.

Should piles be required, (i.e. due to the presence of trees) a deep ground investigation will be required (c. 20m) to assist in their design. It is recommended that any design requirement for piles be undertaken by an experienced and competent professional who will reflect their own experience and expertise in the design of piles.

7.3.3 Tree Planting

To achieve the minimum depth for foundations, tree planting must not be within an area smaller than 0.5 times the mature height of the tree species.

It is recommended that any future tree planting, that may form part of the proposed development, be undertaken in accordance with the guidelines laid out in the NHBC Standard Chapter 4.2 (ref. **R.20**).

7.3.4 Excavations, Temporary Works and Groundwater Ingress

All excavations within the Made Ground must be assumed to be subject to short term instability.

It is expected that excavations within the cohesive Weald Clay Formation soils will be stable in the short term. However, where excavations are required to remain stable in the medium or long-term, they should be suitably supported or side slopes battered back to a safe angle of repose.

Where personnel access is required to any excavation its stability should be assessed by a suitably qualified and experienced responsible person. For general guidance it is recommended that where access is required to excavations greater than 1.2m depth excavations should be fully supported or side slopes battered back to a safe angle of repose.

Further guidance may be obtained from CIRIA document 97, 'Trenching Practice (ref. **R.13**).

Post fieldwork standing water levels were recorded between ground level and 1.32mbgl. It is inferred than this derives primarily within the topsoil and/or Made Ground soils, collecting within the installed wells where, due to the cohesive nature of the Weald Clay Formation, is impermeable and therefore not able to disperse. The potential for perched groundwater at various levels within the Made Ground should therefore be considered during excavations.

Excavations may require positive drainage to maintain adequately dry working conditions and excavation stability. Where encountered, ingress of perched water should be adequately dealt with by pumping from sumps.

7.4 Floor Slabs

In accordance with NHBC Chapter 5, 'Ground floors and substructure', (ref. **R.21**), suspended ground floors should be adopted where the following ground conditions are encountered:

- Where Made Ground is proven to exceed 0.6m depth;
- Where soils with volume change potential exist at shallow depths beneath the site;
- Where the ground conditions warrant the extending of foundations beyond 1.2mbgl; either as a result of the influence of trees or to achieve a suitable bearing stratum.

In view of the presence of soils of medium volume change potential, it is recommended that ground floors be suspended for all sensitive structures.

Further guidance is provided within NHBC Chapter 5, 'Ground floors and substructure', (ref. **R.21**).

7.5 Pavement Design

Roadway pavements are proposed for the site and they are likely to be constructed on a subgrade of Weald Clay Formation, although in some areas formation level will likely bear onto the Made Ground.

Laboratory analysis on samples of the Weald Clay Formation, where recovered, indicated plasticity indices to range from 22% and 32% and therefore in reference of these values to Table 5.1 of the Highways Agency's, 'Design Manual for Roads and Bridges, Volume 7, 'Interim advice note Design Guidance for Road Pavement Foundations Draft HD 25' (ref. **R.19**), for a thin pavement under average construction conditions and a low water table (considering impermeable groundwater conditions), an estimated CBR ranging from 4% and 5%.

A number of in-situ CBR tests, using the TRL DCP method, were undertaken at the locations of Window Sampler boreholes. The results of in-situ testing are provided within Appendix 6 and summarised within Table 8 below:

Table 8 – Summary of TRL DCP Data (%)

Test Location	Soil Type	Layer			Recommended Design Value (CBR %)(assuming 0.6m formation level)
		1	2	3	
WS1	Topsoil over Weald Clay Formation	3	8	21	8
WS2	Topsoil over Weald Clay Formation	5	6	14	14
WS3	Made Ground over Weald Clay Formation	2	9	16	2
WS4	Topsoil over Weald Clay Formation	5	10	16	16
WS5	Topsoil over Weald Clay Formation	4	10	13	13
WS6	Topsoil over Weald Clay Formation	4	15	14	14
WS7	Topsoil over Weald Clay Formation	4	9	17	17
WS8	Topsoil over Made Ground	3	7	6	2
WS9	Topsoil over Weald Clay Formation	3	11	12	11
WS10	Topsoil over Weald Clay Formation	2	8	13	13
WS11	Made Ground over Weald Clay Formation	6	9	24	24
WS12	Topsoil over Weald Clay Formation	3	15	20	20
WS13	Topsoil over Weald Clay Formation	4	7	23	23
WS14	Topsoil over Weald Clay Formation	2	10	23	23
WS15	Topsoil Over Made Ground over Weald Clay Formation	3	5	11	11
WS16	Topsoil over Made Ground over Weald Clay Formation	5	23	11	11
WS17	Made Ground over Weald Clay Formation	2	10	21	10
WS18	Made Ground over Weald Clay Formation	27	9	15	15

Table 8 – Summary of TRL DCP Data (%)					
Test Location	Soil Type	Layer			Recommended Design Value (CBR %)(assuming 0.6m formation level)
		1	2	3	
WS19	Made Ground over Weald Clay Formation	30	12	25	25
WS20	Made Ground over Weald Clay Formation	32	13	22	22

The above indicates that, where Made Ground is present at formation level, a design CBR of 2% should be adopted. This is based on the inherent variability in strength and composition of the material rather than being based on specific soil test data and therefore represents a precautionary approach.

Where natural soils of the Weald Clay Formation are present, comparison with the estimated CBR from the guidance (ref. **R.19**) indicates much higher values, ranging from 8% to 25%. This may be due to a number of factors, including the soils granular content, moisture condition and chemical composition (most notably the calcareous content of the soil).

Given the above constraints, a number of laboratory CBR tests were undertaken on remoulded samples of the Weald Clay Formation. The samples were chosen to represent a range of depths (up to 2.0m) as it is unknow whether landscaping activities will affect final formation levels. Based upon the results of laboratory testing, values were recorded to range in the region of 4.2% and 6.9%, which is broadly consistent with the estimated values of the guidance.

Based upon a comprehensive assessment of the site and formation soils, it is recommended that a global CBR value ranging from 4% and 7% is adopted for roadway pavements founded within the natural Weald Clay Formation, reducing to 2% where formations comprise Made Ground. Alternatively, Made Ground may be replaced/reinforced or formation level lowered to a suitable stratum. Further in-situ testing may be warranted.

It is recommended that once the site has been graded to the appropriate pavement formation level, it is inspected and, if necessary, *in-situ* CBR testing be conducted on the subgrade to confirm the appropriate pavement design, (i.e. to determine the subbase and capping thickness). In addition to which, the formation should be proof-rolled and any soft/loose pockets encountered should be excavated and replaced with well compacted granular fill prior to pavement construction. Requirements for the design of road pavements are given in the Highways Agency, 'Design Manual for Roads and Bridges, Volume 7. Interim advice note 'Design Guidance for Road Pavement Foundations Draft HD 25', (ref. **R.19**).

7.6 Soakaway Infiltration

Infiltration testing was outside of the scope of this investigation. Given the cohesive nature of the ground conditions encountered and shallow standing water levels recorded post fieldwork, disposal of water by

shallow soakaways is not considered suitable for the site and an alternative method of surface water drainage is likely to be required.

It is recommended that liaison with the relevant regulatory bodies and third parties (i.e. the LPA, The Environment Agency, Southern Water) is undertaken at an early stage to ensure any surface water drainage proposals are approved.

7.7 Concrete Classification

The results of chemical tests indicate a sulphate concentration in the soils to range between <10 mg/l and 203 mg/l as a 2:1 Water/soil extract and pH values in the range of 5.7 to 8.0. Samples of groundwater indicate a pH value to range from 7.3 and 7.5 and Sulphate concentrations to range from 94 to 585mg/l

Given the lack of previous development on the site, it is recommended that 'greenfield conditions' be assumed for the purposes of assessing the aggressive chemical environment for concrete classification (ACEC class) although this should be revised is structures or significant development is proposed for the compound area of the site

Due to the variable groundwater levels through the Made Ground and Topsoil, the classifications relating to 'mobile groundwater' have been applied.

As per BRE Special Digest 1 (ref. **R.3**) A Design Sulphate, (DS), class of DS-2 is considered applicable, with an accompanying ACEC classification of AC-2. However, this ACEC class is assigned due to the high sulphate level encountered in a water sample collected from the compound area. Once the final location of the structures is known, additional sampling of water could allow the ACEC class to be reduced to DS-1, AC-1

8. SOIL AND WASTE MATERIALS CONSIDERATIONS

8.1 General

The likely amount of waste soil that may be produced from a construction project and / or the options for on-site re-use (or re-use at other sites) should be assessed, ideally, at the early stages of design of a scheme. This waste / re-use optioneering is often an iterative process as the design progresses but there are often multiple opportunities to prevent soils from being considered as "waste".

Under the European Waste Directive and current UK legislation, any waste materials, including soils, from the scheme will require waste category classification (provided below where possible). The waste hierarchy ("reduce-re-use-recycle") applies to all construction sites and re-use of soils is a primary way of reducing waste to landfills or treatment centres.

The re-use of soils is likely to be required to be designed, monitoring and verified within a CL:aire Development Industry Code of Practice (or "DoWCoP" as it is often referred-to) Materials Management Plan. If this is not undertaken it is likely that the soils will be classifiable as waste and they must be sentenced, treated and disposed-of as such. Wastes may require pre-treatment prior to disposal, the most basic of these options being the segregation of material types to enable effective treatment / recycling / re-use.

The development is expected to require moderate to large volumes of soil disturbance and movements. Some of the soils assessed within this phase of investigation may become excess or waste soil. Further and targeted soil investigation and assessment may be needed to obtain sufficient information to define the MMP and associated activities.

8.1.1 Soil Re-use Potential

If the Claire DoWCoP is applied to this scheme (via a Materials Management Plan) so that soils and site clearance / preparation / demolition materials are assessed within a mass-balance / volume assessment, then it may be possible to design the scheme as a zero-waste-soil (or low volume waste soil) scheme, by re-using as much as possible onsite. If this is required or desired as part of the scheme a Materials Management Plan must be drawn-up, approved by a QP under the DoWCoP and followed through the scheme to validation and sign-off.

8.1.2 Waste Soils

There may or may not be sufficient opportunity within the scheme to re-use all soils / materials disturbed as part of the construction process. In which case the soils may be considered as waste (and will require removal from site); waste classification is provided below in this event.

Similarly, waste or excess soils should be sentenced for offsite disposal *or re-use* appropriately, in accordance with current guidance, legislation and with the assistance of reputable, suitably licenced and competent contractors. Classification of the soils is provided below, for assessment by the receivers.

Landfill tax can be avoided if / where the soils are sent to non-landfill destinations and suitable for processing, re-use, etc.

The following applies to most construction schemes:

- Segregating Made Ground soils from Natural soils is likely to assist with volume reduction and adherence to the guidance provided above;
- Of similar importance will be the segregation of contaminated (or potentially contaminated) soil from "clean" soils or natural soils that have the potential for re-use.

It may be possible to claim Remediation tax relief where any remedial works undertaken onsite are deemed applicable for this. Permits may be required to undertake on-site remediation.

8.1.3 Soil Waste Classification

Waste is classified as being either Hazardous or Non-Hazardous; in addition, landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste, in accordance with the Waste Directive. Similarly, the facilities providing soil / materials treatment and re-use will require the material to be classified as either non-hazardous or hazardous. Waste classification is a staged process and this investigation (along with any other site data) represents the initial phases of that process. Landfilling excess soil/materials normally incurs significantly greater costs than the various options for re-use, treatment-and-re-use or others.

Once the extent and location of the excess or waste (soil / materials) that is to be removed has been defined, further sampling and testing may be necessary.

The results from this ground investigation should be used to help define the sampling plan for such further testing and, moreover, the optioneering and design for soil re-use, aggregate manufacture etc. within the scheme and for export and / or re-use.

It should be noted that "WAC" analysis (leaching test results) must not be used for waste classification purposes, other than for some landfill destinations. However, undertaking WAC testing at the time of analysis does enable all waste soil removal and disposal options to be considered.

The below assessments of the classification of the excavated soils are provided for guidance only and should be confirmed by the receiving facility (landfill/non-landfill) once the soils to be discarded have been identified and, where necessary, re-analysed.

Analysis has been undertaken to assist this assessment, utilising the available soil analysis data from this phase and has been assessed, in accordance with WM3 (ref.**R.24**) and is provided as Appendix 11 as a HazWasteOnline report.

- The assessed soils (natural / Made Ground) are, largely, reported to be non-hazardous (for non-landfill destinations);
- Natural soil arisings are also likely to be (chemically) suitable for re-use at other sites or onsite, in a POS or residential land- use scenario; and
- EWC code 17-05-04 will apply to the non-hazardous soils.

The above is with the exception of the soils at or in the vicinity of:

- WS18; shallow soils; to ~ 0.4mbgl, based upon the elevated hydrocarbon concentrations and associated VOC compounds.
- Soils of SP01; due to asbestos content;
- Soils in vicinity of WS8; due to asbestos content; and
- Other potential areas of uncontrolled fill.

Further assessment and investigation of these may be warranted to delineate these factors.

If soils are sent for a landfill destination, it is not possible to provide a classification currently; WAC analyses will be required.

9. CONCLUSIONS AND RECOMMENDATIONS

This investigation is a preliminary scheme to assess the general and shallow ground conditions across the site within a budget. As stated below, the various potential sources have been successfully targeted but as a preliminary investigation scheme, the requirement for further and targeted investigation, for wither geotechnical or soil quality purposes, cannot be ruled out.

9.1 Environmental Conclusions

Based upon the findings of the intrusive investigation, the chemical laboratory testing and ground gas results, the vast majority of the site is considered suitable for the proposed end use of educational development without any requirement for remediation. There are a few exceptions to this as detailed in sections 9.1.1 and 9.1.2.

The investigation undertaken was constrained by poor ground conditions at the time of the site works and by a requirement to limit damage to the active golf course. However, all areas highlighted in the Phase 1 report (ref. **R.1**) were able to be targeted and a good spread of exploratory holes was able to be formed across the site.

Based upon the results of the ground gas monitoring, the site has been placed in Characteristic Situation CS1 and no special gas protection measures are required.

Concentrations of metals were recorded at concentrations below the thresholds considered to have phytotoxic effects when allowances made for the pH values.

A comparison of the laboratory results has been made against the Contaminated Land Assessment Guidance, published by Water UK (ref. **R.12**). Typically, across the site, no specific protection is envisaged. However, in the vicinity of WS18, the results reported from the laboratory exceed those for standard PE pipe. If pipes are to be lain in the vicinity of WS18 then remediation or pipe protection may be required.

A discovery strategy should be implemented where, should any poor quality or potentially contamination soils are encountered during any ground works cease and advice sought. See Appendix 12 for more details.

9.1.1 Compound area

The extent of the compound area is marked on the Exploratory Hole Location Plan, Drawing ref 6071,SI/003/Rev1 included in Appendix 3.

9.1.1.1 Stockpile

The stockpile containing rubble and soils has been found to contain Asbestos, is not considered suitable for reuse and should be removed from site by an appropriate waste handler.

9.1.1.2 Asbestos in Structures

Some structures in the compound area appeared to contain materials that were asbestos containing and in a poor state of repair with fragments evident on the ground surface. A sample collected from a fragment of this material taken from the ground surface was found to contain asbestos in the form of chrysotile. A Refurbishment and Demolition (asbestos survey) of the buildings, should be undertaken in accordance with MDHS guidance (ref. **R.9**) and in advance of any disturbance works. The findings of this report should then be followed.

It does appear that the asbestos from these structures have impacted the ground surface in the vicinity as discussed in section 9.1.1.3 below.

9.1.1.3 Asbestos in Soils

The asbestos in the soils at the compound area may need to be remediated depending upon the proposed land use at this location. This will differ if there is a pathway break or not. If there is proposed soft standing at this location then additional investigation to determine extent would be required. If there is a pathway break in this area (i.e. under building or carparking) then there would be no significant link to end users and therefore no risk. The exception would be to construction workers who would be at risk during groundworks.

9.1.1.4 Hydrocarbon contamination

The hydrocarbon contamination encountered in WS18 (adjacent to the oil tank) may require remediation in line with the proposed land use of this area and in consideration of any pathways to receptors.

The groundwater is impacted by hydrocarbons at WS18 only based upon the available data. Gross contamination (in the form of hydrocarbon sheens of films) was not encountered within a water sample from WS18 and it appears that the contamination has not impacted significantly horizontally or vertically from the point source. However, as outlined in Section 6.4, the presence of a plume of hydrocarbons located between the sampling points of this phase cannot be fully discounted. The hydrogeological setting is of low sensitivity and a risk to wider controlled waters from this hydrocarbon leak / spill from the onsite (diesel, presumed) tank cannot be fully discounted.

Additional investigation is recommended in the area and an appropriate scheme of risk mitigation or remediation (with validation) should be designed and undertaken.
Any waste water contaminated by hydrocarbons from this area (WS18) will require removal by a licensed waste handler.

9.1.2 Made Ground across site (excluding compound area)

Limited Made Ground was encountered across the site and is typically inferred to be reworked site-won material used to form the golf course.

Testing of the Made Ground soils did not exceed the most stringent screening criteria (Residential end use with plant uptake). However, asbestos was encountered in WS8 in the form of Chrysotile at <0.001% suggesting that soil has been imported from unknown source and may be indicative of other areas of poor- quality soils.

While this has been inferred in WS8 where the ground appears to have been raised to form a "Teeing off" area, it is possible that there are other areas that uncontrolled fill has been placed from unknown source for a similar purpose.

The effect of this could be mitigated against by a mapping exercise of any areas that appear to have been filled in a similar way for further investigation (or inspection / sampling by a Geoenvironmental consultant during works) to inform any localised remediation and to prevent contamination of other areas from localised poor-quality soils.

A discovery strategy should be implemented where, should any poor quality or potentially contamination soils are encountered during any ground works cease and advice sought. See Appendix 12 for more details.

9.1.3 Further works

The following works are recommended following this Phase 2 investigation: -

- Removal of stockpile of material from site;
- A Refurbishment and Demolition (asbestos survey) of the buildings, should be undertaken in accordance with MDHS guidance (ref. **R.9**) and in advance of any disturbance works. The findings of this report should then be followed;
- Mapping exercise of potentially infilled / raised areas of the site for inspection / investigation;
- Post demolition investigation and removal of significantly impacted soils from the area adjacent to the oil tank and larger compound area;
- Associated investigation of the hydrocarbon impact / contamination by hydrocarbons to the local shallow groundwater; for example, assessing that a plume does not exist in the shallow groundwater in between the extant monitoring / sampling points of this preliminary investigation; further risk assessment (for controlled waters) and remedial;
- Appropriate consideration to remediate / further investigate soils in the vicinity of the compound area and WS8 in line with the proposed end use and develop and remedial or mitigating actions, such as creating a pathway break;
- Implementation of a discovery strategy (See Appendix 12); and
- Provision of appropriate welfare facilities, PPE and good personal hygiene for all construction workers involved in ground or further investigation works.

It is recommended that this report be submitted to the Local Authority as part of the planning submission for the site.

9.2 Geotechnical Conclusions

For preliminary discussion, it has been assumed that each structure will comprise two storeys and will have vertical loadings in the order of 80kN/m^2.

In summary, ground conditions were proven to comprise topsoil overlying cohesive Weald Clay Formation, extending to a maximum proven depth of 3.45m BGL. Made Ground was encountered within the holes in and around the Compound area (WS15 to WS20) and at WS3 and WS8 to a maximum depth of 0.9mbgl.

Signs of desiccated soils have been determined as a result of laboratory testing and it is recommended that, when the locations of the proposed structure(s) are known, the potential influence from trees on soils is revisited. However, a minimum foundation depth of 0.9m is considered appropriate based upon the volume change potential of the soil.

The site and ground conditions are considered suitable for the adoption of a conventional spread foundation bearing within the underlying Weald Clay Formation where a global Nett Allowable Bearing Pressure (NABP) of 140kN/m^2 would be considered appropriate at minimum foundation depths, although consideration should be given to decreasing this value to 80kN/m^2 as a precautionary approach given the presence of localised softer areas of bedrock soil. However, by 2.0m bgl foundations may be designed to a value of 180 kN/m^2.

In view of the presence of soils of medium volume change potential, it is recommended that ground floors be suspended for all sensitive structures.

Based upon a comprehensive assessment of the site and formation soils, it is recommended that a global CBR value ranging from 4% and 7% is adopted for roadway pavements founded within the natural Weald Clay Formation, reducing to 2% where formations comprise Made Ground. Alternatively, Made Ground may be replaced/reinforced or formation level lowered to a suitable stratum. Further in-situ testing may be warranted.

Given the cohesive nature of the ground conditions encountered and shallow standing water levels recorded post fieldwork, disposal of water by shallow soakaways is not considered suitable for the site and an alternative method of surface water drainage is likely to be required.

As per BRE Special Digest 1 (ref. **R.3**) A Design Sulphate, (DS), class of DS-2 is considered applicable, with an accompanying ACEC classification of AC-2. However, this ACEC class is assigned due to the high sulphate level encountered in a water sample collected from the compound area. Once the final location of the structures is known, additional sampling of water could allow the ACEC class to be reduced to DS-1, AC-1.

Additional site investigation should be designed in accordance with BS 10175:2011+A2:2017, (ref. **R.7**) and BS 5930:2015+A1:2020, (ref. **R.8**).

APPENDICES

APPENDIX 1 – REPORT LIMITATIONS AND CONDITIONS

General Limitations and Exceptions

This report was prepared solely for our Client for the stated purposes only and is not intended to be relied on by any other party or for any other use. No extended duty of care to any third party is implied or offered.

Geosphere Environmental Ltd does not purport to provide specialist legal advice.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon until considered in the context of the whole report.

Interpretations and recommendations contained within the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based upon current legislation in force at that time.

Environmental and Geotechnical Reporting (including Phase 1, Phase 2 and Site Walkovers) Limitations and Exceptions

The comments given in this report and the options expressed herein, are based Upon the readily available information collated for the report and an assessment based upon the current guidance which for Phase 1 / Phase 2 report is primarily the Contaminated Land Research (CLR) Report and notable, CLR report 3, 'Documentary research on industrial sites'.

The report has been prepared in relation to the proposed end-use and should another end-use be intended, reassessment may be required.

No warranty is given as to the possibility of future changes in the condition of the site.

The opinions expressed cannot be absolute, due to the limitation of time and resources imposed by the agreed brief.

With regards to any aspect of land contamination referred to, this is limited to those aspects specifically stated and necessarily qualified. No liability shall be accepted for other aspects which may be the result of gradual or sudden pollution incidents, past or present land uses and the potential for associated contamination migration.

Any Desk Study Report / data has been produced largely from the information purchased from The Landmark Information Group. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. The information purchased has been assumed to be correct and free from errors. However, there is the possibility that some data may be missing from the report including (but not limited to) unrecorded land uses both onsite and offsite or unrecorded pollution events. No attempt has been made to verify the information.

The accuracy of any map extracts cannot be guaranteed. It is possible that different conditions existed onsite, between and subsequent to the various map surveys provided.

Any site walkover undertaken is a snapshot of the site recording the visually evident conditions at the time of the walkover in the areas readily accessible. It is possible that after the walkover, the site was altered (for example by fly-tipping or groundworks) or before the walkover, the site conditions changed removing evidence of potentially contaminative features (such as oil tanks removed).

Any intrusive works only cover a tiny proportion of the site. Where exploratory holes are positioned by Geosphere Environmental Limited, they are located to give as good a coverage of the site as possible and to target features / proposed land use where applicable, whilst allowing for areas that cannot be accessed, Client requested locations and other site / time / budget constraints. While assumptions may have been drawn between exploratory holes on the ground conditions and / or extent or otherwise of any contamination, this is for guidance only and no liability can be accepted on its accuracy.

Foundation design is outside of the remit of Geosphere Environmental unless specifically stated and it is recommended that the services of foundation design specialists are sought as required. Any foundation appraisal contained within the report is limited to foundation optioneering.

Any conceptual site model is based upon the information available at the time of conducting this assessment and is an interpretive assessment of the conditions at the site. Redevelopment and / or further investigation of the site may reveal additional information and therefore alter the conceptual site model and the report conclusions.

Any infiltration testing results are considered to be representative of the ground conditions at the locations tested and at the time of testing. As well as lateral variation in ground conditions, seasonal changes in ground water level may affect the results.

Any post-fieldwork monitoring (including ground gas / groundwater) is a snapshot of the conditions at the time of monitoring.

APPENDIX 2 – REFERENCES

R.1. Geosphere Environmental, 'Forge Wood High School, Horsham, RH11 0LN, Phase 1 – Desk Study and Preliminary Risk Assessment'. 6071,SI,DESK,HL,TP,10-02-22,V2. 10 February 2022.

R.2. Land Contamination Risk Management (LCRM), 2021.

R.3. BRE Special Digest 1, 'Concrete in Aggressive Ground, 2005.

R.4. BRE Digest 240, 'Low-rise Buildings on Shrinkable Clay Soils: Part 1'. September 1993.

R.5. BRE Digest 412 'Desiccation on Clay Soils', 1996.

R.6. Environment Act 1995, Section 57, DoE 1995.

R.7. British Standards Institute: BS 10175:2011+A2:2017 'Investigation of Potentially Contaminated Sites', Code of Practice2017.

R.8. British Standards Institute: BS 5930:2015+A1:2020 'Code of Practice for Ground Investigations', 2020.

R.9. Asbestos: The Survey Guide, HSG 264, 2nd Edition, 2012.

R.10. CL:AIRE 'Guidance on Comparing Soil Contamination Data with a Critical Concentration', The Chartered Institute of Environmental Health, May 2008.

R.11. EIC/AGS/CL:AIRE. Soil Generic Assessment Criteria for Human Health Risk Assessment. Contaminated Land: Applications in Real Environments, London, UK, January 2010.

R.12. Contaminated Land Assessment Guidance Protocols, Published by agreement between Water UK and the Home Builders Federation, Published by Water UK, January 2014.

R.13. UKWIR 'Guidance for the Selection of Water Supply Pipes to be Used in Brownfield Sites, August 2010.

R.14. CIRIA Report 97 (Second Edition) 'Trenching Practice', 2001.

R.15. CIRIA Reports 149 to 152, 'Methane and Associated Hazards to Construction', 1995.

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R.17. Interim Advice Note 73/06, Revision 1, Design Guidance for Road Pavement Foundations, 2009.

R.18. Road Foundation Design for Major UK Highways, Version 1.0, Transport Research Laboratories, 2006.

R.19. Highways Agency, 'Design Manual for Roads and Bridges, Volume 7. Pavement Design and Maintenance: Foundations HD 25/94.

R.20. National House-Building Council, Standards, Chapter 4.2, 2022 'Building Near Trees'.

R.21. National House-Building Council, Standards, Chapter 5, 2022 'Ground Floors and Substructures'.

R.22. SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Final Project Report (Revision 2), Contaminated Land: Applications in Real Environments (CL:AIRE) September 2014. Appendix H – Lead.

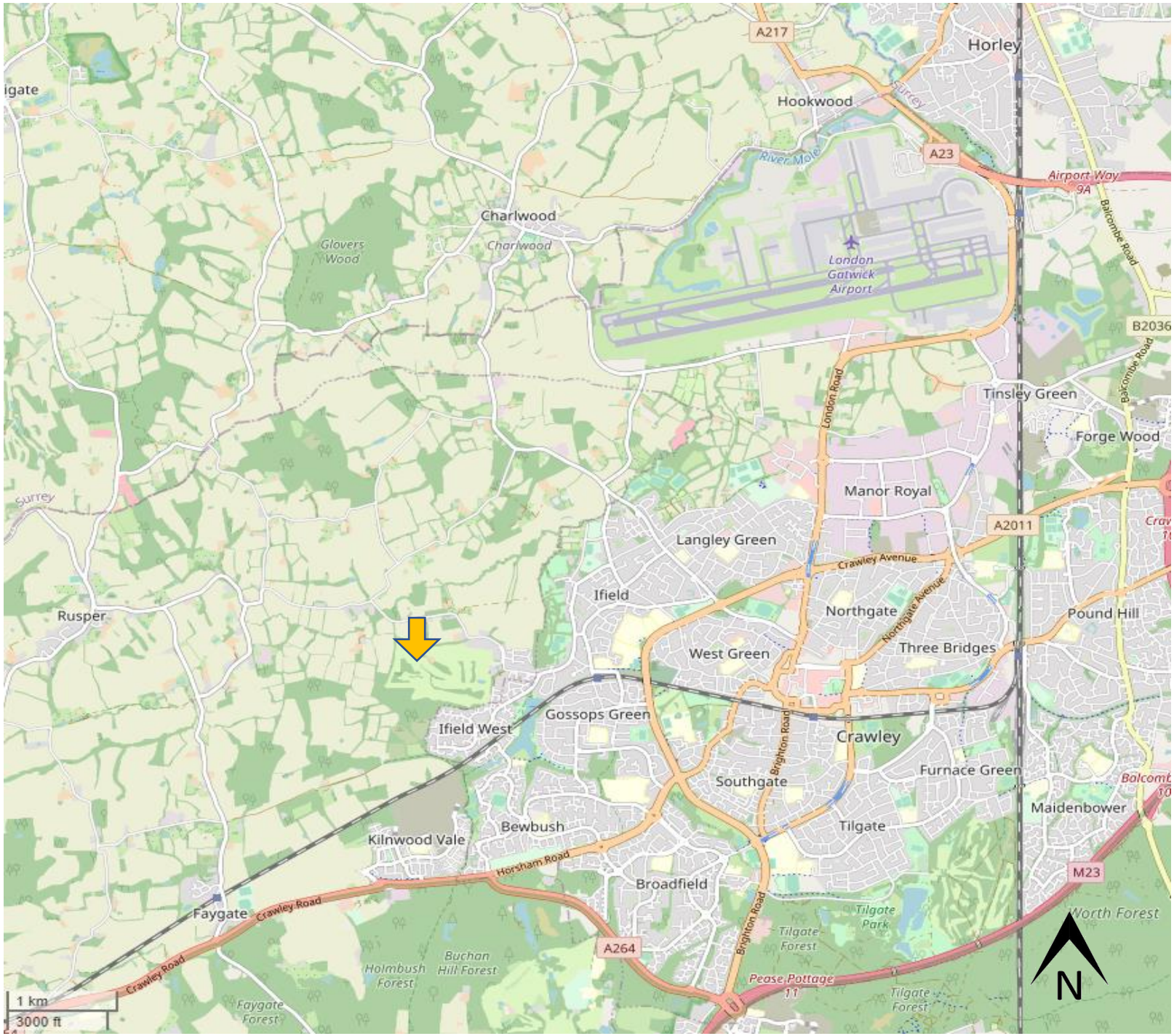
R.23. Land Quality Press, The LQM/CIEH S4ULs for Human Health Risk Assessment, 2015.

R.24. The Environment Agency, Technical Guidance WM3, 'Waste Classification: Guidance on the Classification and Assessment of Waste' 1st Edition, May 2015 (V1.1 – May 2018).

APPENDIX 3 – DRAWINGS

Site Location Plan – Drawing ref. 6071,SI/001/Rev1

Exploratory Hole Location Plan – Drawing ref. 6071,SI/003/Rev1



GEOSPHERE ENVIRONMENTAL

LEGEND

Site Location

SOURCE

© OpenStreetMap contributors

PROJECT

Forge Wood high School, Horsham, RH11 0LN

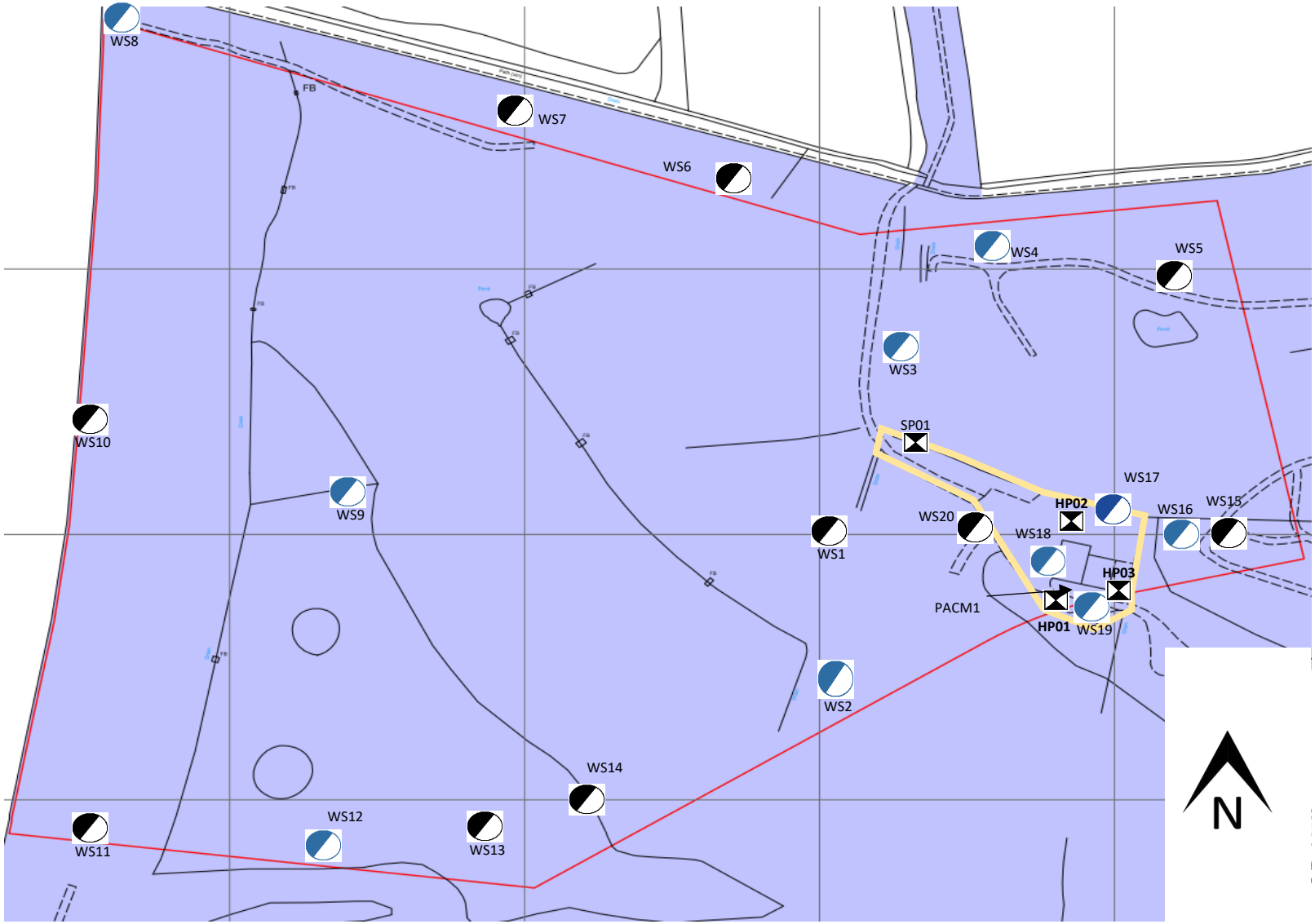
TITLE

Site Location Plan

DRAWING NUMBER

6071,SI/001/Rev1

SCALE	DATE
As marked	09/02/2022
DRAWN BY	**CHECKED BY**
TP	GF



GEOSPHERE ENVIRONMENTAL

LEGEND

- Site boundary
- Window Sample
- Window Sample (with monitoring installation)
- Hand Pit / Sampling location
- Compound Area

SOURCE

Information provided by client

PROJECT

Forge Wood high School, Horsham, RH11 0LN

TITLE

Exploratory Hole Plan

DRAWING NUMBER

6071,SI/003/Rev1

SCALE	DATE
NTS	04/04/2022
DRAWN BY	**CHECKED BY**
GF	JD

APPENDIX 4 – COMPARISON OF CONSEQUENCES AGAINST PROBABILITY

Probability (Likelihood of linkage from)	Consequence (Severity of Linkage)			
	Severe (S)	Moderate (Mo)	Mild (Mi)	Negligible (N)
Highly Likely (HL)	Very High Risk (VH)	High Risk (HR)	Moderate Risk (MR)	Moderate/Low Risk (MR-LR)
Likely (L)	High Risk (HR)	Moderate Risk (MR)	Moderate/Low Risk (MR-LR)	Low Risk (LR)
Unlikely (U)	Moderate Risk (MR)	Moderate/Low Risk (MR-LR)	Low Risk (LR)	Negligible Risk (NR)
Negligible (N)	Moderate/Low Risk (MR-LR)	Low Risk (LR)	Negligible Risk (NR)	Negligible Risk (NR)

This table is to provide reference information in conjunction with the GEL Conceptual Model attached within the Hazard Risk Assessment section of this report, Table 6 – Updated Conceptual Site Model.

Very High Risk (VH)

- There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is happening currently.
- Urgent investigation and remediation are likely to be required and advised.

High Risk (HR)

- Harm is likely to arise to a designated receptor from an identified hazard.
- Urgent investigation is required and remedial works are likely necessary in both the short to long term.

Moderate Risk (MR)

- It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
- Investigation is required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.

Low Risk (LR)

- It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild. Limited investigation recommended.

Negligible Risk (NR)

- There is a minimal possibility that harm could arise to a receptor. In the event of such harm being realised it is high likely to not be severe. Investigation not deemed necessary.

APPENDIX 5 – EXPLORATORY HOLE LOGS

Windowless Sample Hole Logs
(WS1 to WS20)

Hand Pit Logs
(SP1, HP1-HP3)

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS1

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.4 m

Grid Reference: TQ(23507,36786)
DATES 14/02/2022 - 14/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Dark brown very clayey fine to coarse ORGANIC SAND with frequent very fine active roots. (TOPSOIL)			0.00 0.10		0											
				Firm light brown and light grey mottled black slightly sandy CLAY with occasional very fine active roots. Medium gravel sized silt pockets.					0.20- 0.50	ES	1									
				0.60 Becomes stiff.					1.00	D	1	2 4 5 5 5 7	22							Shear vane test = 255kN/m²
				1.80 Becomes very stiff and slightly gravelly. Gravel is subangular fine mudstone.				74	2.00	D	2	6 9 15 22 22	74*							
				END OF EXPLORATORY HOLE. REFUSAL, TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.38		3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS1.
SHEET 1 OF 1
PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI, IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS2

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.3 m

Grid Reference: TQ(23511,36722)
DATES 14/02/2022 - 14/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Soft dark brown sandy ORGANIC CLAY. Sand is fine. With very fine to coarse active roots. (TOPSOIL)			0.00		0											
				Stiff light grey and orangish brown CLAY with occasional very fine active roots.			0.20		0.20-1.60	B	1									
									0.80	D	1									Shear vane test = 212kN/m²
									1			2 4 4 4 4 7	19							
									1.40	D	2									
				Very stiff light grey and orangish brown mottled black thinly laminated CLAY.			1.60													
				Very stiff light grey and orangish brown friable CLAY.			1.90	65	1.90	D	3	8 12 22 23	65*							
				END OF EXPLORATORY HOLE. REFUSAL, TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.30		2											
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes
PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS2.
SHEET 1 OF 1
PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	PROJECT: Forge Wood High School	GROUND LEVEL m	HOLE No. WS3
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 2.3 m	Grid Reference: TQ(23527,36874) DATES 14/02/2022 - 14/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Soft dark brown sandy ORGANIC CLAY. Sand is fine. With frequent fine active roots. (TOPSOIL)			0.00													
				MADE GROUND (Firm light brown to orangish brown sandy, slightly gravelly CLAY. Sand is fine. Gravel is angular fine brick. Occasional fine active roots).			0.20		0.20-0.50	ES	1									
									0.60	D	1									
				Stiff slightly sandy, slightly gravelly light grey to orangish brown, black mottled CLAY.			0.90		1			2 2 4 4 4 5	17							Shear vane test = 210kN/m²
				1.40 Becomes very stiff and gravelly.					1.20	D	2									
				1.90 Below 1.9 no black mottling.				71	2			8 12 16 30 5	71*							Shear vane test = 340+kN/m²
				END OF EXPLORATORY HOLE. REFUSAL, TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.28		3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS3. SHEET 1 OF 1 PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	PROJECT: Forge Wood High School	GROUND LEVEL m	HOLE No. WS4
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 2.5 m	Grid Reference: TQ(23567,36905) DATES 14/02/2022 - 14/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Soft dark brown sandy ORGANIC CLAY, with frequent fine active roots. (TOPSOIL)			0.00		0.00-0.20	ES	1									
				Firm light grey to orangish brown sandy, slightly gravelly CLAY. Gravel is fine. With fine occasional active roots and fine silty pockets.			0.20													
				Stiff orangish brown to light grey slightly sandy, slightly gravelly CLAY. Sand is fine and gravel is fine to coarse angular.			0.60		0.50	D	1									
									1.00	D	2	4 4 5 6 7 7	25							Shear vane test = 262kN/m²
				1.50 Becomes very stiff, gravelly and mottled. 1.60 - 2.40 increase in sand content.				54	1.50	D	3									
									2			4 6 13 13 14 14	54*							
				END OF EXPLORATORY HOLE. REFUSAL, TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.45		3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS4 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	PROJECT: Forge Wood High School	GROUND LEVEL m	HOLE No. WS5
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 2.5 m	Grid Reference: TQ(23620,36896) DATES 14/02/2022 - 14/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Very soft greyish brown sandy ORGANIC CLAY. Sand is fine. Frequent very fine to medium active roots. (TOPSOIL).			0.00		0												
				Firm greyish brown becoming orangish brown mottled grey slightly sandy CLAY. Sand is fine. Trace very fine active roots.			0.15														
									0.60	D	1									
				Very stiff light grey and orangish brown slightly sandy, slightly gravelly CLAY. Sand is fine to coarse, gravel is angular, fine to medium, mudstone.			0.70													
				0.95 - 1.00 Strata becomes soft.					1			5 5 5 5 6 7	23							
									1.50	D	2									
				Very stiff greenish grey and orangish grey CLAY.			1.90	71	2											
									2.00- 2.45	D	3	5 15 17 18 18 18	71*							
				END OF EXPLORATORY HOLE. REFUSAL, TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.45		3											
									4											

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS5 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS6

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.8 m

Grid Reference: TQ(23465,36946)
DATES 15/02/2022 - 15/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Firm dark brown sandy ORGANIC CLAY. Sand is fine to medium. Frequent fine to medium active roots. (TOPSOIL)			0.00		0.00	ES	1									
				MADE GROUND (Firm light grey to orangish brown slightly gravelly sandy, CLAY. Gravel is angular fine brick and clinker).			0.20		0.40	D	1									
				Firm dark brownish orange to grey slightly sandy, gravely CLAY. Sand is fine to coarse. Gravel is sub-rounded to angular, fine to medium.			0.60		0.60-1.20	B	1									
												2 4 4 4 4 5	17							
				Stiff orangish brown to grey, slightly sandy, silty CLAY. Sand is fine.			1.20													
				1.80 Becomes very stiff at 1.8 m.					1.50	D	2									
									2.00	D	3	3 5 7 8 10 12	37							
				Very stiff, hard friable greenish brown, black and orangish brown, black speckled SILT.			2.40	77				10 15 21 31	77*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.80													

*WATER ▼ Standing water level PIEZOMETER ▽ Water strikes

Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS6 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS7

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.5 m

Grid Reference: TQ(23406,36962)
DATES 15/02/2022 - 15/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Firm dark brown sandy ORGANIC CLAY. Sand is fine. Frequent, fine to coarse active roots. (TOPSOIL)			0.00		0											
				Firm light grey to orangish slightly gravelly, slightly sandy CLAY. Gravel is sub angular fine black siltstone. Sand is fine. Occasional fine to very coarse active roots.			0.25		0.25-1.40	B	1									
				0.60 Gravel content increases.					1			2 3 4 5 6 7	22							Seepage at 1.0 m. Shear vane test = 150kN/m²
				1.20 Becomes stiff.																
				Very stiff dark brown to greenish, friable thinly laminated SILT.			1.40	57	1.80	D	1									
									2			7 9 12 15 15 15	57*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE OPEN UPON COMPLETION.			2.45		3											
									4											

*WATER ▼ Standing water level ▽ Water strikes
PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS7 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071,SI, IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS8

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.5 m

Grid Reference: TQ(23268,36998)

DATES 15/02/2022 - 15/02/2022

SHEET 1 OF 1

PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Soft dark brown slightly sandy ORGANIC CLAY. Frequent very fine active roots. (TOPSOIL).			0.00 0.10		0.10-0.50	ES	1									
				MADE GROUND (Firm orangish brown and greyish brown with soft pockets slightly sandy CLAY. Occasional very fine roots). 0.20 - 0.40 Angular coarse breeze block gravel.					0.50-0.90	ES	2									
				0.70 - 0.80 Black angular fine to coarse gravel of breeze block.																
				Stiff light grey to orangish brown CLAY.			0.90		1.00-2.00	B D	1 1	2 2 3 4 4 5	16							Shear vane test = 212kN/m²
				2.00 Becomes very stiff.				53				7 8 10 14 14 15	53*							Shear vane test = 294kN/m²
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.45													

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS8 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071,SI, IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	**PROJECT: Forge Wood High School**	**GROUND LEVEL m**	**HOLE No. WS9**
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 3.3 m	Grid Reference: TQ(23365,36808) DATES 15/02/2022 - 15/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Soft, dark brown slightly sandy ORGANIC CLAY. Sand is fine. Frequent very fine active roots. (TOPSOIL)			0.00 0.10		0											
				Firm light brown and orangish brown, slightly gravelly, slightly sandy CLAY. Sand is fine, Gravel is sun angular fine sandstone and siltstone.					0.50 0.60	ES D	1 1									
				Stiff light brown slightly sandy, slightly gravelly CLAY. Sand is fine, gravel is sub angular fine siltstone.			0.70													
				Stiff grey and orangish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine siltstone.			1.10		1			3 3 3 4 5 8	20							Shear vane test = 240kN/m²
				Stiff greenish brown slightly sandy, slightly gravelly CLAY.			1.50		1.40	D	2									
				Stiff light brown CLAY.			1.65													
				Very stiff reddish brown slightly sandy slightly gravelly thinly laminated friable CLAY. Sand is fine. Gravel is subangular fine siltstone.			2.50		2			4 6 8 8 8 10	34							Shear vane test = 335kN/m²
								64	3			9 20 25 10	64*							Shear vane test = 230kN/m²
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			3.30		4											

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS9 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS10

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.3 m

Grid Reference: TQ(23253,36810)

DATES 15/02/2022 - 15/02/2022

SHEET 1 OF 1

PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Firm dark brown slightly sandy ORGANIC CLAY. Sand is fine. Frequent very fine active roots. (TOPSOIL)			0.00		0.00-0.02	ES	1									
				Stiff light grey and orangish brown CLAY. Occasional very fine to medium active roots.			0.25													
				Firm light grey and orangish brown CLAY.			0.50		0.40	D	1									
				1.00 Becomes stiff.					1.00	D	2	3 3 4 6 8 9	27							
				Very stiff light brown and black, thinly laminated friable CLAY.			1.45	79	1.80	D	3									
												12 19 22 26	79*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.30													

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS10 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	**PROJECT: Forge Wood High School**	**GROUND LEVEL m**	**HOLE No. WS11**
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 3.3 m	Grid Reference: TQ(23229,36663) DATES 16/02/2022 - 16/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				MADE GROUND (Black slightly sandy angular to sub rounded fine to medium flint, concrete and Tarmac GRAVEL).			0.00		0												
				0.10 Plastic membrane.			0.10		0.05-0.10	ES B	1 1									
				Firm light greyish brown to orange slightly gravelly, sandy CLAY. Sand is fine. Gravel is angular fine siltstone.					0.10-1.40											Seepage at 0.5m.
									1			2 2 3 3 3 5	14							
				Firm light grey to orangish brown mottled CLAY.			1.40		1.50	D	1									
									2			3 3 4 5 5 5	19							Shear vane test = 342kN/m²
				Stiff light grey to orange thinly laminated friable silty CLAY, with angular fine claystone gravel in places.			2.60		2.80	D	2									
								86	3			11 13 17 22 23	86*							Shear vane test = 231kN/m²
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE OPEN UPON COMPLETION.			3.28		4											

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS11 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	**PROJECT: Forge Wood High School**	**GROUND LEVEL m**	**HOLE No. WS12**
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 3.5 m	Grid Reference: TQ(23340,36657) DATES 16/02/2022 - 16/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Soft dark brown sandy ORGANIC CLAY. Sand is fine to medium with frequent fine to medium active roots. (TOPSOIL)			0.00 0.10		0.00- 0.10 0.10	ES B	1 1									
				Stiff light brown and light grey veined orangish brown mottled, slightly gravelly CLAY. Gravel is angular fine, mudstone.					0.50	D	1									
									1.00- 1.45	UT	1									
									1.50	D	2									
				1.65 - 1.70 Becomes slightly sandy, slightly gravelly. Sand is fine to coarse, and gravel is angular fine.			1.70													
				Soft light grey to orangish brown CLAY.								3 3 6 5 5 6	22							Seepage at 2.0m.
				Very stiff greyish brown CLAY.			2.55		2.55- 2.85	D	3									
				Stiff light greenish brown thinly laminated CLAY.			2.85	57				4 5 7 12 17 21	57*							
				END OF EXPLORATORY HOLE. REFUSAL, TOO STIFF TO CONTINUE. HOLE OPEN UPON COMPLETION.			3.45													

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS12 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS13

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.5 m

Grid Reference: TQ(23409,36673)

DATES 16/02/2022 - 16/02/2022

SHEET 1 OF 1

PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Firm dark brown slightly sandy ORGANIC CLAY. Sand is fine. Frequent very fine to coarse active roots. (TOPSOIL).			0.00		0.00-0.25	ES	1									
				Firm orangish brown and light grey CLAY.			0.25		0.25-1.00	B	1									
				1.00 Below 1.0 very friable and very stiff.					1.10	D	1	4 7 7 7 8 11	33							
				1.50 Below 1.5 black staining on surfaces.				63	1.80	D	2									
												6 12 14 15 16 18	63*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.45													

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS13 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	PROJECT: Forge Wood High School	GROUND LEVEL m	HOLE No. WS14
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	Grid Reference: TQ(23450,36685) DATES 16/02/2022 - 16/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Firm becoming stiff dark brown sandy ORGANIC CLAY. Frequent very fine to medium active roots. (TOPSOIL).			0.00		0											
				Stiff light grey and orange brown mottled red brown slightly sandy slightly gravelly CLAY. Sand is fine, gravel is angular coarse claystone with occasional fine active roots.			0.15		0.50	D	1									
				0.85 - 0.90 With angular fine sandstone gravel. Very stiff orangish brown and light grey slightly gravelly laminated CLAY. Gravel is angular fine claystone.			0.90		1											Shear vane test = 340+kN/m²
				1.50 Becoming gravelly below 1.5.				68	1.20	D	2	8 12 15 16 17 20	68*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			1.95		2											
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS14 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS15

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 0.6 m

Grid Reference: TQ(23655,36799)

DATES 16/02/2022 - 16/02/2022

SHEET 1 OF 1

PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Dark brown slightly clayey fine and medium ORGANIC SAND. Sand is fine to coarse, with very frequent very fine to medium active roots. (TOPSOIL).			0.00		0											
							0.05		0.05-0.15	ES	1									
				MADE GROUND (Orangish brown slightly, sandy GRAVEL. Sand is fine to coarse. Gravel is sub angular to sub rounded, fine to medium flint).			0.15													
				MADE GROUND (Pinkish grey sandy GRAVEL. Gravel is fine to medium (Type 1)).			0.25													
				Firm orange brown, grey veined CLAY.			0.55													REFUSED ON 30 mm TREE ROOT
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.					1											
									2											
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS15 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI, IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP	**PROJECT: Forge Wood High School**	**GROUND LEVEL m**	**HOLE No. WS16**
LOGGED BY: FW FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: GF DATE: 28/03/2022	EXCAVATION METHOD: Windowless sampler Uncased to 3.2 m	Grid Reference: TQ(23649,36801) DATES 16/02/2022 - 16/02/2022	SHEET 1 OF 1 PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				Dark brown slightly clayey fine and medium ORGANIC SAND. Frequent fine to coarse active roots. (TOPSOIL)			0.00		0											
				MADE GROUND (Dark reddish pink to grey slightly clayey and gravelly SAND. Gravel is fine to medium, with occasional fine roots).			0.05													
				MADE GROUND (Dark grey to greenish grey, sandy GRAVEL. Gravel is medium to coarse, TYPE 1.			0.20													
				Firm light grey to orangish brown mottled grey veined CLAY. Occasional fine to medium and inactive roots.			0.50		0.50-2.00	B	1									
									1.00-1.70	UT	1	(31)								Shear vane test = 240kN/m²
				1.70 Becomes stiff.																
									2.00-2.60	UT	2	(36)								Shear vane test = 242kN/m²
				Very stiff dark brown greyish orange laminated CLAY.			2.60	60				12 12 15 15 15 15	60*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			3.15		4											

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS16 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS17

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 3.5 m

Grid Reference: TQ(23604,36799)

DATES 17/02/2022 - 17/02/2022

SHEET 1 OF 1

PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				MADE GROUND (Light grey orangish brown fine to coarse SAND. Occasional fine to coarse active roots).			0.00		0											
				MADE GROUND (Dark brown to greyish black slightly clayey very sandy angular to subrounded fine to coarse brick, type 1 and concrete GRAVEL. Sand is fine to coarse. Slightly organic)			0.20		0.20-0.50	ES	1									
				Stiff brownish grey - orangish grey slightly sandy CLAY. Occasional fine inactive roots. Sand is fine . With frequent inactive very fine roots.			0.50													
									1.00-1.45	UT	1	(23)								Shear vane test = 292kN/m²
				Very stiff orangish brown - greyish brown laminated CLAY. 1.50 - 3.45 Black staining on partings.			1.50		1.45-2.90	B	1									
									2.00-2.45	UT	2	(35)								
				Very stiff light greenish brown, light grey veined CLAY.			2.90	57	3.10	D	1	8 11 14 14 14 15	57*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			3.45													

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS17 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071,SI, IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS18

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.5 m

Grid Reference: TQ(23571,36787)
DATES 17/02/2022 - 17/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				MADE GROUND (Dark brown to black slightly sandy GRAVEL. Sand is fine to coarse, gravel is angular to sub-angular, brick, flint and tarmac. Occasional inactive fine to medium roots).			0.00		0											
				MADE GROUND (Light grey concrete recovered as sandy GRAVEL, gravel is fine to coarse, brick and flint).			0.15		0.15-0.30	ES	1									
				0.15 - 0.30 Moderate hydrocarbon odour.			0.30		0.30-0.40	ES	2									
				MADE GROUND (Dark brown to reddish purple slightly sandy GRAVEL. Sand is fine to coarse, gravel is angular to sub-angular flint and tarmac.			0.40		0.40-0.60	ES	3									
				0.30 - 0.40 Weak hydrocarbon odour.																
				Firm dark greenish grey slightly gravelly CLAY.			0.75													
				Stiff light grey to orangish brown CLAY.					0.90-1.00	ES	4	2 3	16							
				0.75 - 1.10 Weak hydrocarbon odour. Black staining on partings.			1.10		1.10	ES	5	3 4 4 5								
				Stiff light brown to orangish grey slightly gravelly laminated friable CLAY. Gravel is angular fine black mudstone.					1.50-2.00	B	1									
				1.30 - 1.60 Hydrocarbon odour becomes very weak. No odour below 1.6.				56												
				1.80 Becoming very stiff.					2			3 9 14 14 13 15	56*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.45		3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS18 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS19

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

Grid Reference: TQ(23597,36772)
DATES 17/02/2022 - 17/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				MADE GROUND (Light brown and grey subangular fine and medium sandstone and brick GRAVEL.)			0.00													
				(MADE GROUND) Stiff dark grey to brown slightly gravelly CLAY. Gravel is subangular, fine to medium brick and flint. Occasional fine to medium active roots.			0.20													
				Stiff light grey to orangish brown mottled slightly gravelly CLAY. Gravel is angular fine black siltstone.			0.30		0.30-1.00	B ES	1 1									
									0.30-0.60											
									1.00-1.45	UT	1	(44)								
				Very stiff light brown to greyish brown slightly gravelly friable CLAY. Gravel is fine angular siltstone.			1.45	57				5 12 13 13 14 15	57*							
				1.80 Areas of black staining at partings.																
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			1.95													

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
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Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS19 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI, IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

CLIENT: Arcadis LLP

PROJECT: Forge Wood High School

GROUND LEVEL m

HOLE No. WS20

LOGGED BY: FW
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY: GF
DATE: 28/03/2022

EXCAVATION METHOD: Windowless sampler
Uncased to 2.5 m

Grid Reference: TQ(23556,36804)
DATES 17/02/2022 - 17/02/2022

SHEET 1 OF 1
PROJECT NO. 6071,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				MADE GROUND (Dark brown sandy slightly clayey GRAVEL. Gravel is angular to sub angular, fine to medium flint. Frequent fine to medium active roots).			0.00													
				Stiff greenish grey to light orange mottled brown CLAY. Frequent very fine to fine inactive roots.			0.10		0.10-0.30	ES	1									
				Very stiff light brown to light grey, slightly gravelly CLAY. Gravel is angular fine claystone.			0.90		1.00-2.00	B	1	3 5 7 7 7 8	29							
				0.90 Slight organic odour.				51				6 8 10 12 14 15	51*							
				END OF EXPLORATORY HOLE. REFUSAL TOO STIFF TO CONTINUE. HOLE DRY AND OPEN UPON COMPLETION.			2.45													

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

HOLE No. WS20 | SHEET 1 OF 1 | PROJECT No. 6071,SI

GEL AGS BH BETA 6071.SI. IFIELD.GPJ GINT STD AGS 3 1.GDT 4/4/22

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

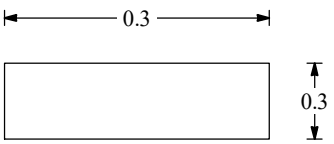
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Forge Wood High School	Arcadis LLP	**HP01**

Job No	Date	Ground Level (m)	Coordinates ()
6071,SI	17-02-22 17-02-22		,

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.10 0.10	MADE GROUND (Dark brown, slightly clayey gravelly ORGANIC SAND. Gravel is fine to coarse, angular to sub-angular brick and flint. Frequent very fine to medium active roots.) END OF HAND PIT		0.00-0.10	1ES	



Shoring/Support: Nil
Stability: Stable

All dimensions in metres Scale 1:33.3333333333333	Method Hand Pit	Plant Used HAND	Checked By GF

Geosphere Environmental Ltd
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Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

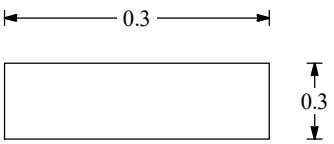
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Forge Wood High School	Arcadis LLP	**HP02**

Job No	Date	Ground Level (m)	Coordinates ()
6071,SI	17-02-22 17-02-22		,

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.10	MADE GROUND (Dark brown slightly clayey, gravelly ORGANIC SAND. Sand is fine to coarse, gravel is angular fine to medium brick and concrete. Frequent very fine to fine active roots.)		0.00-0.10	1ES	
0.10	END OF HAND PIT				



Shoring/Support: Nil
Stability: Stable

All dimensions in metres Scale 1:33.3333333333333	Method Hand Pit	Plant Used HAND	Checked By GF

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

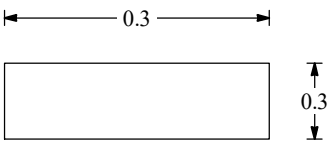
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Forge Wood High School	Arcadis LLP	**HP03**

Job No	Date	Ground Level (m)	Coordinates ()
6071,SI	17-02-22 17-02-22		,

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.10 0.10	MADE GROUND (Dark brown, slightly clayey, slightly gravelly ORGANIC SAND. Gravel is fine to coarse angular fine concrete, brick and flint. Frequent fine to very fine active roots.) END OF HAND PIT		0.00-0.10	1ES	



Shoring/Support: Nil
Stability: Stable

All dimensions in metres Scale 1:33.3333333333333	Method Hand Pit	Plant Used HAND	Checked By GF

Geosphere Environmental Ltd
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Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298076

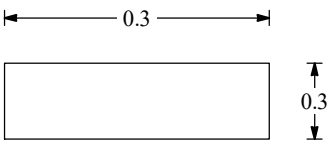
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Forge Wood High School	Arcadis LLP	**SP01**

Job No	Date	Ground Level (m)	Coordinates ()
6071,SI	17-02-22 17-02-22		,

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.10 0.10	MADE GROUND (Cobbles and boulders of concrete, brick, pipe, paving tile and blocks (85%) in a sandy gravelly ORGANIC CLAY matrix. Sand is fine to coarse gravel is angular fine to coarse). END OF HAND PIT		0.00-0.10	1ES	



Shoring/Support: Nil
Stability: Stable

All dimensions in metres Scale 1:33.3333333333333	Method Hand Pit	Plant Used HAND	Checked By GF

APPENDIX 6 – TRL DCP RESULTS

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	93
2	170
3	198
4	241
5	276
6	316
7	346
8	381
9	416
10	453
11	489
12	520
13	548
14	568
15	586
16	606
17	628
18	654
19	676
20	696
21	708
22	721
23	736
24	746
25	761
26	771
27	786
28	796
29	806
30	816
31	826
32	836
33	
34	
35	
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48	
49	
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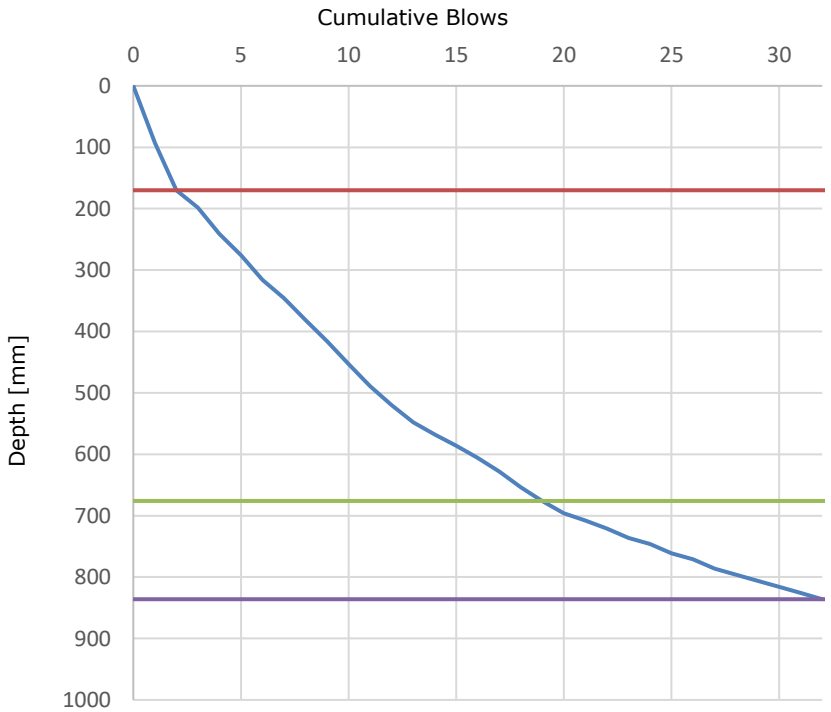
Project Details	
Location No:	WS01
Testing Date:	14/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	3	170	170
Layer 2	17	19	8	506	676
Layer 3	13	32	21	160	836

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	90
2	150
3	195
4	230
5	262
6	291
7	318
8	345
9	378
10	402
11	430
12	455
13	485
14	510
15	535
16	558
17	578
18	601
19	622
20	642
21	660
22	680
23	695
24	705
25	720
26	735
27	755
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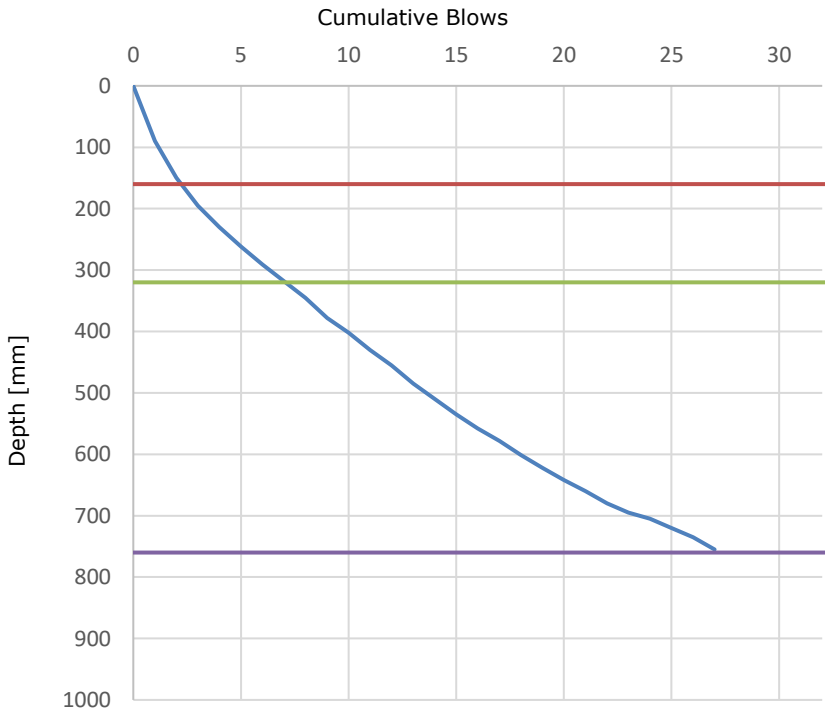
Project Details	
Location No:	WS02
Testing Date:	14/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	3	3	5	160	160
Layer 2	4	7	6	160	320
Layer 3	24	32	14	440	760

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	110
2	153
3	186
4	213
5	238
6	263
7	281
8	303
9	320
10	338
11	362
12	372
13	392
14	407
15	425
16	444
17	458
18	474
19	494
20	507
21	525
22	539
23	555
24	568
25	585
26	603
27	618
28	636
29	652
30	663
31	682
32	692
33	704
34	715
35	729
36	740
37	755
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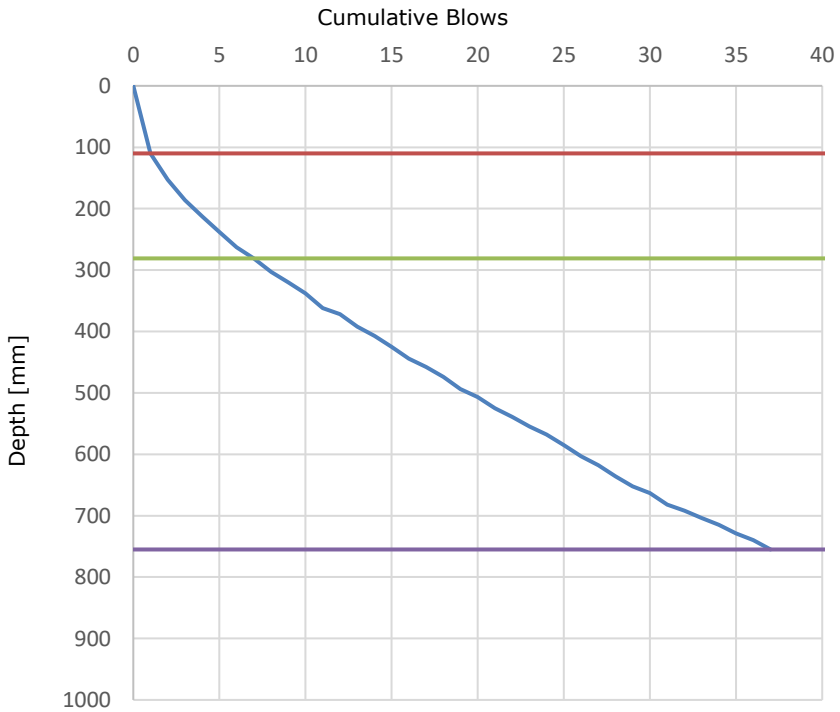
Project Details	
Location No:	WS03
Testing Date:	14/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	1	1	2	110	110
Layer 2	6	7	9	171	281
Layer 3	30	37	16	474	755

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	49
2	89
3	124
4	155
5	183
6	210
7	233
8	254
9	272
10	300
11	309
12	329
13	348
14	369
15	387
16	407
17	424
18	439
19	461
20	477
21	493
22	509
23	524
24	542
25	554
26	568
27	582
28	595
29	609
30	623
31	637
32	662
33	679
34	689
35	701
36	709
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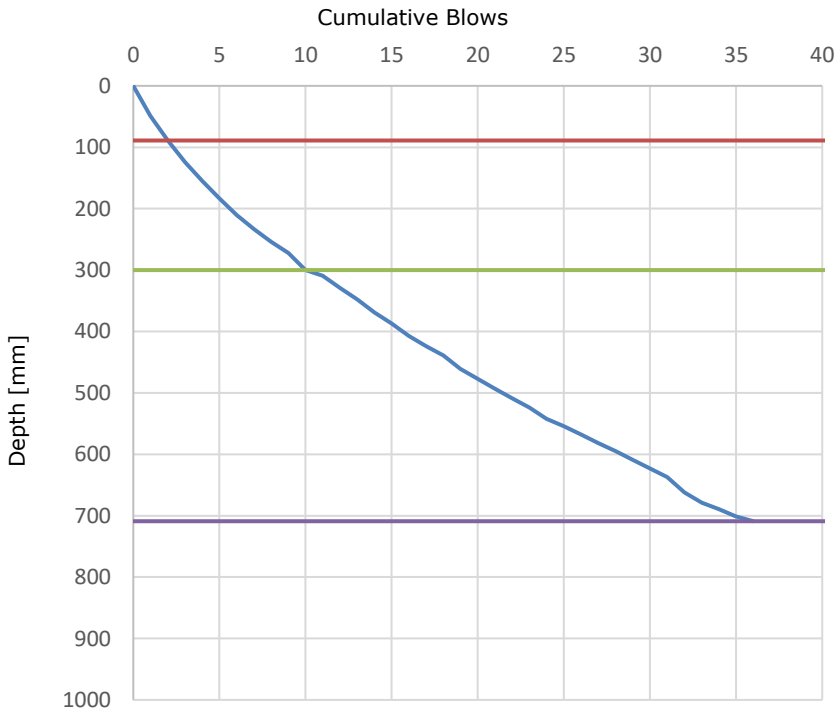
Project Details	
Location No:	WS04
Testing Date:	14/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	5	89	89
Layer 2	8	10	10	211	300
Layer 3	26	36	16	409	709

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	77
2	124
3	162
4	192
5	215
6	240
7	263
8	285
9	305
10	325
11	343
12	367
13	382
14	395
15	415
16	434
17	452
18	477
19	495
20	515
21	535
22	555
23	574
24	597
25	618
26	641
27	663
28	682
29	699
30	715
31	730
32	
33	
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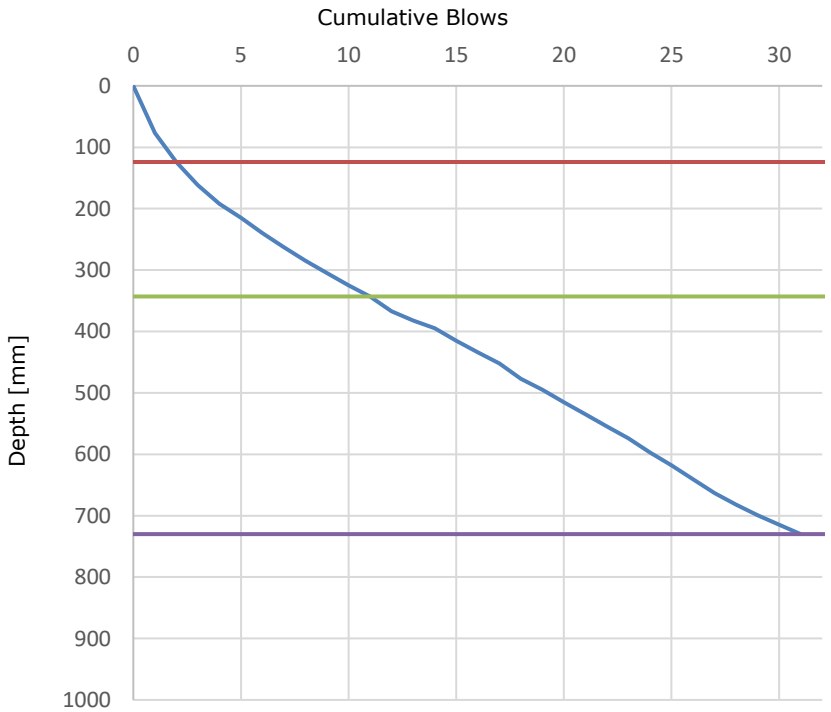
Project Details	
Location No:	WS05
Testing Date:	14/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	4	124	124
Layer 2	9	11	10	219	343
Layer 3	20	31	13	387	730

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	97
2	137
3	178
4	215
5	247
6	277
7	302
8	327
9	348
10	369
11	391
12	409
13	427
14	445
15	462
16	477
17	494
18	505
19	513
20	523
21	532
22	541
23	550
24	559
25	569
26	581
27	593
28	607
29	624
30	645
31	665
32	685
33	707
34	731
35	755
36	777
37	798
38	817
39	832
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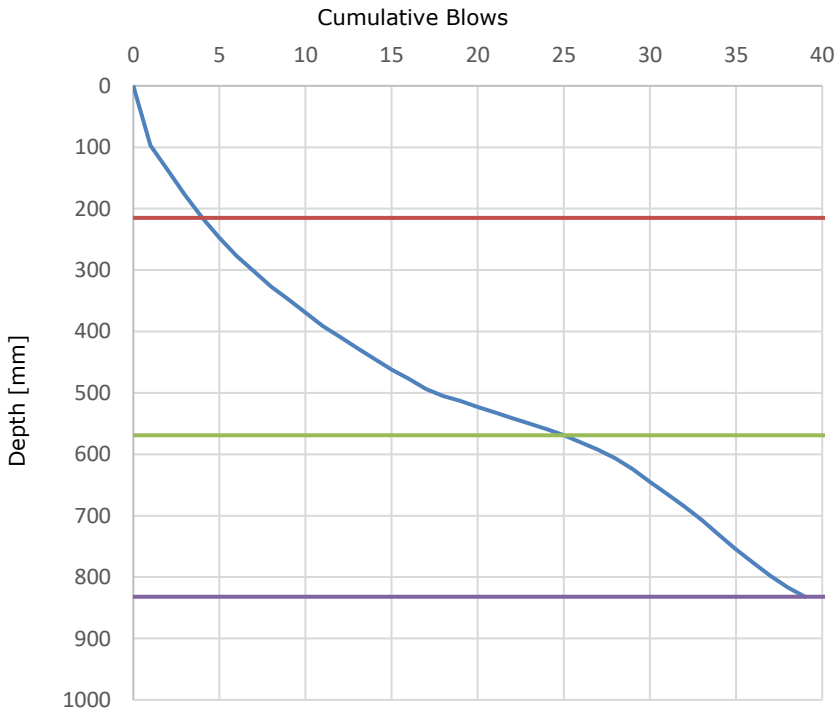
Project Details	
Location No:	WS06
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	4	4	4	215	215
Layer 2	21	25	15	354	569
Layer 3	14	39	14	263	832

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	95
2	145
3	186
4	226
5	256
6	287
7	314
8	341
9	363
10	387
11	412
12	441
13	473
14	499
15	526
16	546
17	565
18	583
19	599
20	616
21	633
22	649
23	667
24	679
25	694
26	708
27	721
28	735
29	747
30	761
31	775
32	786
33	799
34	810
35	823
36	834
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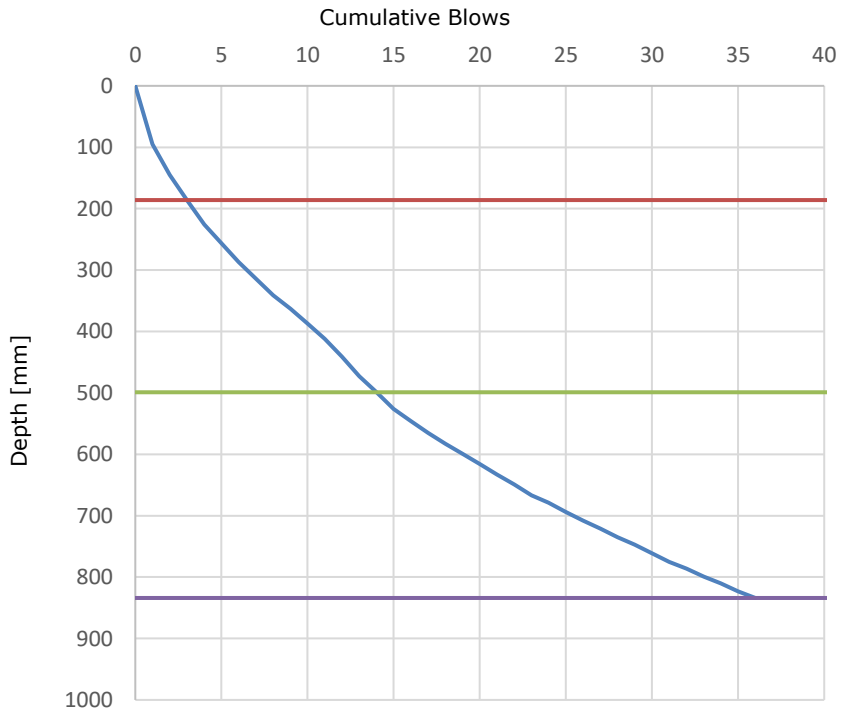
Project Details	
Location No:	WS07
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	3	3	4	186	186
Layer 2	11	14	9	313	499
Layer 3	22	36	17	335	834

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	75
2	148
3	220
4	283
5	334
6	372
7	403
8	435
9	470
10	511
11	545
12	585
13	631
14	665
15	708
16	748
17	
18	
19	
20	
21	
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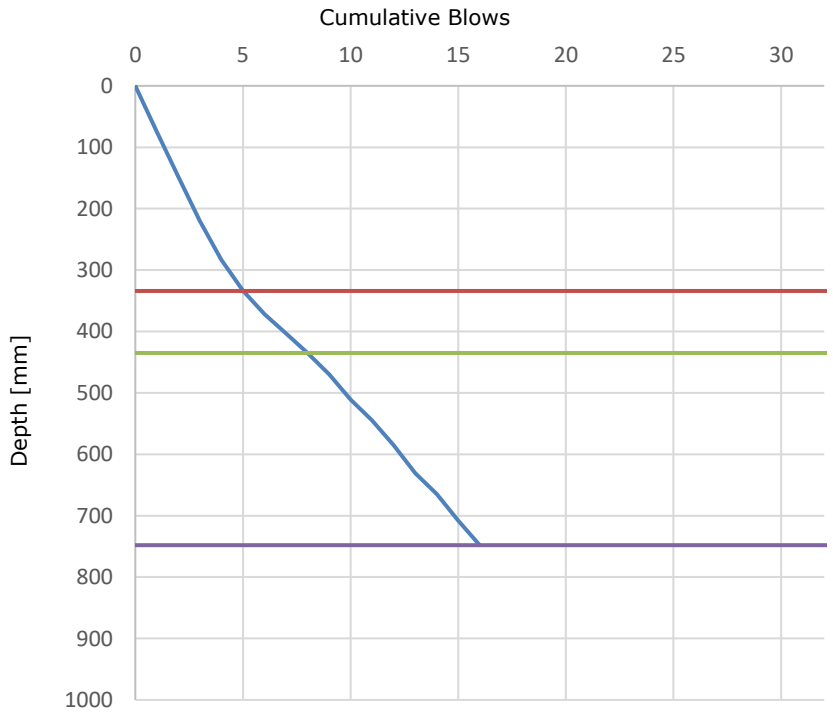
Project Details	
Location No:	WS08
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	4	4	3	334	334
Layer 2	3	7	7	101	435
Layer 3	8	15	6	313	748

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	80
2	175
3	203
4	234
5	259
6	293
7	320
8	342
9	370
10	395
11	420
12	440
13	460
14	483
15	508
16	529
17	552
18	569
19	590
20	612
21	635
22	650
23	665
24	683
25	699
26	711
27	730
28	762
29	780
30	799
31	813
32	
33	
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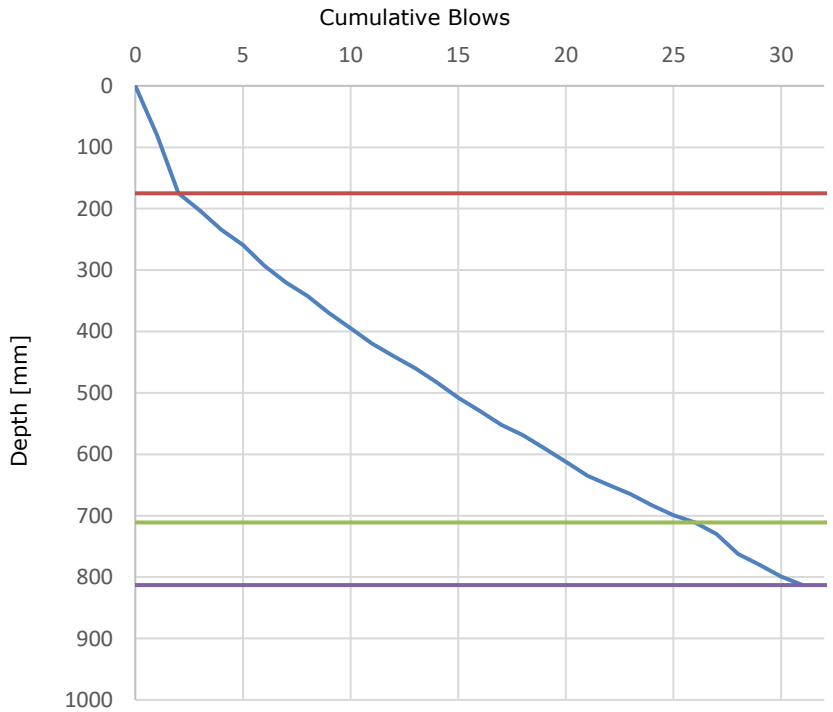
Project Details	
Location No:	WS09
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	3	175	175
Layer 2	24	26	11	536	711
Layer 3	5	31	12	102	813

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	126
2	181
3	224
4	262
5	290
6	320
7	349
8	379
9	408
10	438
11	466
12	492
13	515
14	536
15	558
16	577
17	601
18	619
19	644
20	665
21	686
22	706
23	726
24	742
25	756
26	776
27	788
28	806
29	
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31	
32	
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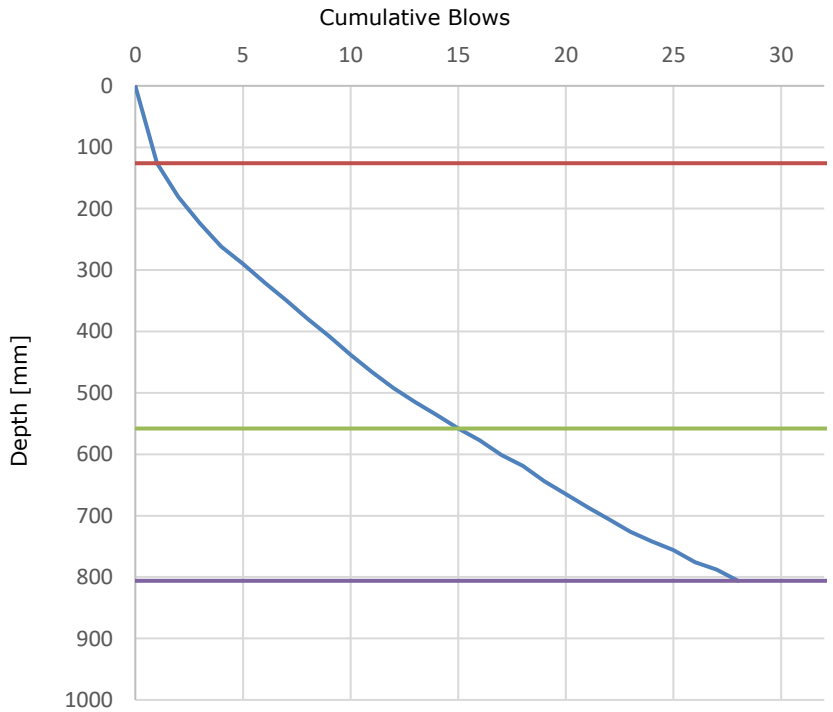
Project Details	
Location No:	WS10
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	1	1	2	126	126
Layer 2	14	15	8	432	558
Layer 3	13	28	13	248	806

TRL DYNAMIC CONE PENETROMETER TEST REPORT

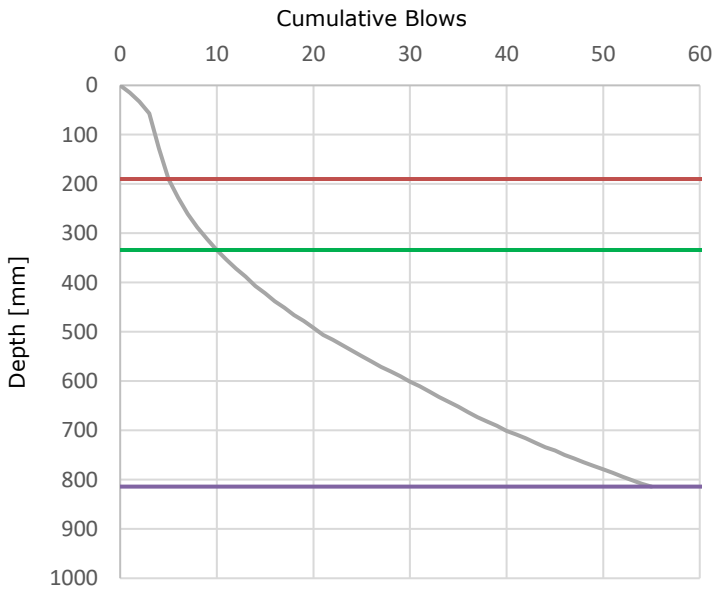
Project Number: 6071,GI

Project Name: Forge Wood High School, Horsham, RH11 **Date:** 06/04/2022

Factual Results			
Total Blows [No.]	**Penetration [mm]**	**Total Blows [No.]**	**Penetration [mm]**
0	0	**51**	786
1	15	**52**	794
2	33	**53**	801
3	57	**54**	808
4	128	**55**	814
5	190	**56**	
6	228	**57**	
7	261	**58**	
8	288	**59**	
9	312	**60**	
10	334	**61**	
11	354	**62**	
12	372	**63**	
13	388	**64**	
14	407	**65**	
15	422	**66**	
16	438	**67**	
17	451	**68**	
18	466	**69**	
19	478	**70**	
20	492	**71**	
21	506	**72**	
22	516	**73**	
23	527	**74**	
24	538	**75**	
25	549	**76**	
26	560	**77**	
27	571	**78**	
28	580	**79**	
29	590	**80**	
30	601	**81**	
31	610	**82**	
32	621	**83**	
33	632	**84**	
34	642	**85**	
35	652	**86**	
36	663	**87**	
37	673	**88**	
38	682	**89**	
39	691	**90**	
40	701	**91**	
41	708	**92**	
42	716	**93**	
43	725	**94**	
44	734	**95**	
45	741	**96**	
46	750	**97**	
47	757	**98**	
48	765	**99**	
49	772	**100**	
50	779		

Project Details	
Location No:	WS11
Testing Date:	16/02/2022
Undertaken By:	FW
Approved By:	
Comments:	

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	5	5	6	190	190
Layer 2	5	10	9	144	334
Layer 3	44	54	24	480	814

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	108
2	184
3	213
4	235
5	257
6	276
7	289
8	310
9	324
10	341
11	357
12	372
13	388
14	405
15	423
16	438
17	457
18	474
19	489
20	507
21	529
22	548
23	561
24	569
25	591
26	606
27	618
28	630
29	642
30	656
31	667
32	680
33	695
34	710
35	725
36	731
37	746
38	757
39	770
40	783
41	793
42	804
43	814
44	
45	
46	
47	
48	
49	
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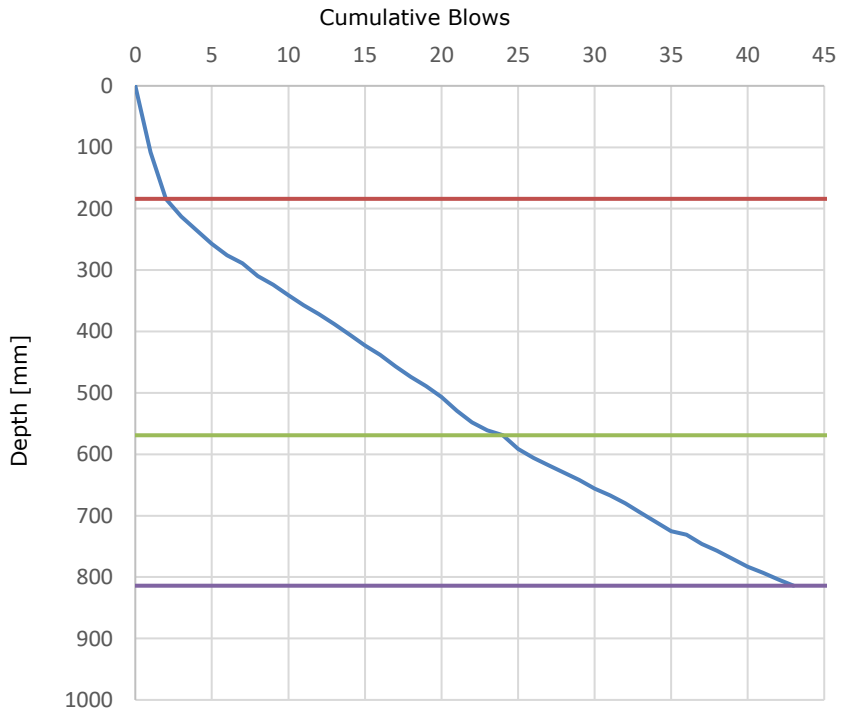
Project Details	
Location No:	WS12
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	3	184	184
Layer 2	22	24	15	385	569
Layer 3	19	43	20	245	814

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	70
2	121
3	169
4	209
5	252
6	290
7	327
8	358
9	386
10	409
11	433
12	451
13	476
14	493
15	511
16	526
17	543
18	558
19	572
20	583
21	591
22	599
23	611
24	620
25	629
26	638
27	646
28	655
29	666
30	677
31	685
32	693
33	701
34	708
35	716
36	723
37	730
38	735
39	
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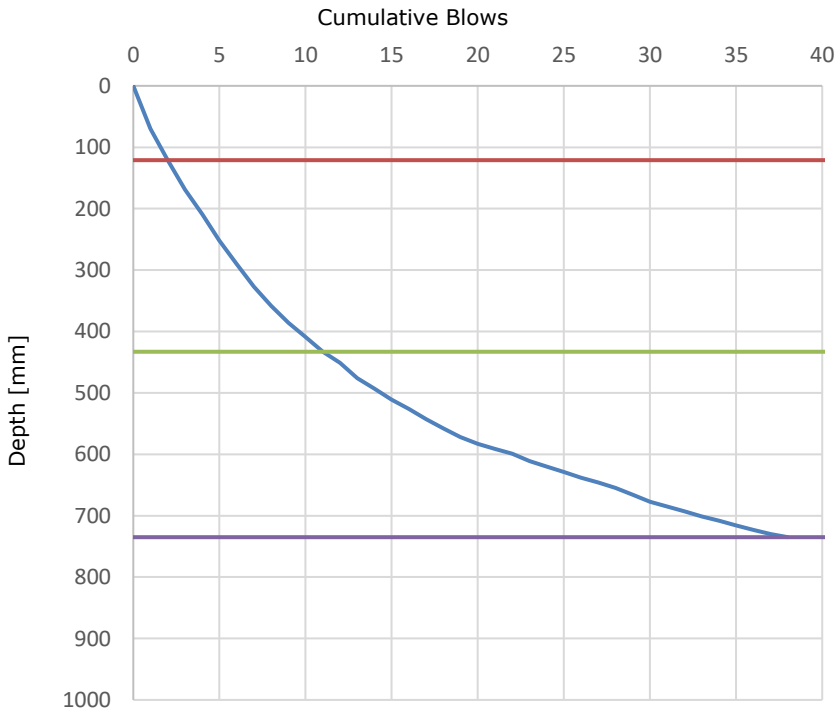
Project Details	
Location No:	WS13
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	4	121	121
Layer 2	9	11	7	312	433
Layer 3	26	37	23	302	735

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	130
2	171
3	216
4	253
5	283
6	315
7	346
8	373
9	397
10	420
11	443
12	465
13	485
14	504
15	521
16	538
17	553
18	569
19	585
20	602
21	615
22	636
23	643
24	656
25	668
26	676
27	689
28	701
29	711
30	723
31	733
32	743
33	754
34	761
35	774
36	784
37	791
38	801
39	810
40	822
41	
42	
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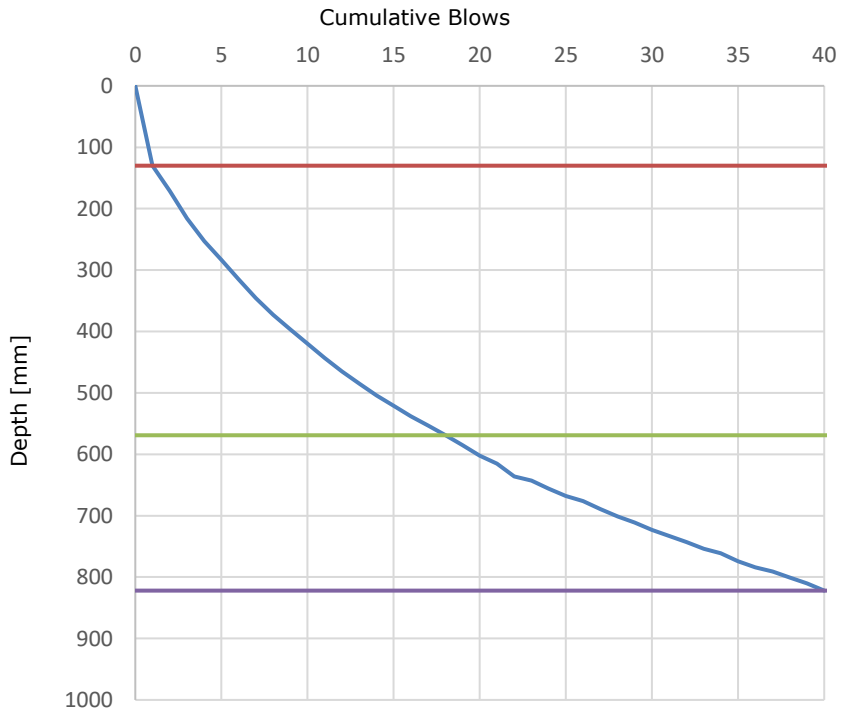
Project Details	
Location No:	WS14
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	1	1	2	130	130
Layer 2	17	18	10	439	569
Layer 3	22	40	23	253	822

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	-11
1	92
2	152
3	208
4	252
5	286
6	312
7	335
8	359
9	385
10	408
11	432
12	456
13	482
14	505
15	534
16	555
17	579
18	601
19	624
20	643
21	665
22	679
23	694
24	719
25	736
26	750
27	765
28	785
29	801
30	817
31	
32	
33	
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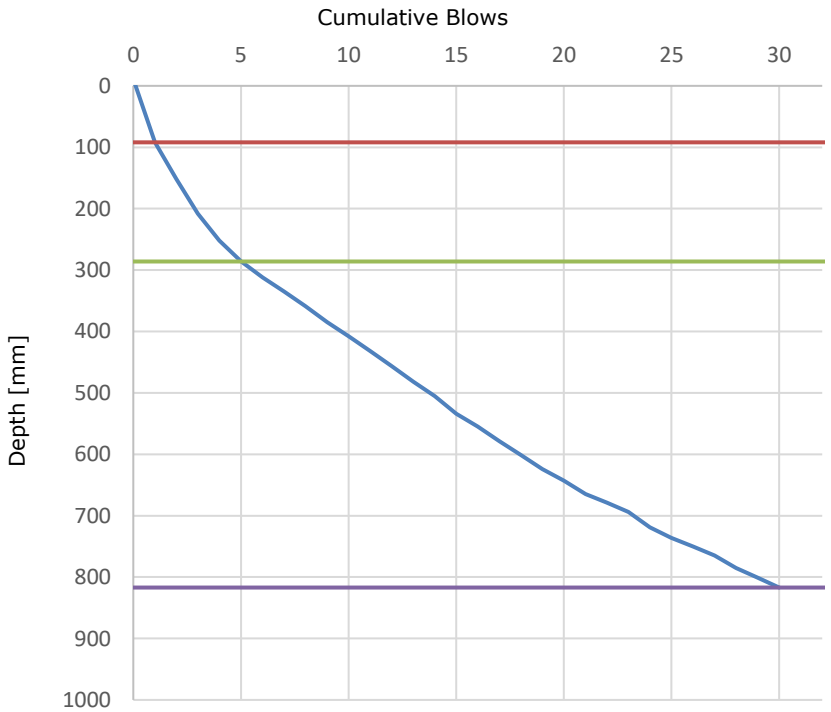
Project Details	
Location No:	WS15
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	1	1	3	92	92
Layer 2	4	5	5	194	286
Layer 3	24	29	11	531	817

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	62
2	93
3	101
4	108
5	113
6	124
7	131
8	140
9	153
10	173
11	188
12	208
13	243
14	274
15	298
16	323
17	345
18	365
19	390
20	412
21	435
22	458
23	480
24	502
25	525
26	551
27	575
28	605
29	620
30	638
31	655
32	676
33	698
34	719
35	738
36	753
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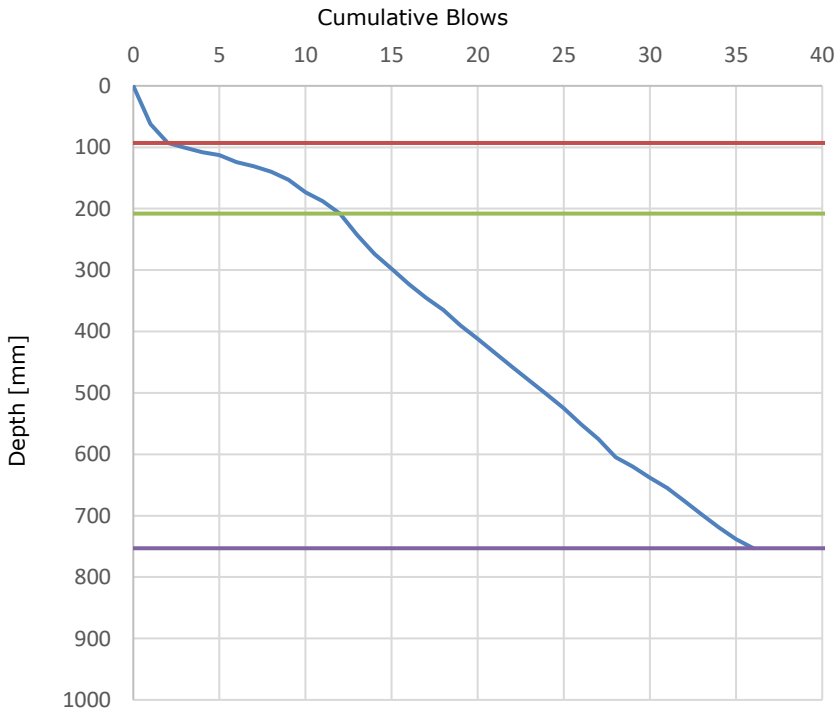
Project Details	
Location No:	WS16
Testing Date:	15/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	2	2	5	93	93
Layer 2	10	12	23	115	208
Layer 3	24	36	11	545	753

TRL DYNAMIC CONE PENETROMETER TEST REPORT

GEOSPHERE ENVIRONMENTAL

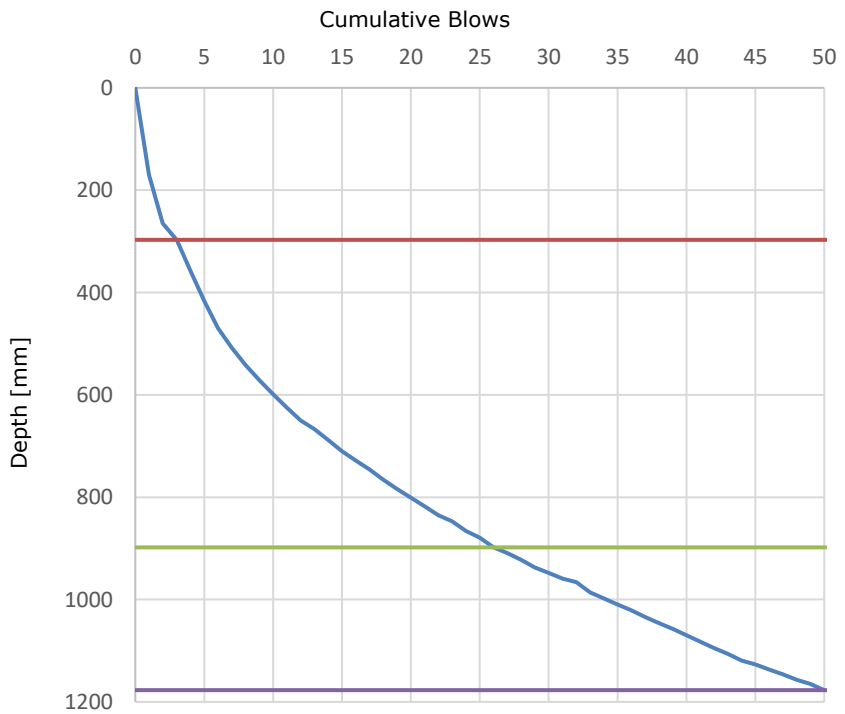
Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN **Date:** 06/04/2022

Factual Results	
0	0
1	170
2	265
3	297
4	358
5	417
6	470
7	508
8	542
9	571
10	599
11	625
12	650
13	667
14	688
15	710
16	728
17	746
18	766
19	784
20	801
21	818
22	835
23	847
24	866
25	879
26	898
27	909
28	922
29	937
30	948
31	959
32	966
33	986
34	998
35	1010
36	1021
37	1034
38	1046
39	1057
40	1070
41	1082
42	1095
43	1106
44	1119
45	1127
46	1137
47	1146
48	1157
49	1165
50	1177

Project Details	
Location No:	WS17
Testing Date:	17/02/2022
Undertaken By:	FW
Approved By:	GF
Comments:	Undertaken from Ground Level

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	3	3	2	297	297
Layer 2	25	28	10	601	898
Layer 3	22	50	21	279	1177

TRL DYNAMIC CONE PENETROMETER TEST REPORT

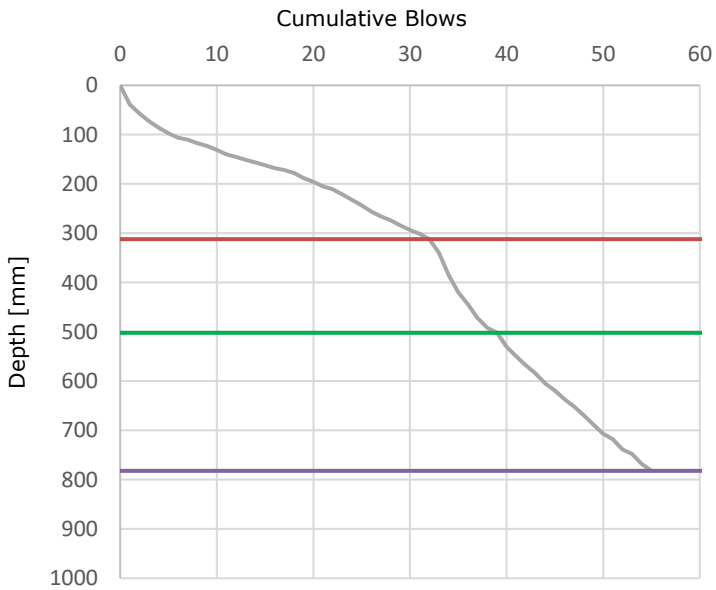
Project Number: 6071,GI

Project Name: Forge Wood High School, Horsham, RH11 **Date:** 06/04/2022

Factual Results			
Total Blows [No.]	**Penetration [mm]**	**Total Blows [No.]**	**Penetration [mm]**
0	0	**51**	718
1	39	**52**	739
2	57	**53**	748
3	73	**54**	768
4	86	**55**	782
5	97	**56**	
6	106	**57**	
7	110	**58**	
8	117	**59**	
9	123	**60**	
10	131	**61**	
11	140	**62**	
12	145	**63**	
13	151	**64**	
14	156	**65**	
15	162	**66**	
16	168	**67**	
17	172	**68**	
18	178	**69**	
19	188	**70**	
20	196	**71**	
21	205	**72**	
22	211	**73**	
23	221	**74**	
24	232	**75**	
25	243	**76**	
26	256	**77**	
27	266	**78**	
28	274	**79**	
29	284	**80**	
30	293	**81**	
31	301	**82**	
32	312	**83**	
33	340	**84**	
34	385	**85**	
35	420	**86**	
36	444	**87**	
37	472	**88**	
38	492	**89**	
39	502	**90**	
40	530	**91**	
41	550	**92**	
42	568	**93**	
43	584	**94**	
44	605	**95**	
45	619	**96**	
46	637	**97**	
47	652	**98**	
48	669	**99**	
49	688	**100**	
50	707		

Project Details	
Location No:	WS18
Testing Date:	16/02/2022
Undertaken By:	FW
Approved By:	
Comments:	

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	32	32	27	312	312
Layer 2	7	39	9	190	502
Layer 3	16	55	15	280	782

TRL DYNAMIC CONE PENETROMETER TEST REPORT

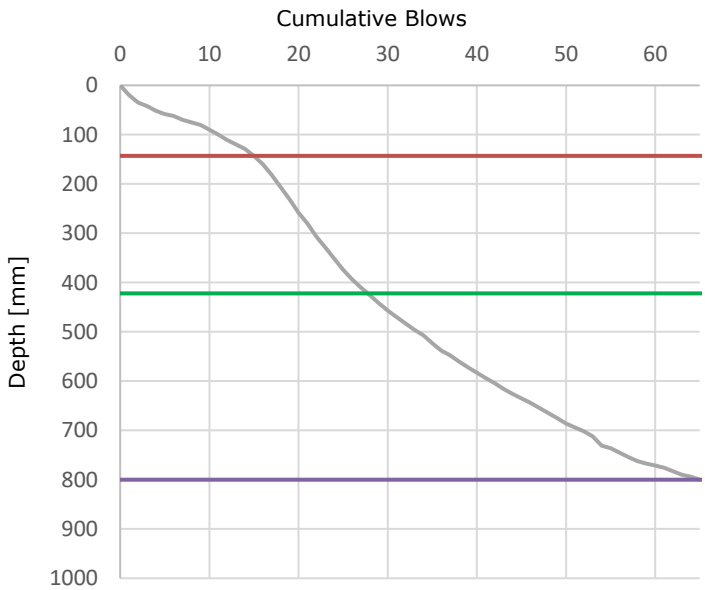
Project Number: 6071,GI

Project Name: Forge Wood High School, Horsham, RH11 **Date:** 06/04/2022

Factual Results			
Total Blows [No.]	**Penetration [mm]**	**Total Blows [No.]**	**Penetration [mm]**
0	0	**51**	694
1	20	**52**	702
2	35	**53**	712
3	42	**54**	731
4	52	**55**	736
5	58	**56**	745
6	62	**57**	754
7	70	**58**	762
8	75	**59**	767
9	80	**60**	771
10	90	**61**	776
11	100	**62**	783
12	111	**63**	790
13	120	**64**	794
14	129	**65**	800
15	143	**66**	
16	160	**67**	
17	182	**68**	
18	206	**69**	
19	231	**70**	
20	258	**71**	
21	280	**72**	
22	307	**73**	
23	329	**74**	
24	352	**75**	
25	374	**76**	
26	393	**77**	
27	410	**78**	
28	426	**79**	
29	442	**80**	
30	457	**81**	
31	470	**82**	
32	483	**83**	
33	496	**84**	
34	507	**85**	
35	523	**86**	
36	538	**87**	
37	548	**88**	
38	560	**89**	
39	572	**90**	
40	583	**91**	
41	594	**92**	
42	604	**93**	
43	616	**94**	
44	626	**95**	
45	635	**96**	
46	644	**97**	
47	654	**98**	
48	665	**99**	
49	675	**100**	
50	686		

Project Details	
Location No:	WS19
Testing Date:	16/02/2022
Undertaken By:	FW
Approved By:	
Comments:	

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	16	16	30	143	143
Layer 2	13	29	12	279	422
Layer 3	36	65	25	378	800

TRL DYNAMIC CONE PENETROMETER TEST REPORT

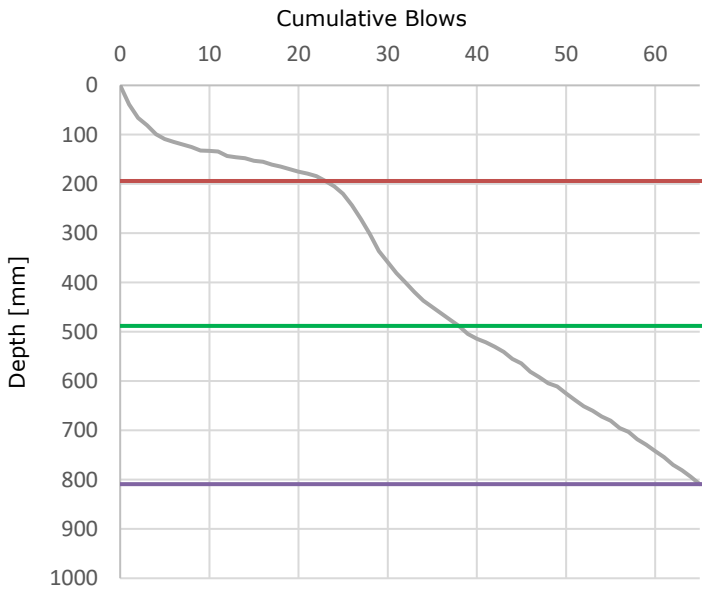
Project Number: 6071,GI

Project Name: Forge Wood High School, Horsham, RH11 **Date:** 06/04/2022

Factual Results			
Total Blows [No.]	**Penetration [mm]**	**Total Blows [No.]**	**Penetration [mm]**
0	0	**51**	638
1	39	**52**	651
2	66	**53**	660
3	81	**54**	672
4	99	**55**	680
5	109	**56**	695
6	115	**57**	703
7	120	**58**	718
8	125	**59**	729
9	132	**60**	742
10	133	**61**	754
11	134	**62**	770
12	143	**63**	781
13	146	**64**	794
14	148	**65**	809
15	153	**66**	
16	155	**67**	
17	161	**68**	
18	165	**69**	
19	170	**70**	
20	175	**71**	
21	179	**72**	
22	184	**73**	
23	194	**74**	
24	205	**75**	
25	220	**76**	
26	243	**77**	
27	271	**78**	
28	302	**79**	
29	336	**80**	
30	359	**81**	
31	381	**82**	
32	400	**83**	
33	419	**84**	
34	437	**85**	
35	450	**86**	
36	463	**87**	
37	476	**88**	
38	488	**89**	
39	504	**90**	
40	514	**91**	
41	521	**92**	
42	530	**93**	
43	541	**94**	
44	555	**95**	
45	564	**96**	
46	581	**97**	
47	592	**98**	
48	604	**99**	
49	611	**100**	
50	625		

Project Details	
Location No:	WS20
Testing Date:	16/02/2022
Undertaken By:	FW
Approved By:	
Comments:	

Interpretative Results



Layer	No of Blows	Cumulative Blows	CBR [%]	Layer Thickness [mm]	Total Depth [mm]
Layer 1	23	23	32	194	194
Layer 2	15	38	13	294	488
Layer 3	27	65	22	321	809

APPENDIX 7 - GAS AND GROUNDWATER MONITORING DATA

GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS2 **Date of Installation** 14/02/2022

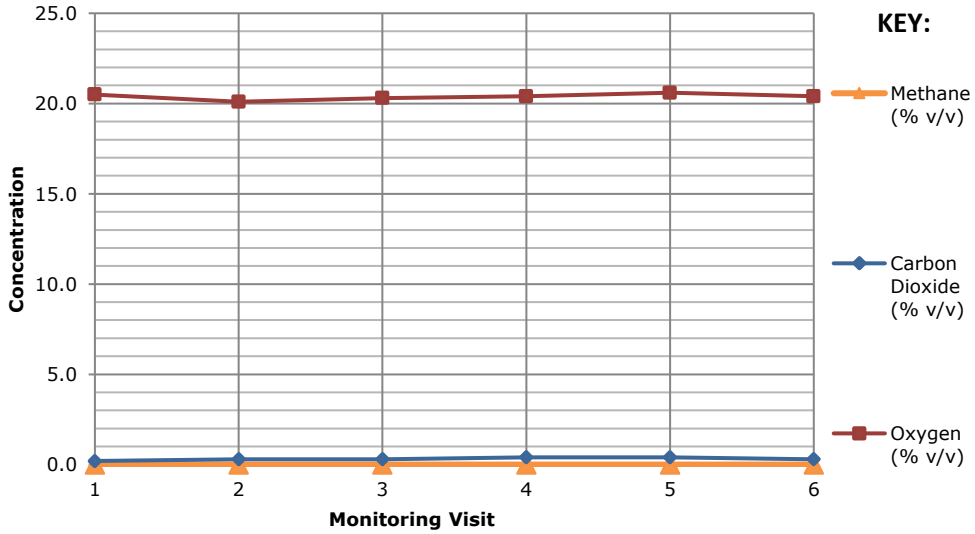
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1020	<0.1	<2	0.2	20.5	-0.1	0	0	0	0.54	1.94	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1011	<0.1	<2	0.3	20.1	0.0	0	0	0	0.70	1.90	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1009	<0.1	<2	0.3	20.3	-0.4	0	0	0	1.29	1.92	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1034	<0.1	<2	0.4	20.4	0.0	0	0	0	1.08	1.93	Warm, Sunny, Dry, Breezy	
5th visit	22/03/2022	1020	<0.1	<2	0.4	20.6	0.0	0	0	0	1.04	1.91	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	996	<0.1	<2	0.3	20.4	0.0	0	0	0	1.01	1.91	Cool, Cloudy, Dry, Breezy	Low and falling pressure

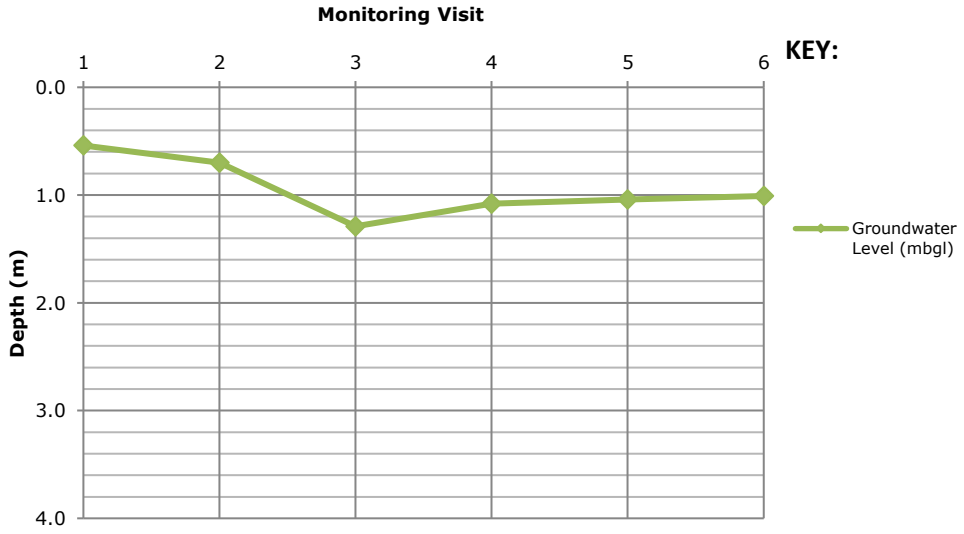
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS3 **Date of Installation** 14/02/2022

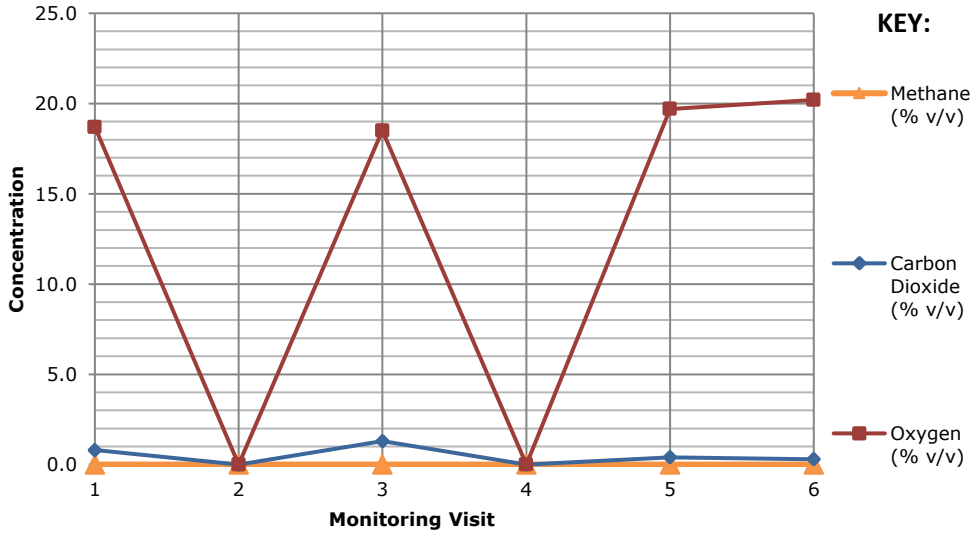
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1018	<0.1	<2	0.8	18.7	0.0	0	0	0	0.32	1.88	Cool, Sunny, Damp Calm	Well flooded
2nd visit	04/03/2022	1009	nm	nm	nm	nm	nm	nm	nm	nm	0.00	1.93	Cool, Overcast, Damp, Calm	Well purged dry / flooded
3rd visit	10/03/2022	1010	<0.1	<2	1.3	18.5	0.0	0	0	0	0.70	1.92	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1034	nm	nm	nm	nm	nm	nm	nm	nm	0.00	1.92	Warm, Sunny, Dry, Breezy	Flooded
5th visit	22/03/2022	1020	<0.1	<2	0.4	19.7	0.0	0	0	0	0.29	1.92	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	0.3	20.2	0.0	0	0	0	0.44	1.91	Cool, Cloudy, Dry, Breezy	Low and falling pressure

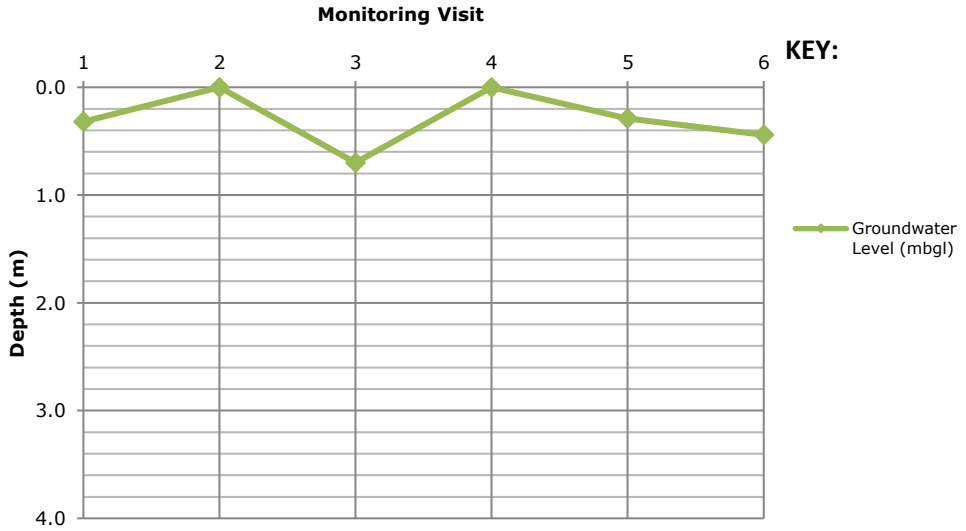
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS4 **Date of Installation** 14/02/2022

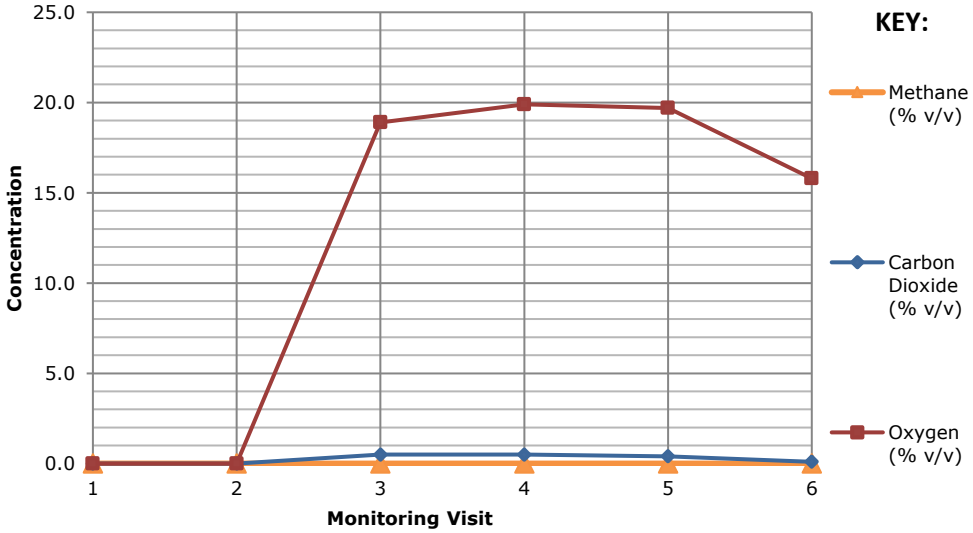
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1018	nm	nm	nm	nm	-0.1	nm	nm	nm	0.08	1.90	Cool, Sunny, Damp Calm	water level too high to gas monitor
2nd visit	04/03/2022	1009	nm	nm	nm	nm	nm	nm	nm	nm	0.00	1.90	Cool, Overcast, Damp, Calm	Well purged dry / flooded
3rd visit	10/03/2022	1010	<0.1	<2	0.5	18.9	-0.4	0	0	0	0.20	1.90	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1034	<0.1	<2	0.5	19.9	0.0	0	0	0	0.17	1.91	Warm, Sunny, Dry, Breezy	
5th visit	22/03/2022	1020	<0.1	<2	0.4	19.7	0.0	0	0	0	0.30	1.90	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	0.1	15.8	0.0	0	0	0	0.52	1.91	Cool, Cloudy, Dry, Breezy	Low and falling pressure

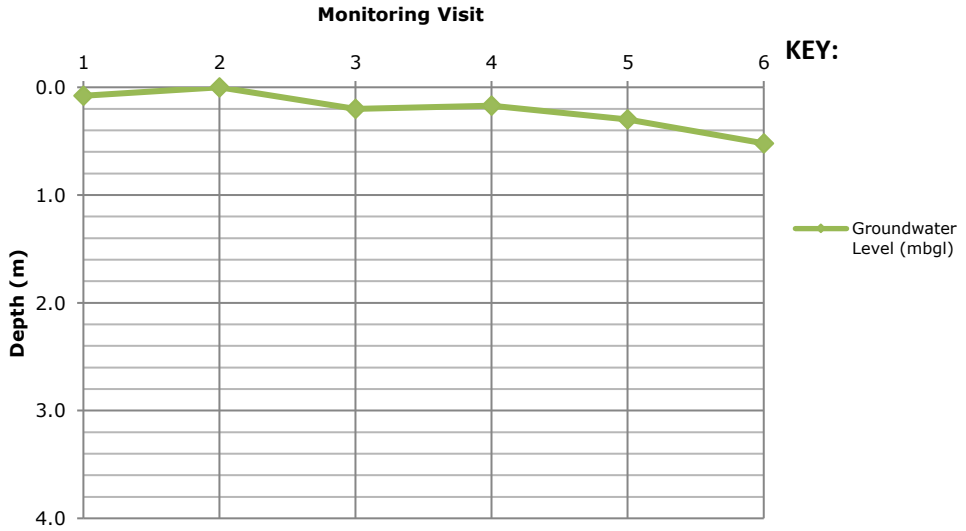
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS8 **Date of Installation** 15/02/2022

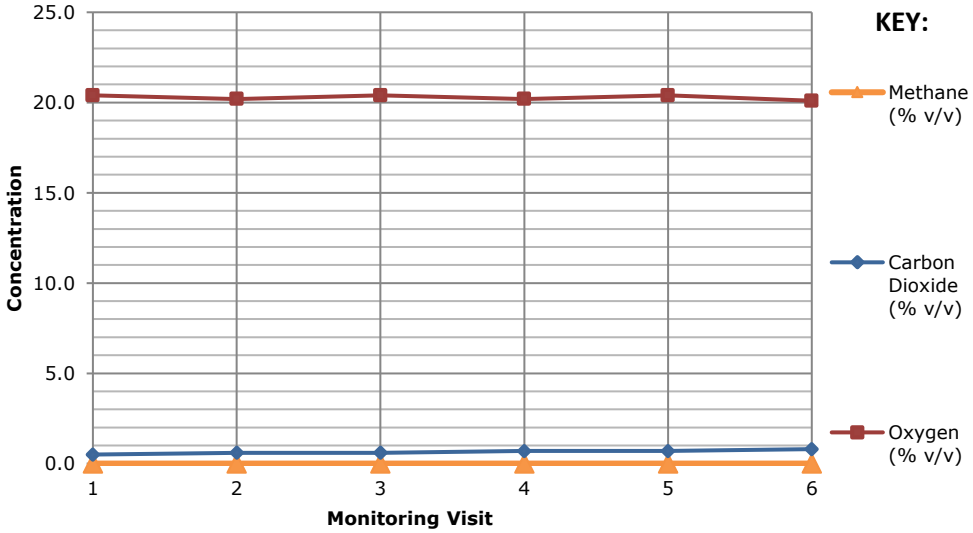
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1019	<0.1	<2	0.5	20.4	-0.4	0	0	0	0.60	1.91	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1011	<0.1	<2	0.6	20.2	-0.6	0	0	0	0.56	1.90	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1010	<0.1	<2	0.6	20.4	-0.2	0	0	0	0.60	1.91	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1035	<0.1	<2	0.7	20.2	0.0	0	0	0	0.58	1.88	Warm, Sunny, Dry, Breezy	
5th visit	22/03/2022	1022	<0.1	<2	0.7	20.4	0.0	0	0	0	0.60	1.89	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	997	<0.1	<2	0.8	20.1	-0.1	0	0	0	0.59	1.91	Cool, Cloudy, Dry, Breezy	Low and falling pressure

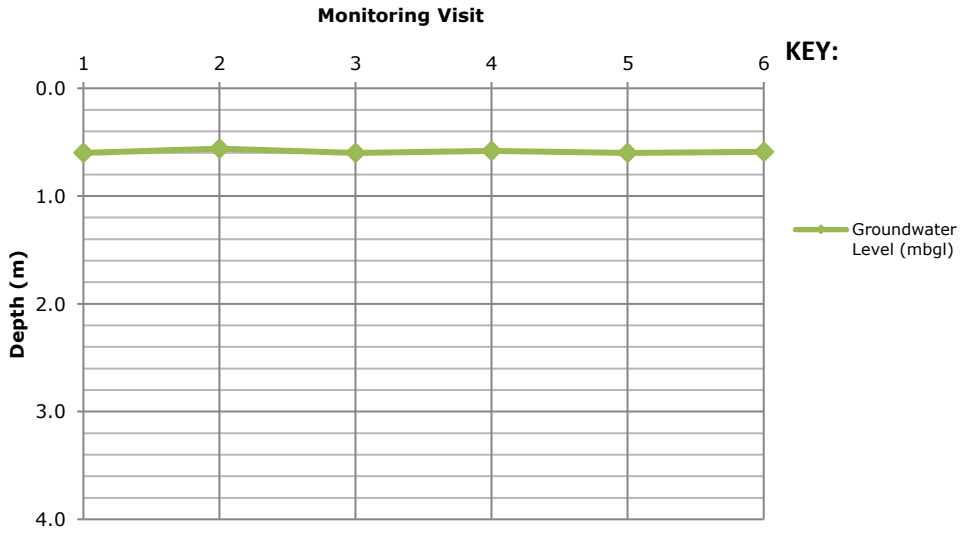
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS9 **Date of Installation** 15/02/2022

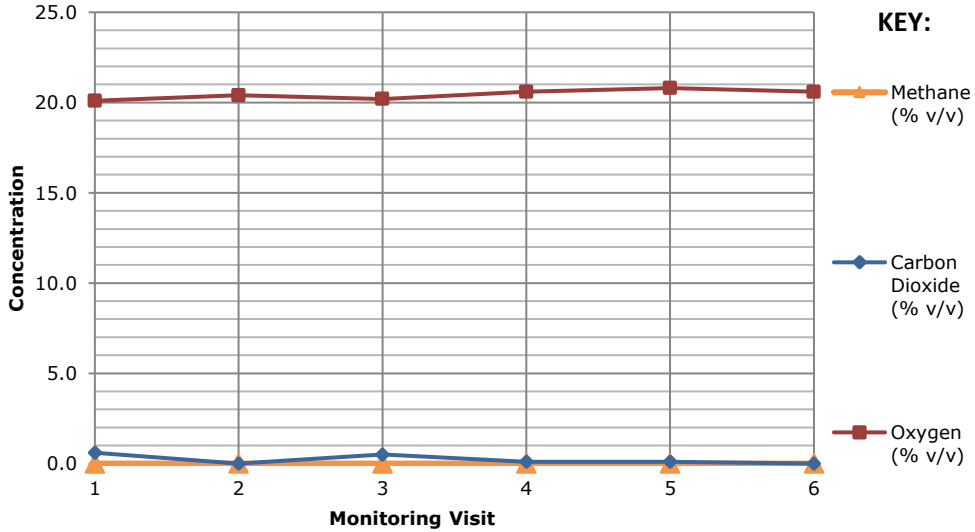
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1021	<0.1	<2	0.6	20.1	-0.3	0	0	0	0.74	2.95	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1011	<0.1	<2	0.0	20.4	-0.6	0	0	0	0.57	2.93	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1009	<0.1	<2	0.5	20.2	-0.3	0	0	0	0.72	2.96	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1036	<0.1	<2	0.1	20.6	-0.1	0	0	0	0.73	2.95	Warm, Sunny, Dry, Breezy	
5th visit	22/03/2022	1021	<0.1	<2	0.1	20.8	0.0	0	0	0	0.70	2.95	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	996	<0.1	<2	0.0	20.6	-0.1	0	0	0	0.62	1.95	Cool, Cloudy, Dry, Breezy	Low and falling pressure

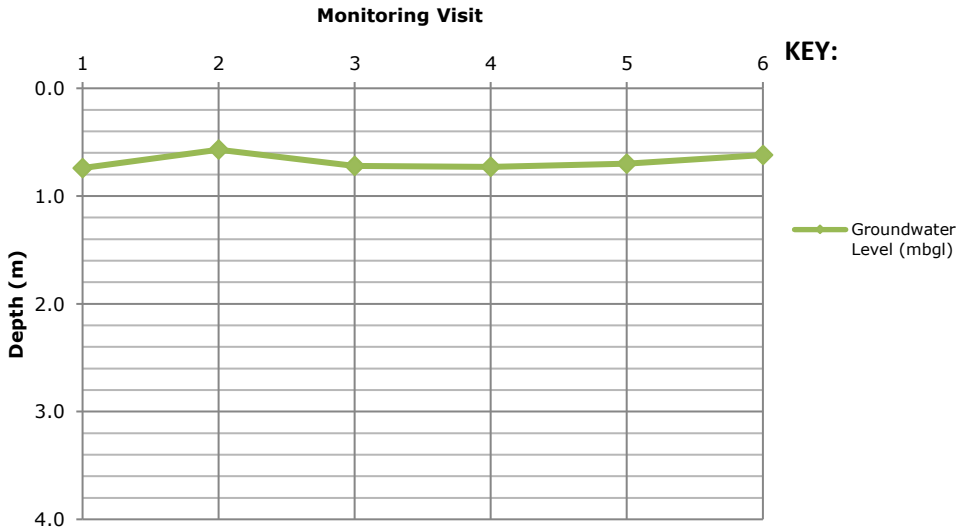
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS12 **Date of Installation** 16/02/2022

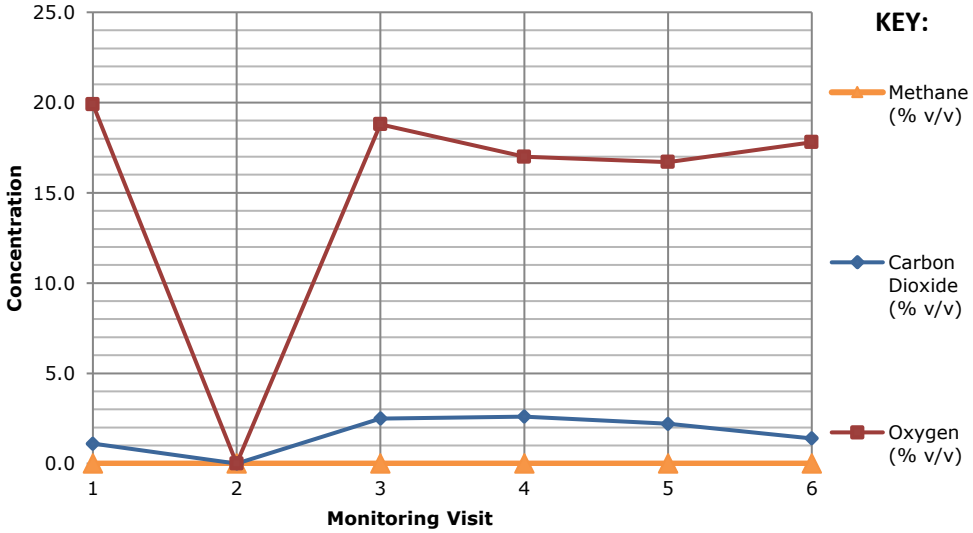
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1019	<0.1	<2	1.1	19.9	0.0	0	0	0	0.34	2.29	Cool, Sunny, Damp Calm	Well flooded at surface
2nd visit	04/03/2022	1011	nm	nm	nm	nm	nm	nm	nm	nm	0.00	2.27	Cool, Overcast, Damp, Calm	Well purged dry / flooded
3rd visit	10/03/2022	1009	<0.1	<2	2.5	18.8	-0.3	0	0	0	0.50	2.28	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1035	<0.1	<2	2.6	17.0	0.0	0	0	0	0.33	2.28	Warm, Sunny, Dry, Breezy	
5th visit	22/03/2022	1020	<0.1	<2	2.2	16.7	0.0	0	0	0	0.30	2.28	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	1.4	17.8	0.0	0	0	0	0.28	2.28	Cool, Cloudy, Dry, Breezy	Low and falling pressure

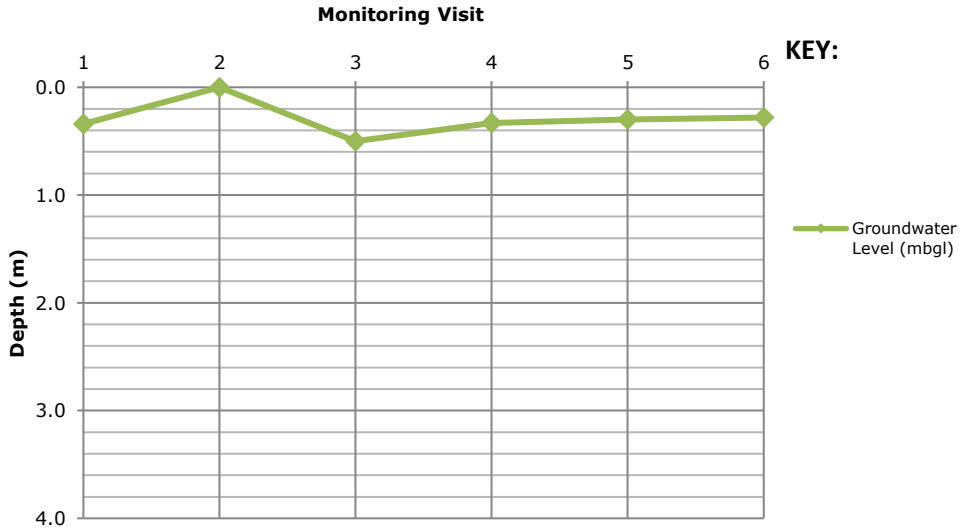
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS16 **Date of Installation** 16/02/2022

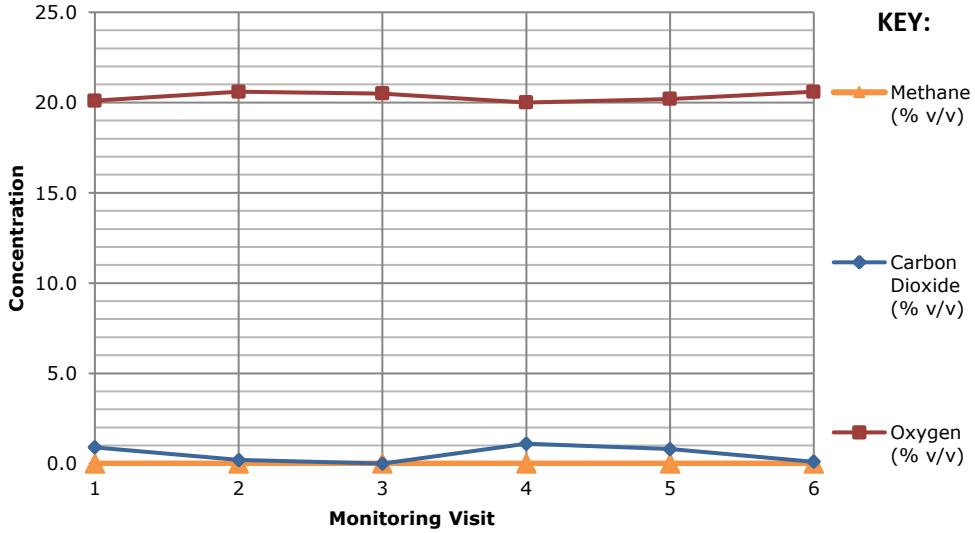
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1020	<0.1	<2	0.9	20.1	-0.3	0	0	0	0.94	2.23	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1010	<0.1	<2	0.2	20.6	0.1	0	0	0	0.83	2.27	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1011	<0.1	<2	0.0	20.5	-0.2	0	0	0	0.85	2.28	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1034	<0.1	<2	1.1	20.0	0.0	0	0	0	1.03	2.28	Warm, Sunny, Dry, Breezy	
5th visit	22/03/2022	1022	<0.1	<2	0.8	20.2	0.0	0	0	0	0.87	2.27	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	0.1	20.6	0.0	0	0	0	0.74	2.28	Cool, Cloudy, Dry, Breezy	Low and falling pressure

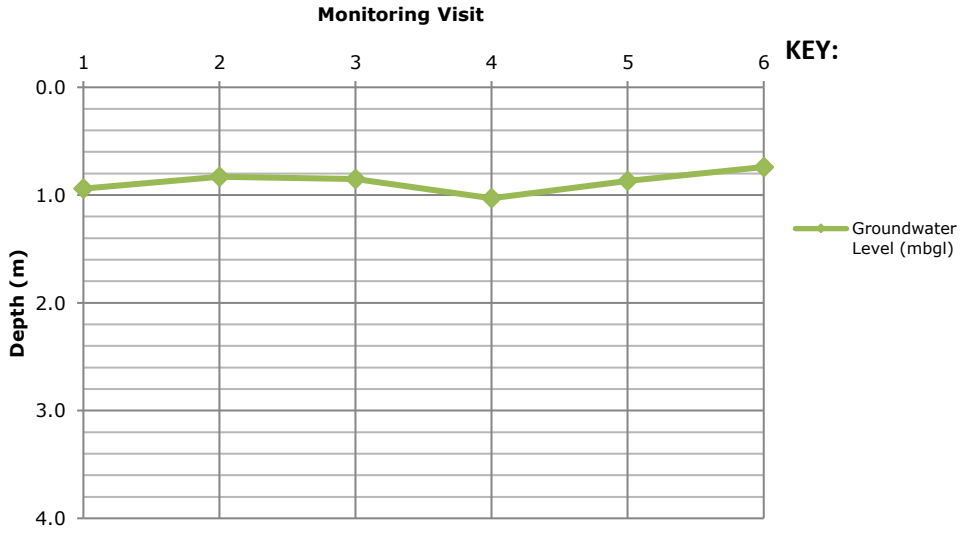
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS17 **Date of Installation** 17/02/2022

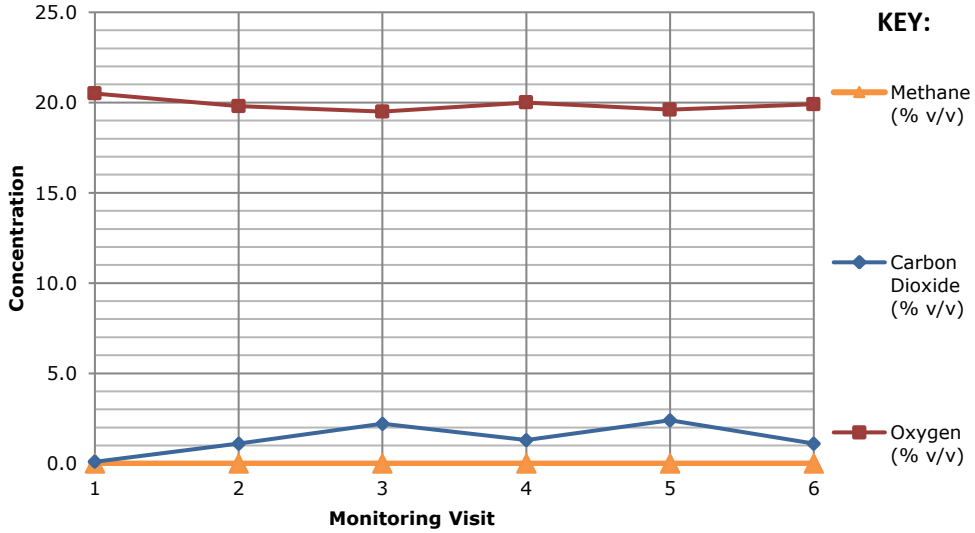
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1019	<0.1	<2	0.1	20.5	-0.2	0	0	0	1.23	3.05	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1010	<0.1	<2	1.1	19.8	0.0	0	0	0	1.07	3.03	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1009	<0.1	<2	2.2	19.5	-0.3	0	0	0	1.18	3.05	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1036	<0.1	<2	1.3	20.0	0.1	0	0	0	1.21	3.07	Warm, Sunny, Dry, Breezy	Water sample taken.
5th visit	22/03/2022	1019	<0.1	<2	2.4	19.6	0.0	0	0	0	1.32	3.06	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	1.1	19.9	0.0	0	0	0	1.10	3.10	Cool, Cloudy, Dry, Breezy	Low and falling pressure

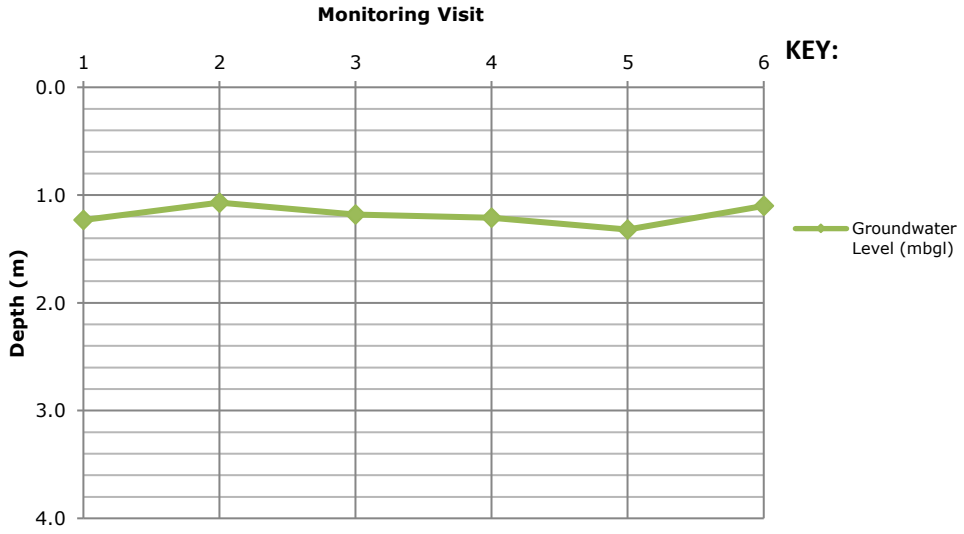
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS18 **Date of Installation** 17/02/2022

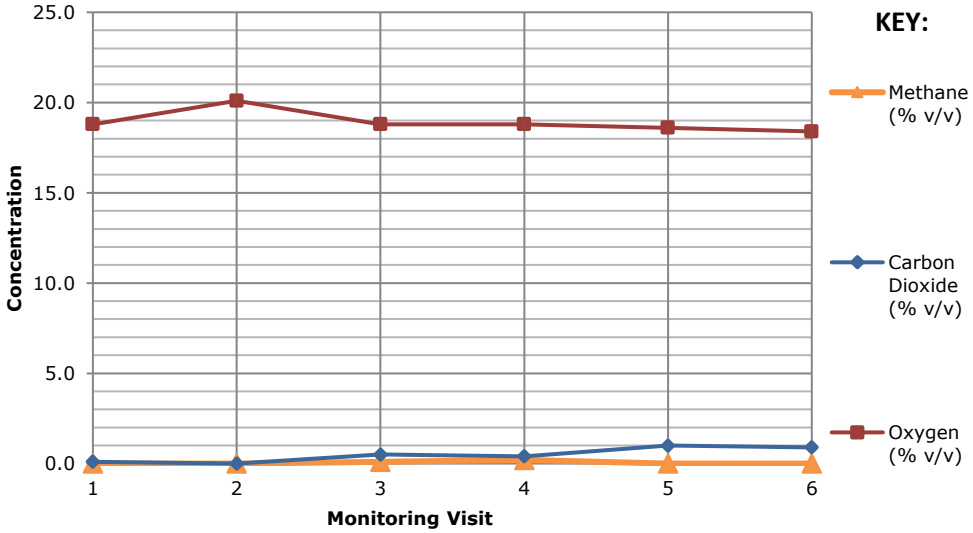
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1019	<0.1	<2	0.1	18.8	-0.2	0	0	1	0.77	1.96	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1009	<0.1	<2	0.0	20.1	-0.6	0	0	1	0.40	1.96	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1010	0.1	2	0.5	18.8	-0.4	0	0	0	0.73	1.98	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1034	0.2	4	0.4	18.8	-0.3	0	0	0	0.72	1.97	Warm, Sunny, Dry, Breezy	Water sample taken.
5th visit	22/03/2022	1020	<0.1	<2	1.0	18.6	0.0	0	0	0	0.82	1.98	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	0.9	18.4	-0.1	0	0	0	0.71	1.99	Cool, Cloudy, Dry, Breezy	Low and falling pressure

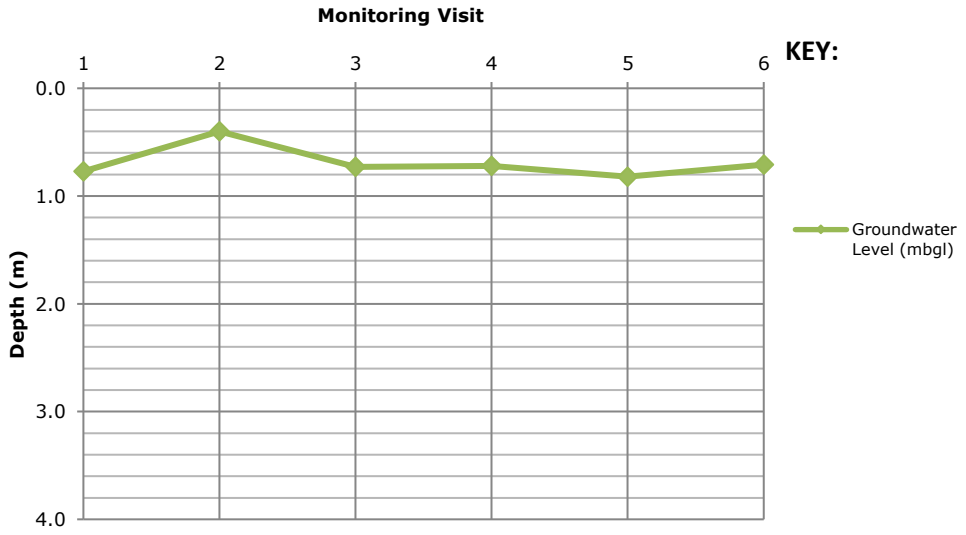
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





GROUND GAS AND GROUNDWATER MONITORING DATA

Project Number: 6071,SI

Project Name: Forge Wood High School, Horsham, RH11 0LN

Date: 06/04/2022

Exploratory Hole Location WS19 **Date of Installation** 17/02/2022

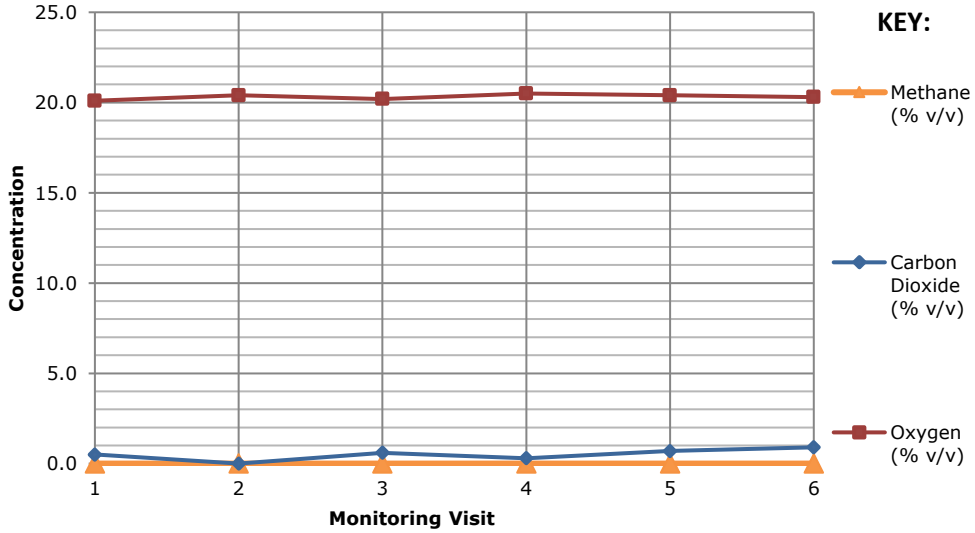
Return Visit #	Monitoring Date	Atmospheric Pressure (mb)	Methane Content (% v/v)	Methane Content (% LEL)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow Rate (l/hr)	H2S (ppm)	CO (ppm)	VOC (ppm)	Water Level (mbgl)	Base of Well (mbgl)	Weather Conditions	Comments / Pressure Rise or Fall
1st visit	25/02/2022	1018	<0.1	<2	0.5	20.1	-0.2	0	0	0	0.46	1.85	Cool, Sunny, Damp Calm	
2nd visit	04/03/2022	1009	<0.1	<2	0.0	20.4	-0.5	0	0	0	0.39	1.89	Cool, Overcast, Damp, Calm	Well purged dry
3rd visit	10/03/2022	1010	<0.1	<2	0.6	20.2	0.0	0	0	0	0.52	1.94	Cool, Cloudy, Dry, Breezy	
4th visit	18/03/2022	1032	<0.1	<2	0.3	20.5	0.0	0	0	0	0.55	1.92	Warm, Sunny, Dry, Breezy	Water sample taken.
5th visit	22/03/2022	1020	<0.1	<2	0.7	20.4	0.0	0	0	0	0.49	1.87	Cool, Sunny, Dry, Breezy	
6th visit	30/03/2022	995	<0.1	<2	0.9	20.3	0.0	0	0	0	0.44	1.90	Cool, Cloudy, Dry, Breezy	Low and falling pressure

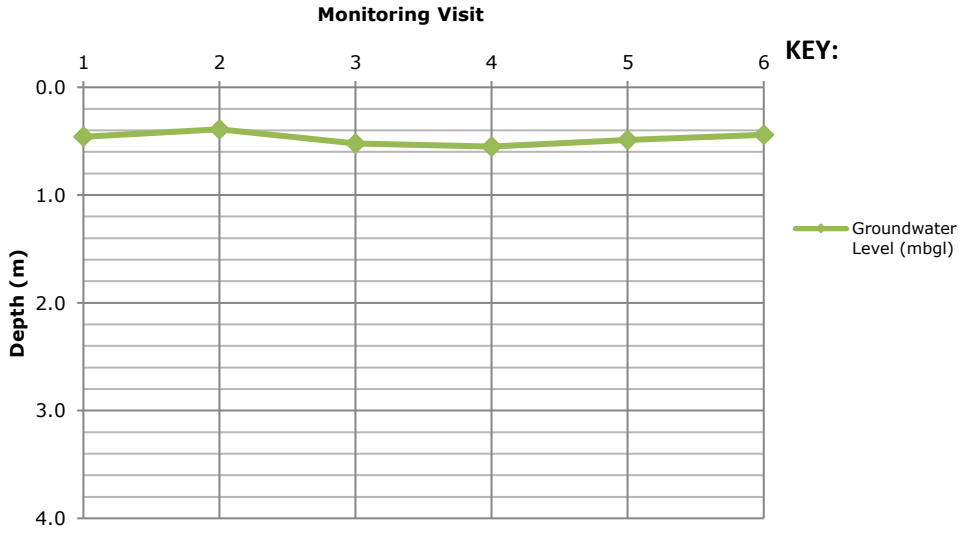
Instruments Used: Equipment used: [Choose from drop-down box]

REMARKS:

NOTE: **n/a** Not applicable

nm Not measured





APPENDIX 8 – ENVIRONMENTAL LABORATORY TEST RESULTS

Geoff Faro
Geosphere Environmental Ltd
Brightwell Barns
Ipswich Road
Brightwell
Suffolk
IP10 0BJ

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-01674

Site Reference:	Forge Wood High, Ifield, Horsham
Project / Job Ref:	6071,SI
Order No:	None Supplied
Sample Receipt Date:	21/02/2022
Sample Scheduled Date:	22/02/2022
Report Issue Number:	1
Reporting Date:	03/03/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	14/02/22	15/02/22	15/02/22	15/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS1	WS3	WS6	WS8	WS8
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1	E1	E2
Order No: None Supplied	**Depth (m)**	0.20 - 0.50	0.20 - 0.50	GL - 0.20	0.10 - 0.50	0.50 - 0.90
Reporting Date: 03/03/2022	**DETS Sample No**	587208	587209	587210	587211	587212

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Detected	
Sample Matrix (S)	Material Type	N/a	NONE				Bundle of Chrysotile	
Asbestos Type (S)	PLM Result	N/a	ISO17025				Chrysotile	
Asbestos Quantification (S)	%	< 0.001	ISO17025				< 0.001	
pH	pH Units	N/a	MCERTS	6.9	7.0		5.8	7.0
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2		< 2	
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	44	< 10		16	28
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.04	< 0.01		0.02	0.03
Total Sulphur	%	< 0.02	NONE	0.03	0.03		0.02	
Antimony (Sb)	mg/kg	< 1	NONE	1.4	1.5		1.8	
Arsenic (As)	mg/kg	< 2	MCERTS	11	11	8	11	
Barium (Ba)	mg/kg	< 2.5	MCERTS	83	82		67	
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.9	0.9		1.1	
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS			< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS			20		
Chromium (III)	mg/kg	< 2	NONE	20	23		29	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2		< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	8	15	11	21	
Iron (Fe)	mg/kg	< 50	NONE	32260	25200		28410	
Lead (Pb)	mg/kg	< 3	MCERTS	19	22	37	22	
Mercury (Hg)	mg/kg	< 1	MCERTS			< 1		
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1	< 1		< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	7	10	7	13	
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	
Vanadium (V)	mg/kg	< 1	MCERTS	37	34		41	
Zinc (Zn)	mg/kg	< 3	MCERTS	43	48	43	56	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2		< 2	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

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

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	16/02/22	14/02/22	16/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS9	WS11	WS11	WS12	WS17
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1	E1	E1
Order No: None Supplied	**Depth (m)**	0.50	0.05 - 0.10	0.05 - 0.10	GL - 0.10	0.20 - 0.50
Reporting Date: 03/03/2022	**DETS Sample No**	587213	587214	587215	587216	587217

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen [S]	N/a	N/a	ISO17025	Not Detected	Not Detected		Not Detected	
Sample Matrix [S]	Material Type	N/a	NONE					
Asbestos Type [S]	PLM Result	N/a	ISO17025					
Asbestos Quantification [S]	%	< 0.001	ISO17025					
pH	pH Units	N/a	MCERTS		8.0			7.6
Free Cyanide	mg/kg	< 2	NONE		< 2			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS		12			30
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS		0.01			0.03
Total Sulphur	%	< 0.02	NONE		0.08			
Antimony (Sb)	mg/kg	< 1	NONE		1.4			
Arsenic (As)	mg/kg	< 2	MCERTS	11	8		12	
Barium (Ba)	mg/kg	< 2.5	MCERTS		86			
Beryllium (Be)	mg/kg	< 0.5	MCERTS		1.3			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1		< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2			< 0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	24			19	
Chromium (III)	mg/kg	< 2	NONE		13			
Chromium (hexavalent)	mg/kg	< 2	NONE		< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	13	11		22	
Iron (Fe)	mg/kg	< 50	NONE		20270			
Lead (Pb)	mg/kg	< 3	MCERTS	18	29		33	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			1.2	
Molybdenum (Mo)	mg/kg	< 1	MCERTS		< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	11	7		14	
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3		< 3	
Vanadium (V)	mg/kg	< 1	MCERTS		36			
Zinc (Zn)	mg/kg	< 3	MCERTS	53	52		72	
Total Phenols (monohydric)	mg/kg	< 2	NONE		< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22	17/02/22	17/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS18	WS18	WS18	WS18	WS18
Project / Job Ref: 6071,SI	**Additional Refs**	E2	E3	E3	E4	E5
Order No: None Supplied	**Depth (m)**	0.30 - 0.40	0.40 - 0.60	0.40 - 0.60	0.90 - 1.00	1.50
Reporting Date: 03/03/2022	**DETS Sample No**	587218	587219	587220	587221	587222

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected			
Sample Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	ISO17025					
Asbestos Quantification (S)	%	< 0.001	ISO17025					
pH	pH Units	N/a	MCERTS	7.5	7.1		7.1	
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	30	11		< 10	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.03	0.01		< 0.01	
Total Sulphur	%	< 0.02	NONE	0.06	0.04			
Antimony (Sb)	mg/kg	< 1	NONE	7.1	1.2			
Arsenic (As)	mg/kg	< 2	MCERTS	20	10			
Barium (Ba)	mg/kg	< 2.5	MCERTS	389	124			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.5	0.8			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS					
Chromium (Cr)	mg/kg	< 2	MCERTS					
Chromium (III)	mg/kg	< 2	NONE	27	19			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	18	11			
Iron (Fe)	mg/kg	< 50	NONE	23890	24620			
Lead (Pb)	mg/kg	< 3	MCERTS	345	25			
Mercury (Hg)	mg/kg	< 1	MCERTS					
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	10	9			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	44	30			
Zinc (Zn)	mg/kg	< 3	MCERTS	186	47			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22	17/02/22	17/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS19	WS20	HP01	HP03	PACM1
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1	None Supplied	E1
Order No: None Supplied	**Depth (m)**	0.30 - 0.60	0.10 - 0.30	GL - 0.10	GL - 0.10	GL
Reporting Date: 03/03/2022	**DETS Sample No**	587223	587224	587225	587226	587227

Determinand	Unit	RL	Accreditation					
Asbestos Screen [S]	N/a	N/a	ISO17025	Not Detected	Not Detected	Detected	Not Detected	
Sample Matrix [S]	Material Type	N/a	NONE			Chrysotile present as bundle		
Asbestos Type [S]	PLM Result	N/a	ISO17025			Chrysotile		
Asbestos Quantification [S]	%	< 0.001	ISO17025					
pH	pH Units	N/a	MCERTS	7.0	7.0			
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	177	72			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.18	0.07			
Total Sulphur	%	< 0.02	NONE	0.04	0.03			
Antimony (Sb)	mg/kg	< 1	NONE	1.2	1			
Arsenic (As)	mg/kg	< 2	MCERTS	7	5			
Barium (Ba)	mg/kg	< 2.5	MCERTS	144	68			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.1	0.6			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS					
Chromium (Cr)	mg/kg	< 2	MCERTS					
Chromium (III)	mg/kg	< 2	NONE	20	17			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	8	6			
Iron (Fe)	mg/kg	< 50	NONE	25070	15410			
Lead (Pb)	mg/kg	< 3	MCERTS	18	12			
Mercury (Hg)	mg/kg	< 1	MCERTS					
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	10	6			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	33	26			
Zinc (Zn)	mg/kg	< 3	MCERTS	47	36			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22			
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	SP01	HP02			
Project / Job Ref: 6071,SI	**Additional Refs**	None Supplied	None Supplied			
Order No: None Supplied	**Depth (m)**	None Supplied	GL - 0.10			
Reporting Date: 03/03/2022	**DETS Sample No**	587228	587229			

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Detected	Not Detected			
Sample Matrix (S)	Material Type	N/a	NONE	Chrysotile present in visible thermoplastic tile fragments				
Asbestos Type (S)	PLM Result	N/a	ISO17025	Chrysotile				
Asbestos Quantification (S)	%	< 0.001	ISO17025	2.990				
pH	pH Units	N/a	MCERTS	8.0	7.3			
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	74	44			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.07	0.04			
Total Sulphur	%	< 0.02	NONE	0.07	0.07			
Antimony (Sb)	mg/kg	< 1	NONE	5.3	1.8			
Arsenic (As)	mg/kg	< 2	MCERTS	8	12			
Barium (Ba)	mg/kg	< 2.5	MCERTS	297	173			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.6	0.6			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS					
Chromium (Cr)	mg/kg	< 2	MCERTS					
Chromium (III)	mg/kg	< 2	NONE	19	18			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	31	40			
Iron (Fe)	mg/kg	< 50	NONE	18600	15530			
Lead (Pb)	mg/kg	< 3	MCERTS	44	97			
Mercury (Hg)	mg/kg	< 1	MCERTS					
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	12	8			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	30	27			
Zinc (Zn)	mg/kg	< 3	MCERTS	127	242			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-01674	**Date Sampled**	15/02/22	14/02/22	16/02/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS6	WS9	WS12		
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1		
Order No: None Supplied	**Depth (m)**	GL - 0.20	0.50	GL - 0.10		
Reporting Date: 03/03/2022	**DETS Sample No**	587210	587213	587216		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.28		
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.24		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6		

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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	14/02/22	15/02/22	16/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS1	WS3	WS8	WS11	WS18
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1	E1	E2
Order No: None Supplied	**Depth (m)**	0.20 - 0.50	0.20 - 0.50	0.10 - 0.50	0.05 - 0.10	0.30 - 0.40
Reporting Date: 03/03/2022	**DETS Sample No**	587208	587209	587211	587214	587218

Determinand	Unit	RL	Accreditation				(n)	
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	351
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	1219
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	6687
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	7	8526
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	103	6973
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	109	23757
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	133
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	860
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	4	6219
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	64	7730
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10	414	4181
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21	482	19123
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	591	42879

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22	17/02/22	17/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS18	WS18	WS18	WS19	WS20
Project / Job Ref: 6071,SI	**Additional Refs**	E3	E4	E5	E1	E1
Order No: None Supplied	**Depth (m)**	0.40 - 0.60	0.90 - 1.00	1.50	0.30 - 0.60	0.10 - 0.30
Reporting Date: 03/03/2022	**DETS Sample No**	587219	587221	587222	587223	587224

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	5	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	23	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	123	6	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	175	6	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	41	156	< 10	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	41	481	< 21	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	2	19	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	12	134	4	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	15	141	< 3	< 3	< 3
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	63	< 10	< 10	< 10
Aromatic (C5 - C35)	mg/kg	< 21	NONE	28	357	< 21	< 21	< 21
Total >C5 - C35	mg/kg	< 42	NONE	69	838	< 42	< 42	< 42

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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22			
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	SP01	HP02			
Project / Job Ref: 6071,SI	**Additional Refs**	None Supplied	None Supplied			
Order No: None Supplied	**Depth (m)**	None Supplied	GL - 0.10			
Reporting Date: 03/03/2022	**DETS Sample No**	587228	587229			

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	11			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	130			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	239			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	381			
Total >C5 - C35	mg/kg	< 42	NONE	< 42	381			

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	14/02/22	15/02/22	16/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS1	WS3	WS8	WS11	WS18
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1	E1	E2
Order No: None Supplied	**Depth (m)**	0.20 - 0.50	0.20 - 0.50	0.10 - 0.50	0.05 - 0.10	0.30 - 0.40
Reporting Date: 03/03/2022	**DETS Sample No**	587208	587209	587211	587214	587218

Determinand	Unit	RL	Accreditation				(n)	
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	1091
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	4223
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	447
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22	17/02/22	17/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS18	WS18	WS18	WS19	WS20
Project / Job Ref: 6071,SI	**Additional Refs**	E3	E4	E5	E1	E1
Order No: None Supplied	**Depth (m)**	0.40 - 0.60	0.90 - 1.00	1.50	0.30 - 0.60	0.10 - 0.30
Reporting Date: 03/03/2022	**DETS Sample No**	587219	587221	587222	587223	587224

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	3	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	21	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	4	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22			
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	SP01	HP02			
Project / Job Ref: 6071,SI	**Additional Refs**	None Supplied	None Supplied			
Order No: None Supplied	**Depth (m)**	None Supplied	GL - 0.10			
Reporting Date: 03/03/2022	**DETS Sample No**	587228	587229			

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE	ug/kg	< 5	MCERTS	< 5	< 5			

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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
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Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	14/02/22	15/02/22	16/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS1	WS3	WS8	WS11	WS18
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E1	E1	E1	E2
Order No: None Supplied	**Depth (m)**	0.20 - 0.50	0.20 - 0.50	0.10 - 0.50	0.05 - 0.10	0.30 - 0.40
Reporting Date: 03/03/2022	**DETS Sample No**	587208	587209	587211	587214	587218

Determinand	Unit	RL	Accreditation				(n)	
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	1091
m,p-Xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	4223
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	447
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	1008
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	2361
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	8516
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	30240
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	1896
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	1697
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	7751
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 22-01674	**Date Sampled**	17/02/22	17/02/22	17/02/22	17/02/22	17/02/22
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS18	WS19	WS20	SP01	HP02
Project / Job Ref: 6071,SI	**Additional Refs**	E3	E1	E1	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.40 - 0.60	0.30 - 0.60	0.10 - 0.30	None Supplied	GL - 0.10
Reporting Date: 03/03/2022	**DETS Sample No**	587219	587223	587224	587228	587229

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 2	MCERTS	3	< 2	< 2	< 2	< 2
m,p-Xylene	ug/kg	< 2	MCERTS	21	< 2	< 2	< 2	< 2
o-Xylene	ug/kg	< 2	MCERTS	4	< 2	< 2	< 2	< 2
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	6	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	12	< 5	< 5	< 5	< 5
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	37	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	92	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/kg	< 5	MCERTS	23	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/kg	< 5	MCERTS	31	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

DETS Ltd
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Lenham Heath
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Kent ME17 2JN
Tel : 01622 850410

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Leachate Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	17/02/22	17/02/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS11	WS18	PACM1		
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E3	E1		
Order No: None Supplied	**Depth (m)**	0.05 - 0.10	0.40 - 0.60	GL		
Reporting Date: 03/03/2022	**DETS Sample No**	587215	587220	587227		

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025	7.8	7.5			
Free Cyanide	ug/l	< 5	ISO17025	< 5	< 5			
Sulphate as SO_4	mg/l	< 1	ISO17025	1	1			
Sulphide	mg/l	< 0.1	NONE	< 0.1	< 0.1			
Ammoniacal Nitrogen as NH_4	ug/l	< 50	ISO17025	138	165			
Chloride	mg/l	< 1	ISO17025	< 1	< 1			
Fluoride	mg/l	< 0.5	ISO17025	< 0.5	< 0.5			
Antimony	ug/l	< 5	ISO17025	< 5	< 5			
Arsenic	ug/l	< 5	ISO17025	< 5	< 5			
Barium	ug/l	< 5	ISO17025	7	< 5			
Beryllium	ug/l	< 3	ISO17025	< 3	< 3			
Boron	ug/l	< 5	ISO17025	8	15			
Cadmium	ug/l	< 0.4	ISO17025	< 0.4	< 0.4			
Chromium	ug/l	< 5	ISO17025	< 5	< 5			
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20			
Chromium III	ug/l	< 20	NONE	< 20	< 20			
Copper	ug/l	< 5	ISO17025	< 5	< 5			
Iron	ug/l	< 5	ISO17025	55	38			
Lead	ug/l	< 5	ISO17025	< 5	< 5			
Manganese	ug/l	< 5	ISO17025	< 5	< 5			
Molybdenum	ug/l	< 5	ISO17025	< 5	< 5			
Nickel	ug/l	< 5	ISO17025	< 5	< 5			
Selenium	ug/l	< 5	ISO17025	< 5	< 5			
Vanadium	ug/l	< 5	ISO17025	< 5	< 5			
Zinc	ug/l	< 2	ISO17025	7	2			
Magnesium	mg/l	< 0.1	ISO17025	1.3	0.9			

Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Leachate Analysis Certificate - Speciated Phenols						
DETS Report No: 22-01674	**Date Sampled**	14/02/22	17/02/22			
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS11	WS18			
Project / Job Ref: 6071,SI	**Additional Refs**	E1	E3			
Order No: None Supplied	**Depth (m)**	0.05 - 0.10	0.40 - 0.60			
Reporting Date: 03/03/2022	**DETS Sample No**	587215	587220			

Determinand	Unit	RL	Accreditation					
2, 3, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2, 3, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2, 3-xylenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2, 4, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2, 4-xylenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2, 5-xylenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2, 6-xylenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2-ethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
2-isopropylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
3, 4, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
3, 4-xylenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
3, 5-xylenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
3-ethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
3-isopropylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
4-ethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
4-isopropylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			
m-cresol (3-methylphenol)	ug/l	< 0.1	NONE	< 0.1	< 0.1			
o-cresol (2-methylphenol)	ug/l	< 0.1	NONE	< 0.1	< 0.1			
p-cresol (4-methylphenol)	ug/l	< 0.1	NONE	< 0.1	< 0.1			
phenol	ug/l	< 0.1	NONE	< 0.1	< 0.1			

Subcontracted analysis (S)

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Maidstone
Kent ME17 2JN
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Bulk Analysis Certificate						
DETS Report No: 22-01674	**Date Sampled**	17/02/22				
Geosphere Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	PACM1				
Project / Job Ref: 6071,SI	**Additional Refs**	E1				
Order No: None Supplied	**Depth (m)**	GL				
Reporting Date: 03/03/2022	**DETS Sample No**	587227				

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Type (S)	PLM Result	N/a	**ISO17025**	Chrysotile				
Sample Matrix (S)	Material Type	N/a	NONE	Cement				

The samples have been examined to identify the presence of asbestiform minerals by polarising light microscopy and dispersion staining technique to In-House Procedures QTSE600 Determination of Asbestos in Bulk Materials; Asbestos in Soils/Sediments (fibre screening and identification) that is in accordance with the Health and Safety Executive HSG 248 Appendix 2.

This report refers to samples as received, and Dets Ltd, takes no responsibility for the accuracy or competence of sampling by others.

The material description shall be regarded as tentative and is not included in our scope of UKAS Accreditation.

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.

RL: Reporting Limit

Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 22-01674
Geosphere Environmental Ltd
Site Reference: Forge Wood High, Ifield, Horsham
Project / Job Ref: 6071,SI
Order No: None Supplied
Reporting Date: 03/03/2022

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
587208	WS1	E1	0.20 - 0.50	17.3	Brown clay
587209	WS3	E1	0.20 - 0.50	19.5	Brown sandy clay
587210	WS6	E1	GL - 0.20	17	Brown sandy clay
587211	WS8	E1	0.10 - 0.50	18.4	Brown sandy clay
587212	WS8	E2	0.50 - 0.90	17	Brown sandy clay with stones and concrete
587213	WS9	E1	0.50	18.5	Brown clay
587214	WS11	E1	0.05 - 0.10	7.4	Black sandy gravel with stones and concrete
587216	WS12	E1	GL - 0.10	53.2	Brown loamy sand with vegetation
587217	WS17	E1	0.20 - 0.50	19.9	Brown sandy clay with stones and brick
587218	WS18	E2	0.30 - 0.40	13.6	Brown gravelly sand with stones and concrete
587219	WS18	E3	0.40 - 0.60	16.1	Brown clay
587221	WS18	E4	0.90 - 1.00	14	Brown clay
587222	WS18	E5	1.50	17.5	Light brown sandy clay
587223	WS19	E1	0.30 - 0.60	15.4	Brown clay
587224	WS20	E1	0.10 - 0.30	15.6	Brown clay
587228	SP01	None Supplied	None Supplied	17.7	Brown sandy clay with stones and concrete
587229	HP02	None Supplied	GL - 0.10	15.2	Black loamy sand with stones and concrete

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-01674
Geosphere Environmental Ltd
Site Reference: Forge Wood High, Ifield, Horsham
Project / Job Ref: 6071,SI
Order No: None Supplied
Reporting Date: 03/03/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-01674
Geosphere Environmental Ltd
Site Reference: Forge Wood High, Ifield, Horsham
Project / Job Ref: 6071,SI
Order No: None Supplied
Reporting Date: 03/03/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

Geoff Faro
Geosphere Environmental Ltd
Brightwell Barns
Ipswich Road
Brightwell
Suffolk
IP10 0BJ

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-01722

Site Reference:	Forge Wood High, Ifield, Horsham
Project / Job Ref:	6071,SI
Order No:	None Supplied
Sample Receipt Date:	23/02/2022
Sample Scheduled Date:	23/02/2022
Report Issue Number:	1
Reporting Date:	28/02/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 22-01722	**Date Sampled**	14/02/22	15/02/22	16/02/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS1	WS6	WS14		
Project / Job Ref: 6071,SI	**Additional Refs**	D2	D1	D2		
Order No: None Supplied	**Depth (m)**	2.00	0.40	1.20		
Reporting Date: 28/02/2022	**DETS Sample No**	587385	587386	587387		

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	6.7	6.3	5.7		
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	203	16	13		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.20	0.02	0.01		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-01722	
Geosphere Environmental Ltd	
Site Reference: Forge Wood High, Ifield, Horsham	
Project / Job Ref: 6071,SI	
Order No: None Supplied	
Reporting Date: 28/02/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
587385	WS1	D2	2.00	14.2	Light grey clay
587386	WS6	D1	0.40	17.8	Brown sandy clay
587387	WS14	D2	1.20	15	Light brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-01722
Geosphere Environmental Ltd
Site Reference: Forge Wood High, Ifield, Horsham
Project / Job Ref: 6071,SI
Order No: None Supplied
Reporting Date: 28/02/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Geoff Faro
Geosphere Environmental Ltd
Brightwell Barns
Ipswich Road
Brightwell
Suffolk
IP10 0BJ

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-02703

Site Reference:	Forge Wood High, Ifield, Horsham
Project / Job Ref:	6071,SI
Order No:	None Supplied
Sample Receipt Date:	22/03/2022
Sample Scheduled Date:	22/03/2022
Report Issue Number:	1
Reporting Date:	25/03/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

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Water Analysis Certificate						
DETS Report No: 22-02703	**Date Sampled**	18/03/22	18/03/22	18/03/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS17	WS18	WS19		
Project / Job Ref: 6071,SI	**Additional Refs**	W1	W1	W1		
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/03/2022	**DETS Sample No**	591482	591483	591484		

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	**ISO17025**	7.3	7.3	7.5		
Sulphate as SO_4	mg/l	< 1	**ISO17025**	585	91	281		
Nitrate as NO_3	mg/l	< 0.5	**ISO17025**	0.5	< 0.5	0.6		
Dissolved Oxygen	mg/l	<1	NONE	8.5	6.8	7.8		
Iron (dissolved)	ug/l	< 5	**ISO17025**	< 5	7	24		
Manganese (dissolved)	ug/l	< 5	**ISO17025**	93	5110	42		
Iron (total)	ug/l	< 5	NONE	1830	2810	1540		
Manganese (total)	ug/l	< 5	NONE	118	5410	137		

Subcontracted analysis (S)
Insufficient sample I/S
Unsuitable Sample U/S

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Rose Lane
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Maidstone
Kent ME17 2JN
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Water Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-02703	**Date Sampled**	18/03/22	18/03/22	18/03/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS17	WS18	WS19		
Project / Job Ref: 6071,SI	**Additional Refs**	W1	W1	W1		
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/03/2022	**DETS Sample No**	591482	591483	591484		

Determinand	**Unit**	**RL**	**Accreditation**					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	40	< 10		
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10	289	< 10		
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	469	< 10		
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	497	< 10		
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	1295	< 70		
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	64	< 10		
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10	183	< 10		
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10	123	< 10		
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10	56	< 10		
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70	426	< 70		
Total >C5 - C35	ug/l	< 140	NONE	< 140	1721	< 140		

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

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Water Analysis Certificate - BTEX / MTBE							
DETS Report No: 22-02703	**Date Sampled**	18/03/22	18/03/22	18/03/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS17	WS18	WS19		
Project / Job Ref: 6071,SI	**Additional Refs**	W1	W1	W1		
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/03/2022	**DETS Sample No**	591482	591483	591484		

Determinand	Unit	RL	Accreditation					
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1		
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Ethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
p & m-xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10		
o-xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10		

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

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Water Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 22-02703	**Date Sampled**	18/03/22	18/03/22	18/03/22		
Geosphere Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	WS17	WS18	WS19		
Project / Job Ref: 6071,SI	**Additional Refs**	W1	W1	W1		
Order No: None Supplied	**Depth (m)**	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/03/2022	**DETS Sample No**	591482	591483	591484		

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Vinyl Chloride	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10		
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chloroform	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromochloromethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1		
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Trichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromodichloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Dibromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
TAME	ug/l	< 5	ISO17025	< 5	< 5	< 5		
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Tetrachloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Dibromochloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Chlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Ethyl Benzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
m,p-Xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10		
o-Xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Styrene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromoform	ug/l	< 10	ISO17025	< 10	< 10	< 10		
Isopropylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5		
n-Propylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Bromobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
n-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5		
,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10	< 10	< 10		
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5	< 5	< 5		

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-02703
Geosphere Environmental Ltd
Site Reference: Forge Wood High, Ifield, Horsham
Project / Job Ref: 6071,SI
Order No: None Supplied
Reporting Date: 25/03/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

Geoff Faro
Geosphere Environmental Ltd
Brightwell Barns
Ipswich Road
Brightwell
Suffolk
IP10 0BJ

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-02816

Site Reference:	Forge Wood High, Ifield, Horsham
Project / Job Ref:	6071,SI
Order No:	None Supplied
Sample Receipt Date:	22/02/2022
Sample Scheduled Date:	25/03/2022
Report Issue Number:	1
Reporting Date:	29/03/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

UKAS TESTING
4480

Soil Analysis Certificate						
DETS Report No: 22-02816	**Date Sampled**	17/02/22				
Geosphere Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Forge Wood High, Ifield, Horsham	**TP / BH No**	HP01				
Project / Job Ref: 6071,SI	**Additional Refs**	E1				
Order No: None Supplied	**Depth (m)**	0.0 - 0.1				
Reporting Date: 29/03/2022	**DETS Sample No**	591954				

Determinand	Unit	RL	Accreditation					
Asbestos Quantification (S)	%	< 0.001	ISO17025	0.003				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-02816
Geosphere Environmental Ltd
Site Reference: Forge Wood High, Ifield, Horsham
Project / Job Ref: 6071,SI
Order No: None Supplied
Reporting Date: 29/03/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX 9 – GEOTECHNICAL LABORATORY TEST RESULTS

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

Client:

Geosphere Environmental Ltd

Head Office
Brightwell Barns
Ipswich Road
Brightwell
Suffolk
IP10 0BJ

Soil Property Testing Ltd

15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG

Tel: 01480 455579
Email: enquiries@soilpropertytesting.com
Website: www.soilpropertytesting.com

Samples Submitted By:

Geosphere Environmental Ltd

Samples Labelled:

Forge Wood High, Ifield, Horsham

Approved Signatories:

☑ **J.C. Garner B.Eng (Hons) FGS**
Technical Director & Quality Manager

☐ **W. Johnstone**
Materials Lab Manager

Date Received: 23/02/2022

Samples Tested Between: 23/02/2022 **and** 17/03/2022

Remarks:

For the attention of Geoff Faro
Your Reference No: 6071, SI

Notes:

1. All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.
2. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
3. Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.
4. This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.
5. The results within this report only relate to the items tested or sampled.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

0998

Contract	**Forge Wood High, Ifield, Horsham**		
Serial No.	**40271_1**	**Target Date**	09/03/2022
Scheduled By	Geosphere Environmental Ltd		

Schedule Remarks

Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BSEN)	Liquid/Plastic Limits	Wet Sieve Preparation	California Bearing Ratio Test	Dry Density/MC 2.5kg	Triaxial Test													Sample Remarks
WS10	D	1	0.40	1																		
WS10	D	2	1.00	1	1																	
WS10	D	3	1.80	1																		
WS11	B	1	0.10				1															
WS12	B	1	0.10					1														
WS12	D	1	0.50	1	1																	
WS12	UT	1	1.00						1													
WS12	D	2	1.50	1																		
WS12	D	3	2.55	1																		
WS13	B	1	0.25					1														
WS13	D	1	1.10	1	1	1																
WS13	D	2	1.80	1																		
WS14	D	1	0.50	1	1																	
WS16	B	1	0.50				1															
WS16	UT	1	1.00						1													
WS17	UT	1	1.00						1													
WS17	UT	2	2.00						1													
WS19	B	1	0.30				1															
WS2	B	1	0.20				1															
WS3	D	1	0.60	1	1	1																
WS3	D	2	1.20	1																		
WS5	D	1	0.60	1	1																	
WS5	D	2	1.50	1																		
WS6	D	2	1.50	1	1																	
WS6	D	3	2.00	1																		
WS7	B	1	0.25					1														
WS9	D	1	0.60	1	1	1																
WS9	D	2	1.40	1																		
Totals				**17**	**8**	**3**	**4**	**3**	**4**													**End of Schedule**

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti-city Index (%)	Liquid-ity Index	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
WS10	0.40	D	1	**25.0**									Stiff olive yellow silty CLAY with occasional orange and light grey mottling and recently active roots	
WS10	1.00	D	2	**24.6**	53	25	28	-0.02	From Natural	0 (A)		24	Stiff closely fissured mottled orange and light grey silty CLAY with a network of recently active and decayed roots	CH
WS10	1.80	D	3	**17.3**									Very stiff friable thinly laminated light olive brown silty CLAY with frequent black speckling	
WS12	0.50	D	1	**28.0**	58	26	32	0.06	From Natural	<1% (A)		24	Firm olive silty CLAY with occasional bluish grey mottling , rare weak mudstone lithorelicts and recently active roots	CH
WS12	1.50	D	2	**25.6**									Soft olive silty CLAY with occasional bluish grey and brownish yellow mottling and weak mudstone lithorelicts	
WS12	2.55 - 2.85	D	3	**24.6**									Stiff fissured mottled bluish grey and olive yellow silty CLAY with occasional decayed roots	
WS13	1.10	D	1	**17.8**	51	26	25	-0.33	Wet Sieved	12 (M)	20.2*	24	Very stiff friable yellowish brown silty CLAY with occasional bluish grey and orange mottling, weak mudstone lithorelicts and rare black speckling	CH
WS13	1.80	D	2	**17.6**									Very stiff friable thinly laminated mottled bluish grey, orange and olive yellow silty CLAY	

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4
Type of Sample Key: U = Undisturbed, L = Liner, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti-city Index (%)	Liquid-ity Index	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
WS14	0.50	D	1	**29.3**	59	27	32	0.07	From Natural	0 (A)		24	Stiff mottled light grey, orange and olive yellow silty CLAY with occasional recently active roots	CH
WS3	0.60	D	1	**23.9**	45	23	22	0.04	Wet Sieved	11 (M)	26.9*	25	Stiff olive silty CLAY with occasional black speckling, weak fine and medium mudstone lithorelicts and recently active roots	CI
WS3	1.20	D	2	**22.8**									Firm mottled bluish grey and olive silty CLAY with rare decayed roots	
WS5	0.60	D	1	**26.3**	50	24	26	0.09	From Natural	0 (A)		24	Stiff olive yellow silty CLAY with occasional light grey and orange mottling and recently active roots	CI/CH
WS5	1.50	D	2	**20.3**									Very stiff friable thinly laminated olive yellow silty CLAY with frequent black speckling	
WS6	1.50	D	2	**19.4**	49	24	25	-0.18	From Natural	0 (A)		24	Very stiff mottled bluish grey and olive yellow silty CLAY with occasional decayed roots	CI
WS6	2.00	D	3	**19.4**									Very stiff olive yellow CLAY with occasional bluish grey and orange mottling and rare recently active and decayed roots	
WS9	0.60	D	1	**22.4**	42	20	22	0.11	Wet Sieved	19 (M)	27.6*	26	Firm mottled orange, light grey and olive yellow silty CLAY with occasional black speckling, weak mudstone lithorelicts and recently active roots	CI

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4
Type of Sample Key: U = Undisturbed, L = Liner, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti-city Index (%)	Liquid-ity Index	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
WS9	1.40	D	2	**23.7**									Stiff mottled orange, bluish grey and olive yellow silty CLAY with frequent black speckling	

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2
Type of Sample Key: U = Undisturbed, L = Liner, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

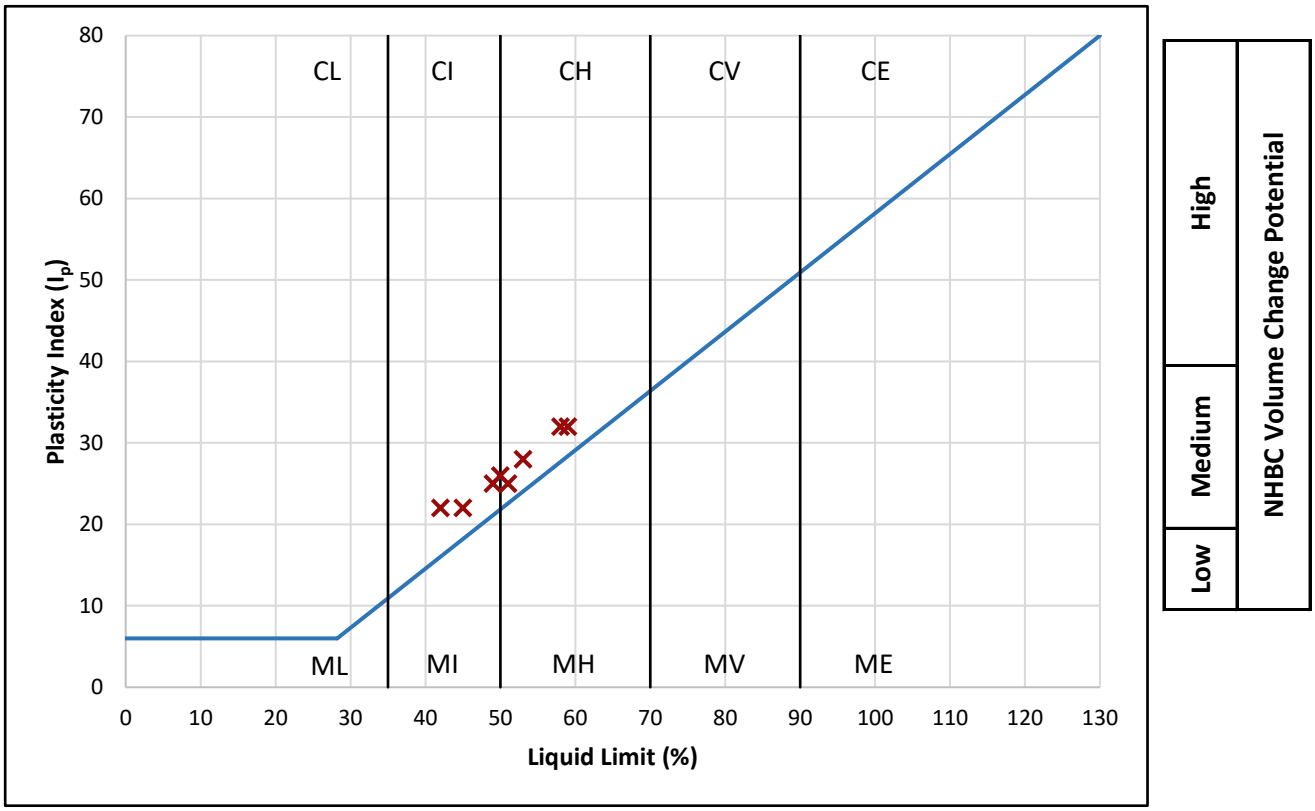
DATE ISSUED: 17/03/2022

0998

Contract	Forge Wood High, Ifield, Horsham
Serial No.	40271_1

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

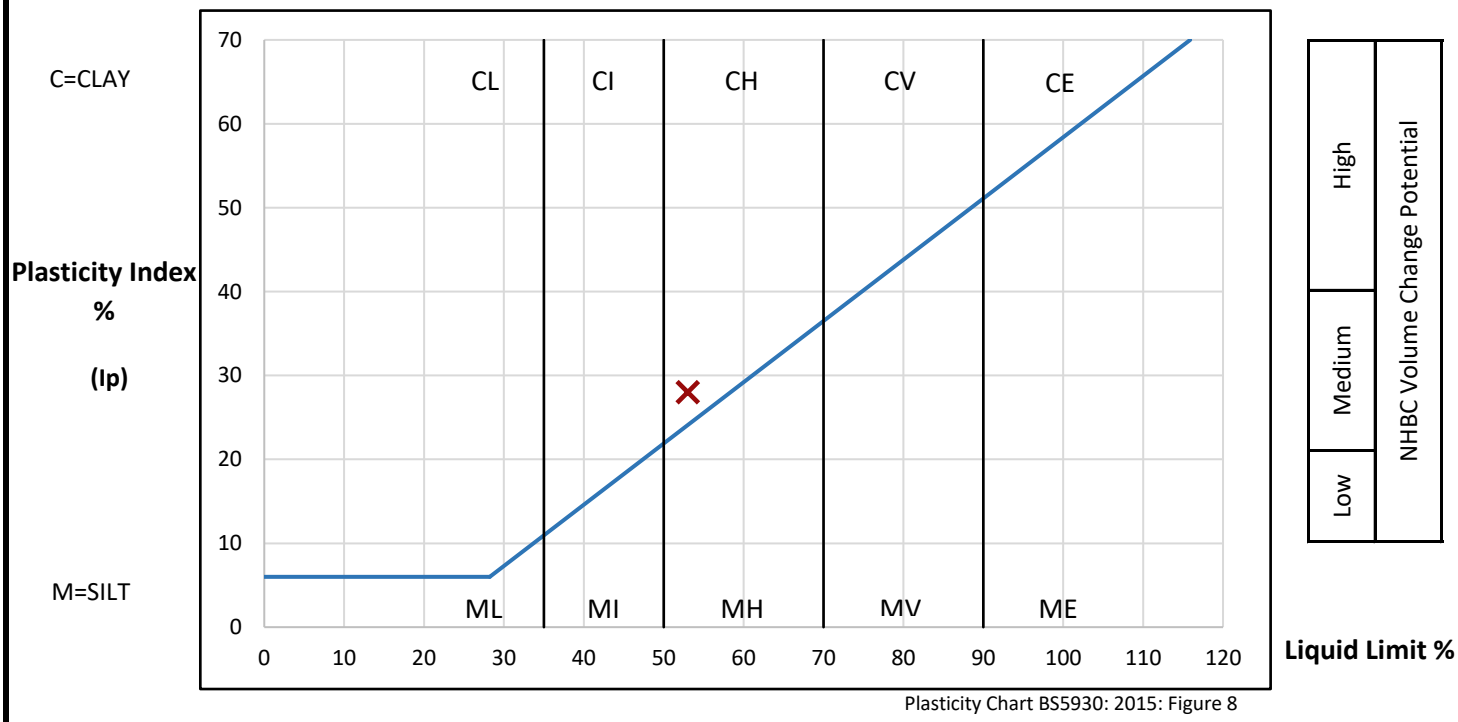
0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS10	1.00	D	2	24.6	Stiff closely fissured mottled orange and light grey silty CLAY with a network of recently active and decayed roots	

PREPARATION			Liquid Limit	53 %
Method of preparation		From natural	Plastic Limit	25 %
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	28 %
Corrected water content for material passing 0.425mm			Liquidity Index	-0.02
Sample retained 2mm sieve	(Assumed)	0 %	NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

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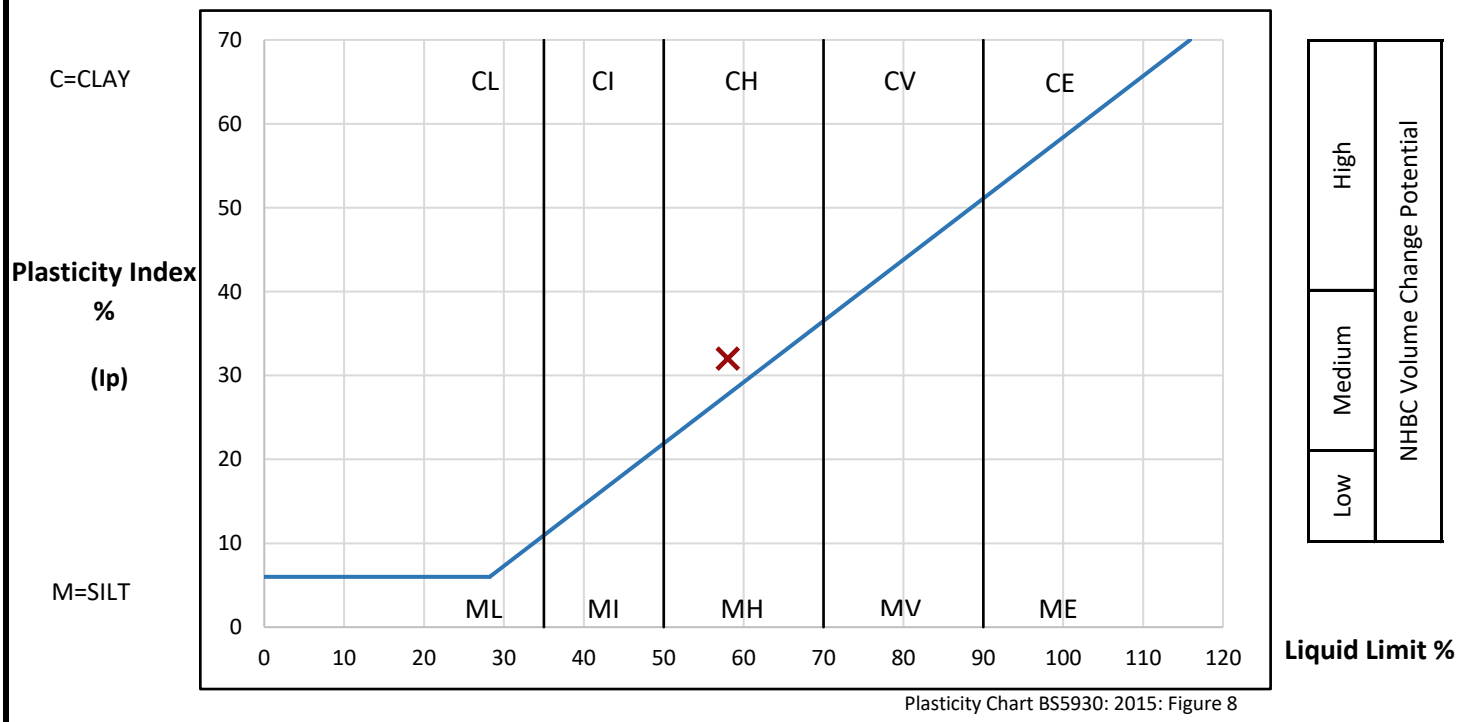
Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS12	0.50	D	1	28.0	Firm olive silty CLAY with occasional bluish grey mottling , rare weak mudstone lithorelicts and recently active roots	

PREPARATION				Liquid Limit	58 %
Method of preparation	From natural/gravel picked out by hand			Plastic Limit	26 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	32 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.06
Sample retained 2mm sieve	(Assumed)	<1 %		NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

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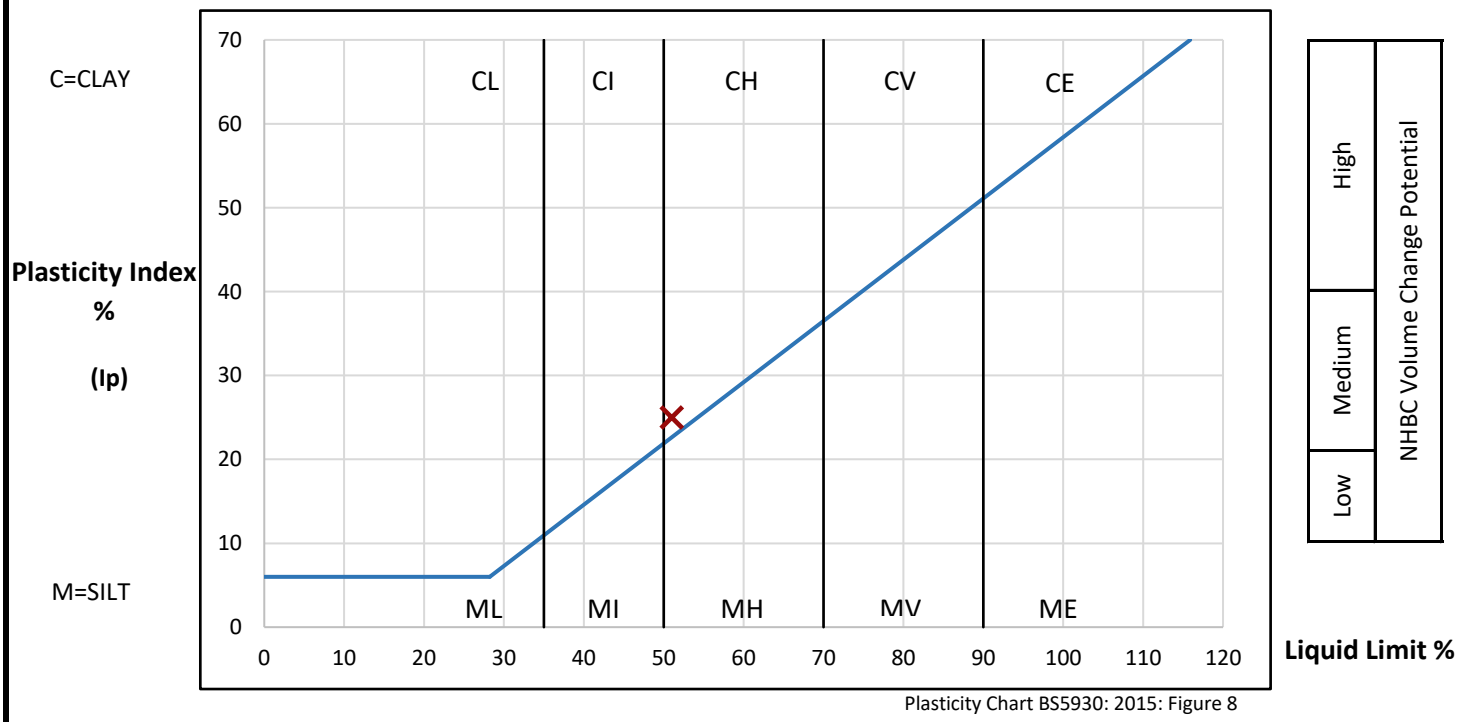
Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS13	1.10	D	1	17.8	Very stiff friable yellowish brown silty CLAY with occasional bluish grey and orange mottling, weak mudstone lithorelicts and rare black speckling	

PREPARATION			Liquid Limit	51 %
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	26 %
Sample retained 0.425mm sieve	(Measured)	12 %	Plasticity Index	25 %
Corrected water content for material passing 0.425mm		20.2 %	Liquidity Index	-0.33
Sample retained 2mm sieve	(Measured)	9 %	NHBC Modified (I'p)	22 %
Curing time	24 hrs	Clay Content: Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)

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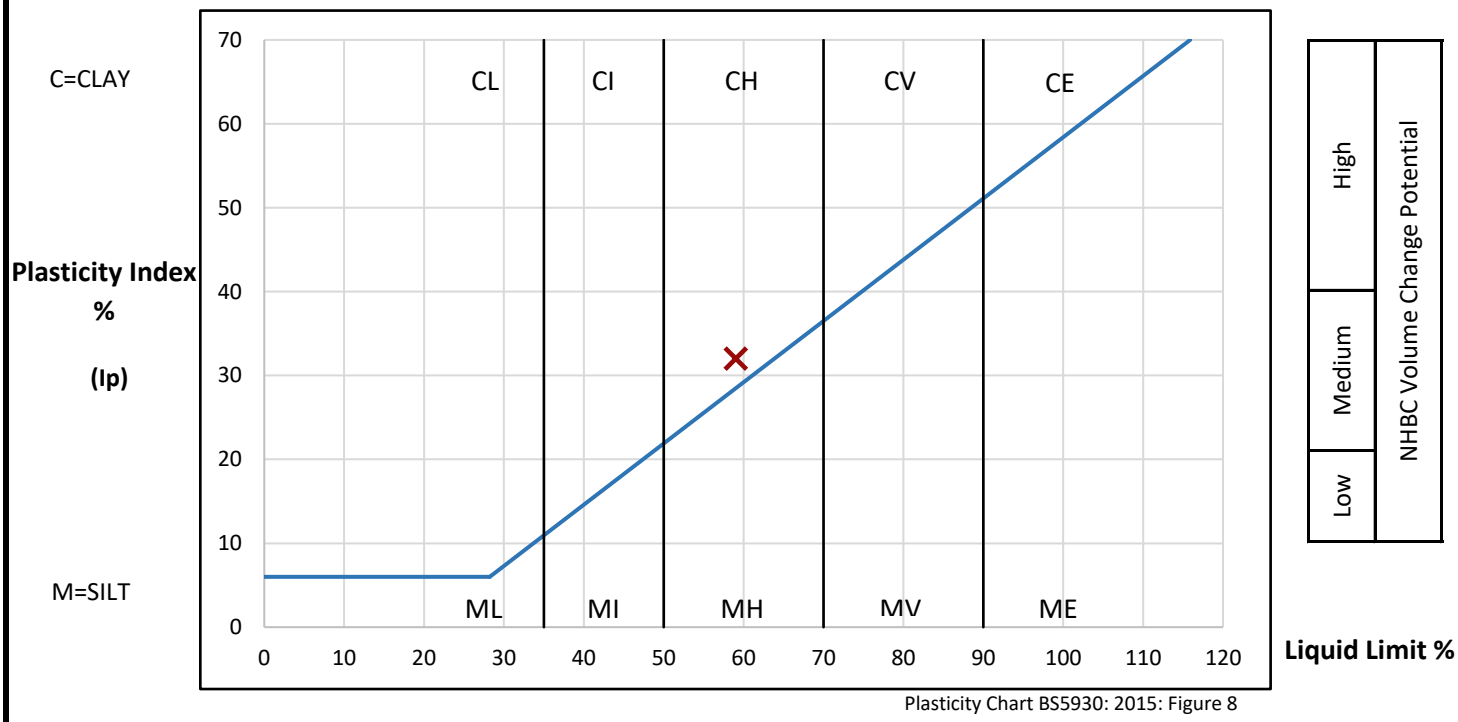
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS14	0.50	D	1	29.3	Stiff mottled light grey, orange and olive yellow silty CLAY with occasional recently active roots	

PREPARATION			Liquid Limit	59 %
Method of preparation	From natural		Plastic Limit	27 %
Sample retained 0.425mm sieve	(Assumed) 0 %		Plasticity Index	32 %
Corrected water content for material passing 0.425mm			Liquidity Index	0.07
Sample retained 2mm sieve	(Assumed) 0 %		NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	

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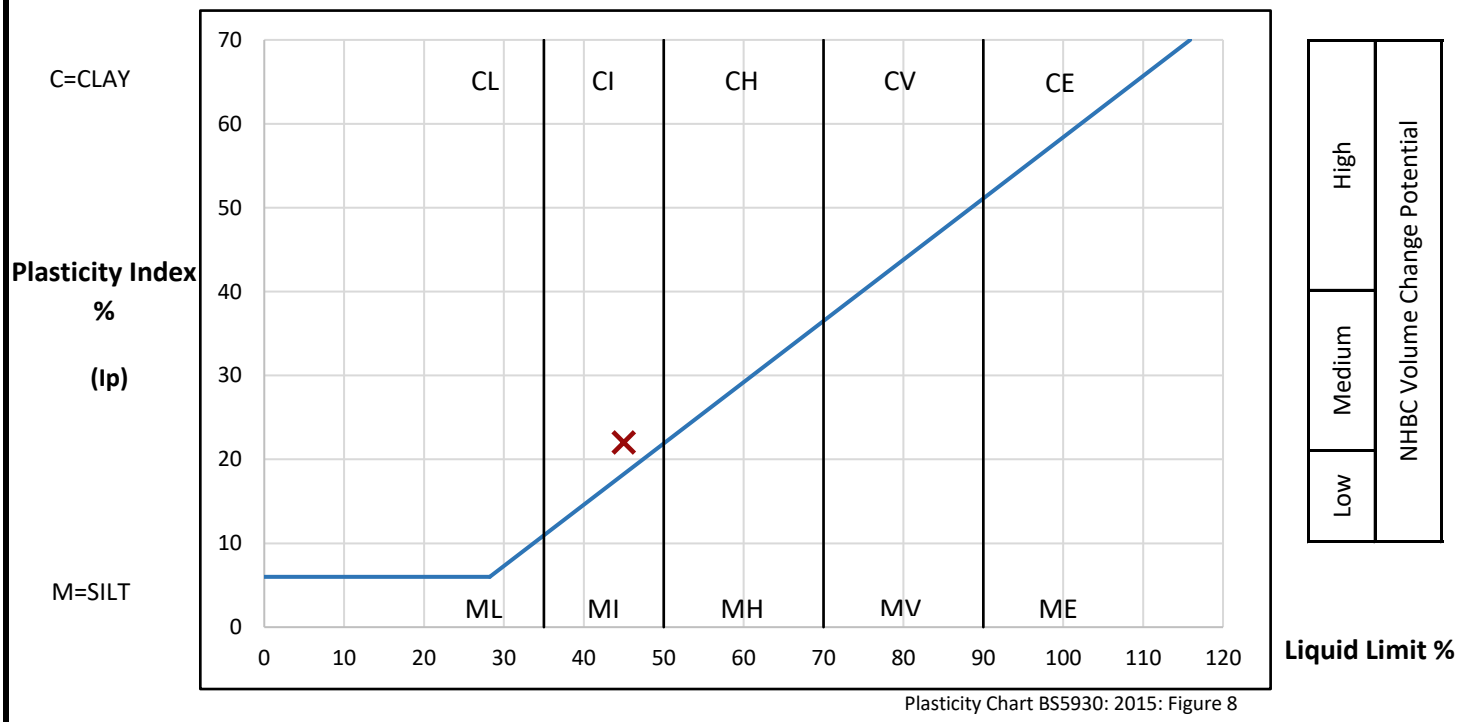
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS3	0.60	D	1	23.9	Stiff olive silty CLAY with occasional black speckling, weak fine and medium mudstone lithorelicts and recently active roots	

PREPARATION			Liquid Limit	45 %
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	23 %
Sample retained 0.425mm sieve	(Measured)	11 %	Plasticity Index	22 %
Corrected water content for material passing 0.425mm		26.9 %	Liquidity Index	0.04
Sample retained 2mm sieve	(Measured)	8 %	NHBC Modified (I'p)	20 %
Curing time	25 hrs	Clay Content Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)

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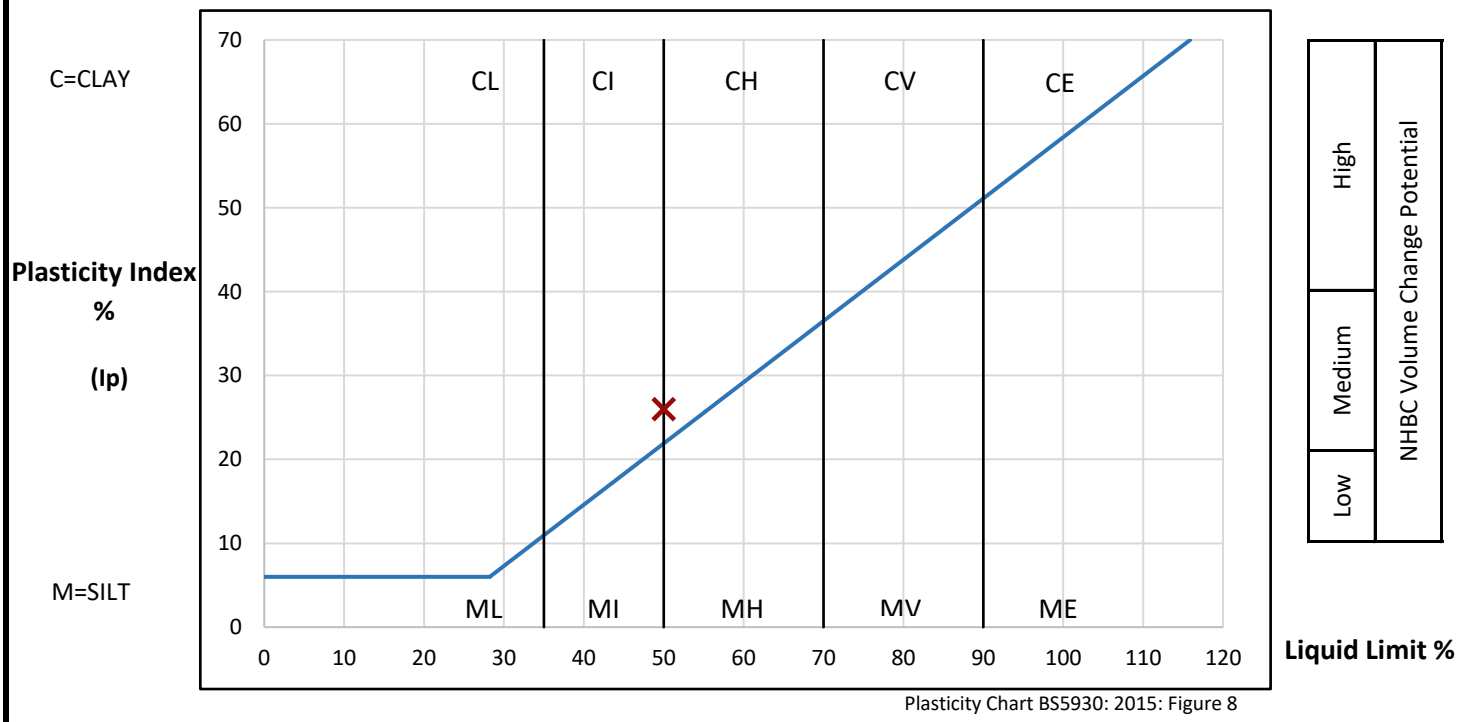
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS5	0.60	D	1	26.3	Stiff olive yellow silty CLAY with occasional light grey and orange mottling and recently active roots	

PREPARATION				Liquid Limit	50 %
Method of preparation		From natural		Plastic Limit	24 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	26 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.09
Sample retained 2mm sieve	(Assumed)	0 %		NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments:

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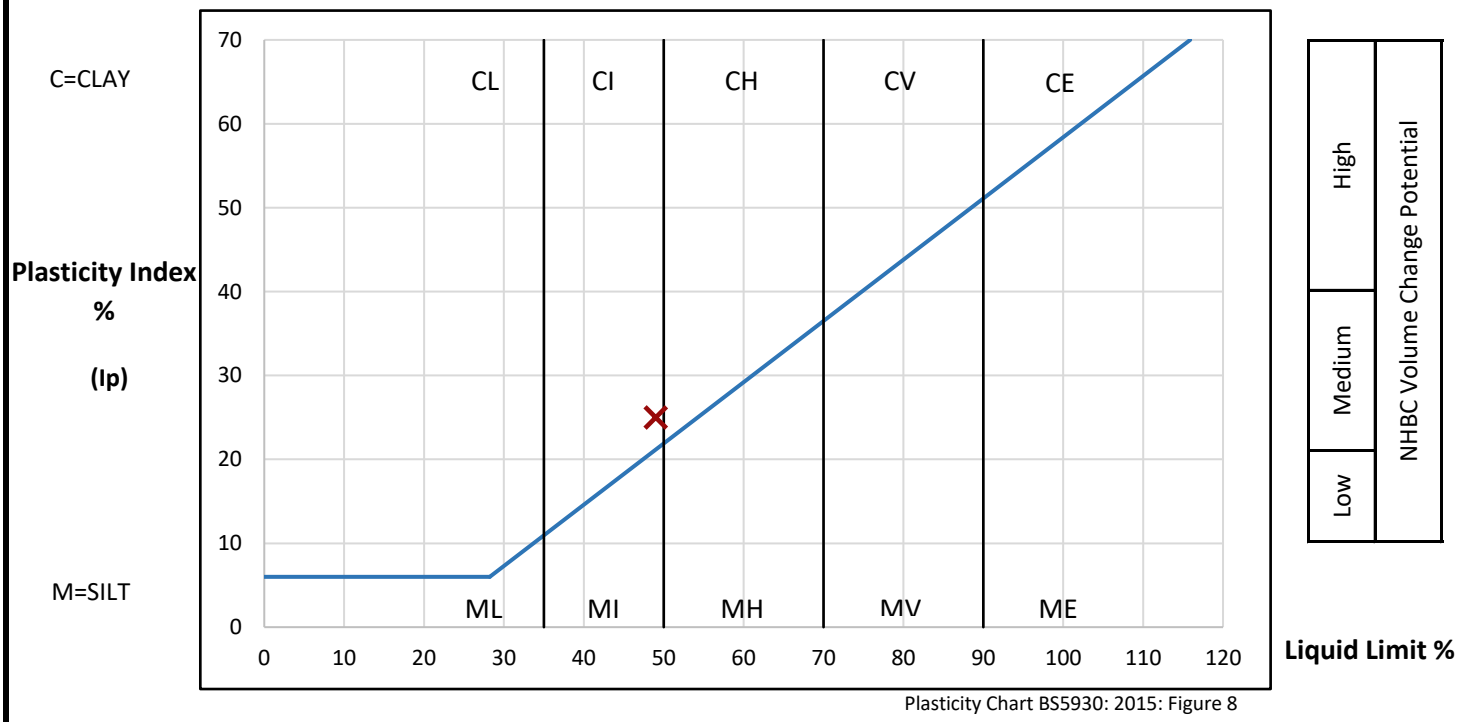
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS6	1.50	D	2	19.4	Very stiff mottled bluish grey and olive yellow silty CLAY with occasional decayed roots	

PREPARATION			Liquid Limit	49 %
Method of preparation		From natural	Plastic Limit	24 %
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	25 %
Corrected water content for material passing 0.425mm			Liquidity Index	-0.18
Sample retained 2mm sieve	(Assumed)	0 %	NHBC Modified (I'p)	n/a
Curing time	24 hrs	Clay Content Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

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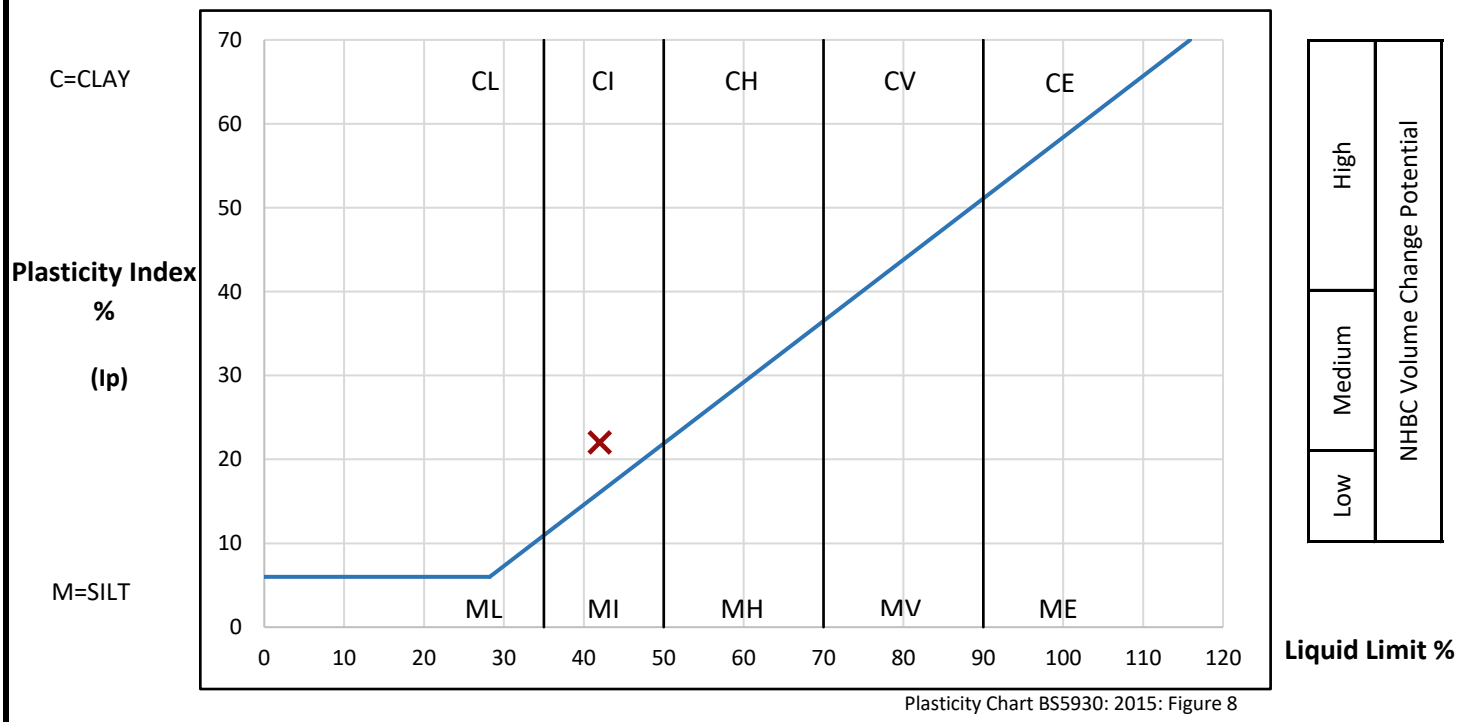
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS9	0.60	D	1	22.4	Firm mottled orange, light grey and olive yellow silty CLAY with occasional black speckling, weak mudstone lithorelicts and recently active roots	

PREPARATION			Liquid Limit	42 %
Method of preparation	Wet sieved over 0.425mm sieve		Plastic Limit	20 %
Sample retained 0.425mm sieve	(Measured)	19 %	Plasticity Index	22 %
Corrected water content for material passing 0.425mm		27.6 %	Liquidity Index	0.11
Sample retained 2mm sieve	(Measured)	17 %	NHBC Modified (I'p)	18 %
Curing time	26 hrs	Clay Content Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:	Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)

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Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF DENSITY, WATER CONTENT AND UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASURMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)	Lateral Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	Mohrs Circle Analysis		Description
										Cu (kPa)	Ø degrees	
WS12	1.05	UT	1	26.5	1.96	1.55	20	79	40			Firm (medium strength) yellowish brown silty CLAY with occasional light orangish brown and light grey mottling
WS16	1.07	UT	1	23.9	2.04	1.65	21	242	121			Stiff (high strength) fissured friable light grey and light orangish brown silty CLAY with occasional recently active and decayed roots
WS17	1.03	UT	1	18.8	2.10	1.77	22	311	156			Very stiff (very high strength) fissured yellowish brown silty CLAY with occasional dark yellowish brown and light grey mottling
WS17	2.04	UT	2	21.1	2.06	1.70	41	177	89			Stiff (high strength) fissured mottled light grey, dark orangish brown and yellowish brown silty CLAY with rare decayed roots

Method of Preparation:	BS 1377: Part 1: 1990: 7.4.2 & 8, Part 2: 1990: 7.2, Part 7: 1990: 8.3
Method of Test:	BS 1377: Part 2: 1990:3 Determination of Moisture Content, Part2: 1990:7 Determination of Density, Part 7: 1990: 8 Undrained Shear Strenth, 9 Multistage Loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C

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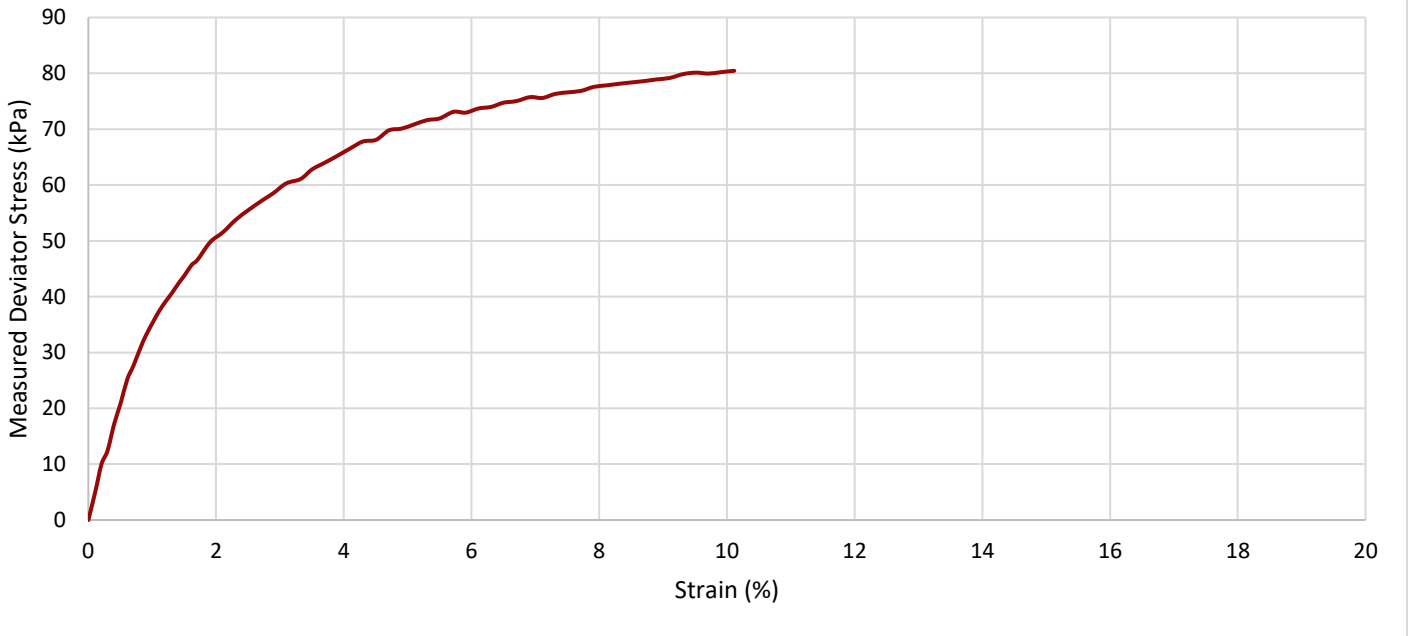
Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
WS12	1.00 - 1.45	UT	1	Firm (medium strength) yellowish brown silty CLAY with occasional light orangish brown and light grey mottling	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
Depth of Top of Specimen (m) 1.05	139.6	67.6	982	26.5	1.96	1.55

TEST INFORMATION — Rate of Strain 1.1 % per Min — Rubber Membrane Thickness 0.3 mm



Specimen at failure	Measured Cell Pressure, σ3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, (σ1-σ3)f (kPa)	Shear Stress Cu, ½(σ1-σ3)f (kPa)	Mohrs Circle Analysis	
			Rubber Membrane	Piston Friction			Cu (kPa)	PHI (degrees)
	20	10.1	1.0	\	79	40		

Method of Preparation: BS 1377: Part 1: 1990

Method of Test: BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments: Tested in Vertical Condition

UKAS Calibration - loads from 0.2 to 10kN

Remarks to Include: Sample disturbance, loss of moisture, variation form test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C

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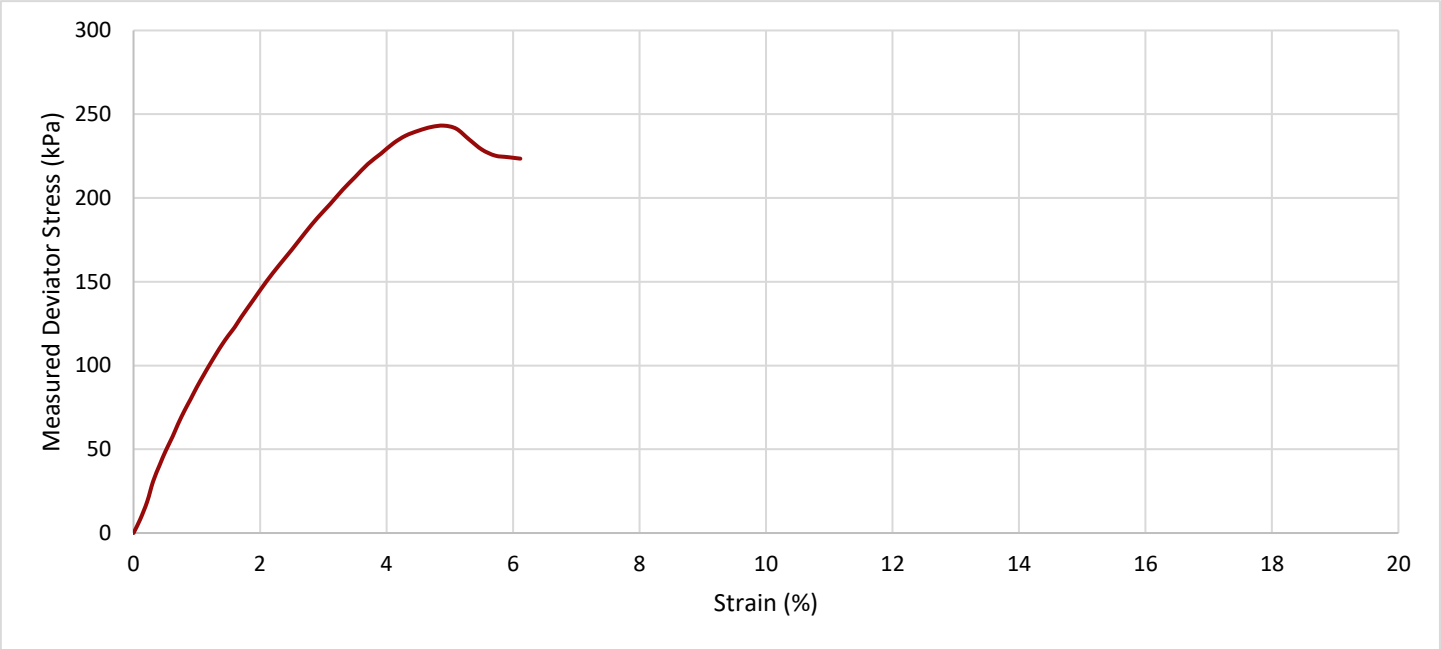
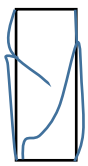
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
WS16	1.00 - 1.70	UT	1	Stiff (high strength) fissured friable light grey and light orangish brown silty CLAY with occasional recently active and decayed roots	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
Depth of Top of Specimen (m) 1.07	139.7	68.4	1046	23.9	2.04	1.65

TEST INFORMATION	Rate of Strain	0.9	% per Min	Rubber Membrane Thickness	0.3	mm



Specimen at failure	Measured Cell Pressure, σ3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, (σ1-σ3)f (kPa)	Shear Stress Cu, ½(σ1-σ3)f (kPa)	Mohrs Circle Analysis	
			Rubber Membrane	Piston Friction			Cu (kPa)	PHI (degrees)
	21	4.9	0.6	\	242	121		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition
	UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation form test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C

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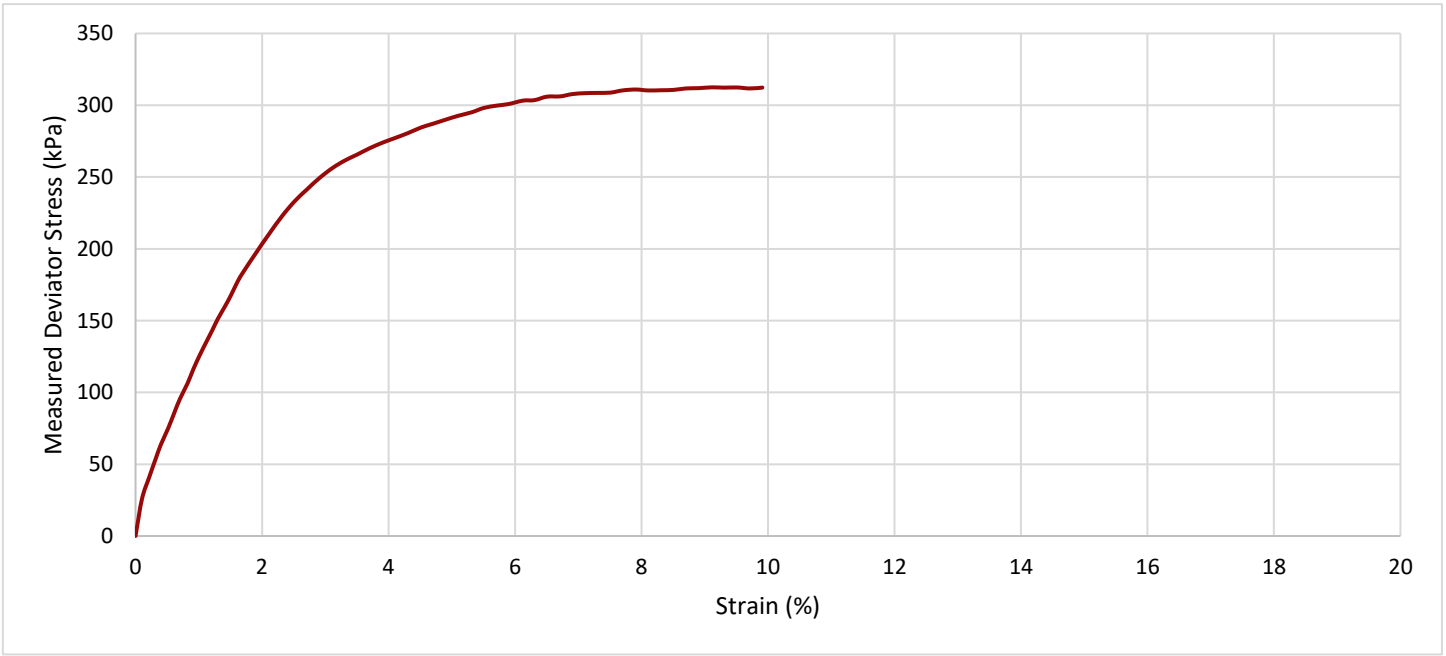
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
WS17	1.00 - 1.45	UT	1	Very stiff (very high strength) fissured yellowish brown silty CLAY with occasional dark yellowish brown and light grey mottling	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
Depth of Top of Specimen (m) 1.03	140.0	68.6	1089	18.8	2.10	1.77

TEST INFORMATION — Rate of Strain 1.1 % per Min — Rubber Membrane Thickness 0.3 mm



Specimen at failure	Measured Cell Pressure, σ3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, (σ1-σ3)f (kPa)	Shear Stress Cu, ½(σ1-σ3)f (kPa)	Mohrs Circle Analysis	
			Rubber Membrane	Piston Friction			Cu (kPa)	PHI (degrees)
	22	9.1	0.9	\	311	156		

Method of Preparation: BS 1377: Part 1: 1990

Method of Test: BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments: Tested in Vertical Condition

UKAS Calibration - loads from 0.2 to 10kN

Remarks to Include: Sample disturbance, loss of moisture, variation form test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C

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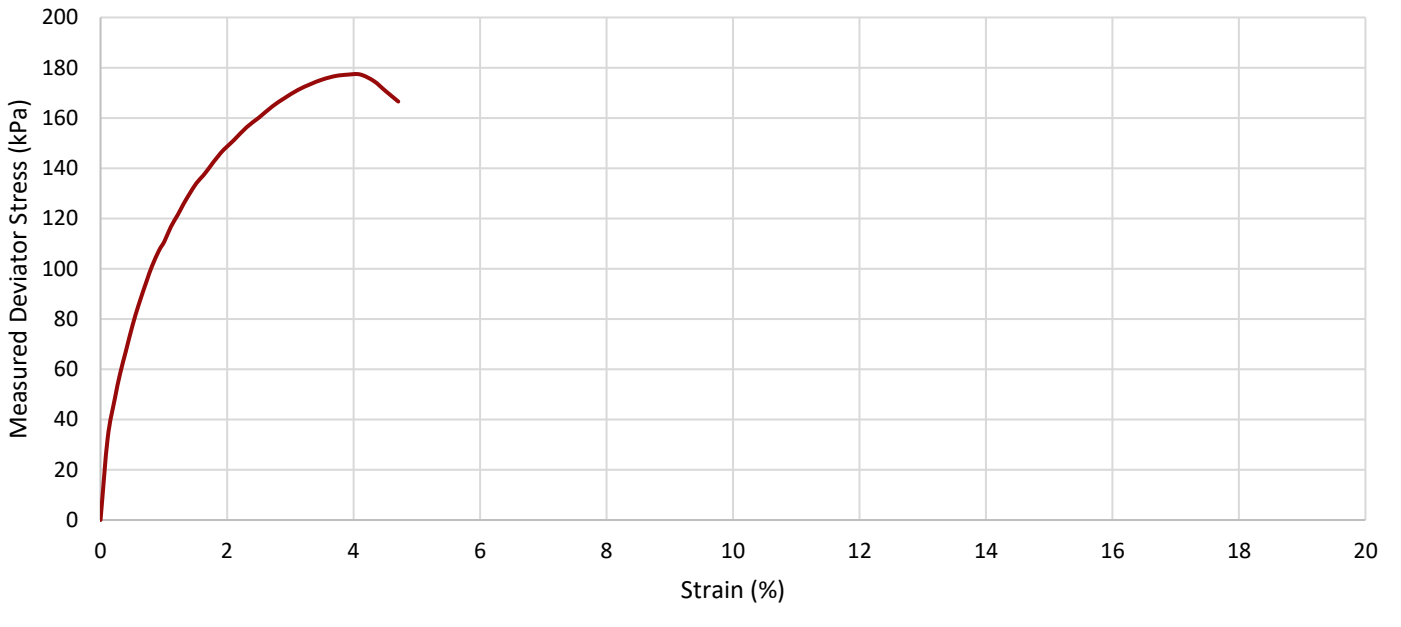
DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
WS17	2.00 - 2.45	UT	2	Stiff (high strength) fissured mottled light grey, dark orangish brown and yellowish brown silty CLAY with rare decayed roots	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
Depth of Top of Specimen (m) 2.04	140.1	68.7	1068	21.1	2.06	1.70

TEST INFORMATION	Rate of Strain	0.8	% per Min	Rubber Membrane Thickness	0.3	mm



Specimen at failure	Measured Cell Pressure, σ3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, (σ1-σ3)f (kPa)	Shear Stress Cu, ½(σ1-σ3)f (kPa)	Mohrs Circle Analysis	
			Rubber Membrane	Piston Friction			Cu (kPa)	PHI (degrees)
	41	4.1	0.5	\	177	89		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition
	UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation form test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C

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Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS11	0.10 - 1.40	B	1	Stiff light olive brown silty CLAY with occasional grey mottling and rare ironstone and coal fragments	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Material Retained on 20mm Sieve Removed		0.4	%
Initial Specimen Details:	Bulk Density	1.99	Mg/m³
	Dry Density	1.59	Mg/m³

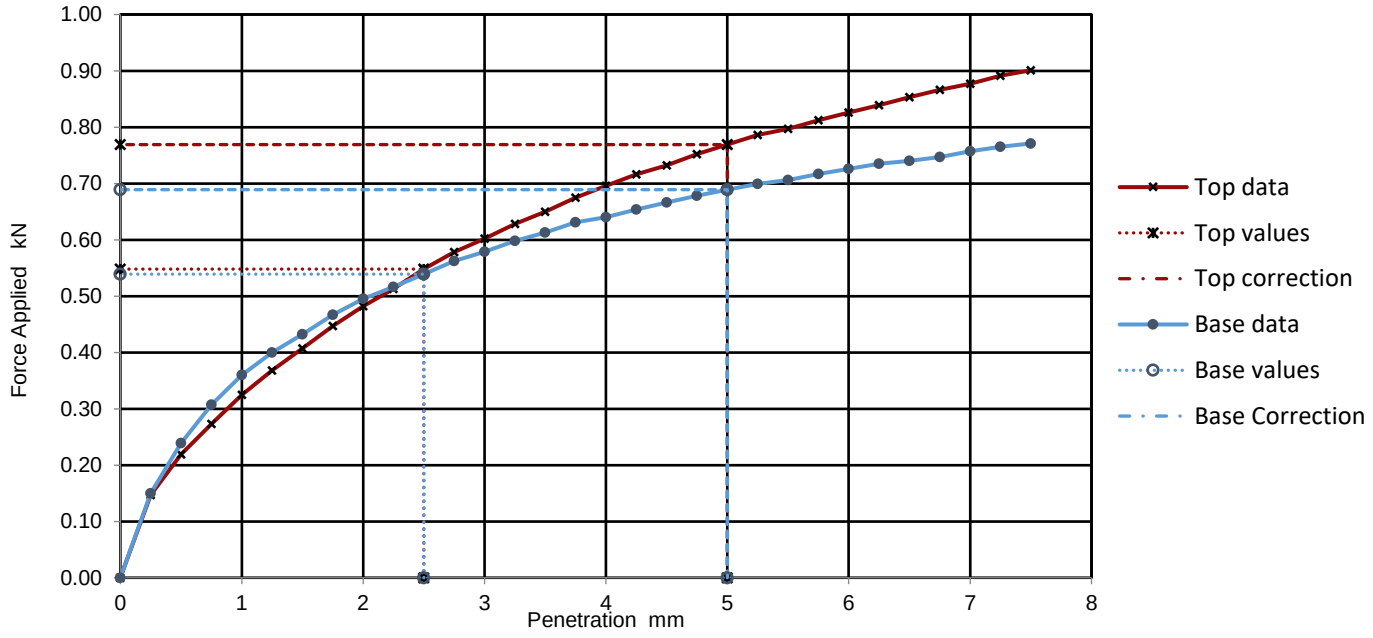
Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Surcharge Applied	15	kg

Test Results

	Curve Correction	CBR Values (%) 2.5mm	5.0mm	Highest	Mean*	Water Content (%)
TOP	No	4.2	3.8	4.2	4.2	24.9
BASE	No	4.1	3.4	4.1		25.9

Force v Penetration Plots



Method of Preparation: BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4

Method of Test: BS 1377: Part 4: 1990: 7

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter

Comments: *Only reported if the results from each end of the sample are within ±10% of the mean value.
Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.

Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS16	0.50 - 2.00	B	1	Stiff mottled light grey, orange and yellowish brown silty CLAY with occasional recently active roots	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Material Retained on 20mm Sieve Removed		0.0	%
Initial Specimen Details:	Bulk Density	1.94	Mg/m³
	Dry Density	1.57	Mg/m³

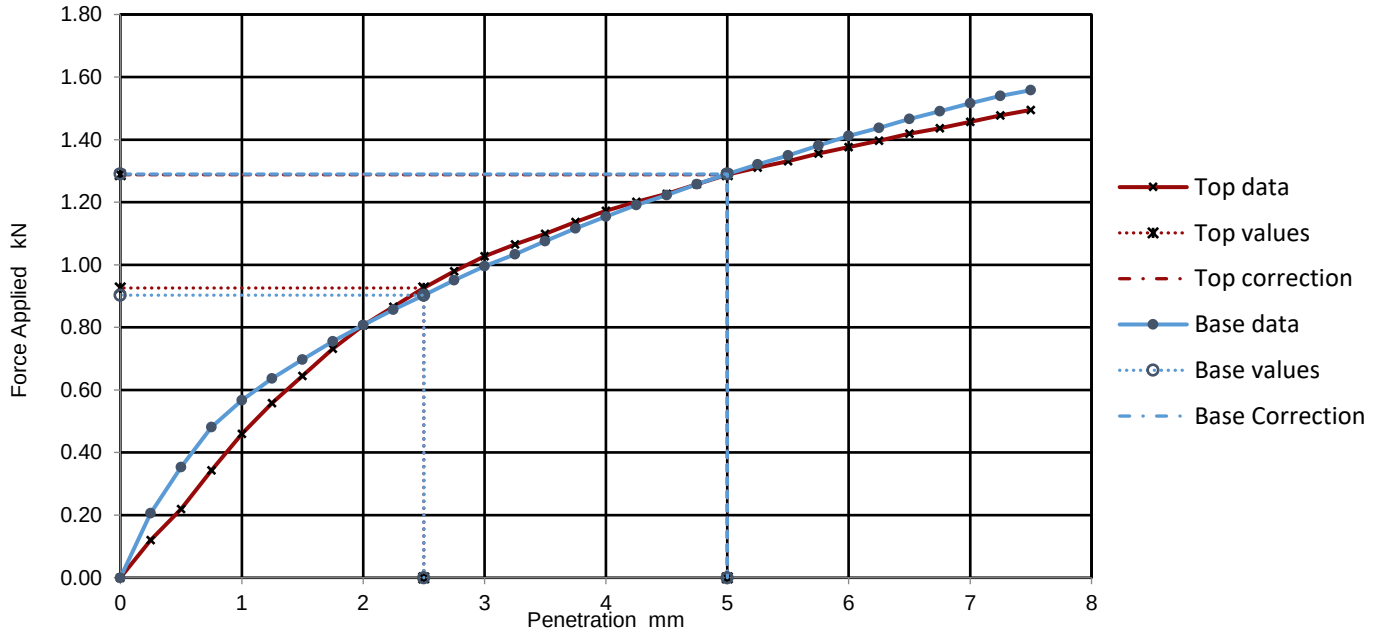
Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Surcharge Applied	15	kg

Test Results

	Curve Correction	CBR Values (%) 2.5mm	5.0mm	Highest	Mean*	Water Content (%)
TOP	No	7.0	6.4	7.0	6.9	24.4
BASE	No	6.8	6.5	6.8		23.5

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within ±10% of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.

TEST REPORT

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Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS19	0.30 - 1.00	B	1	Firm dark yellowish brown silty CLAY with occasional light grey mottling, black speckling and rare fine and medium mudstone lithorelicts	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Material Retained on 20mm Sieve Removed		0.0	%
Initial Specimen Details:	Bulk Density	2.01	Mg/m³
	Dry Density	1.64	Mg/m³

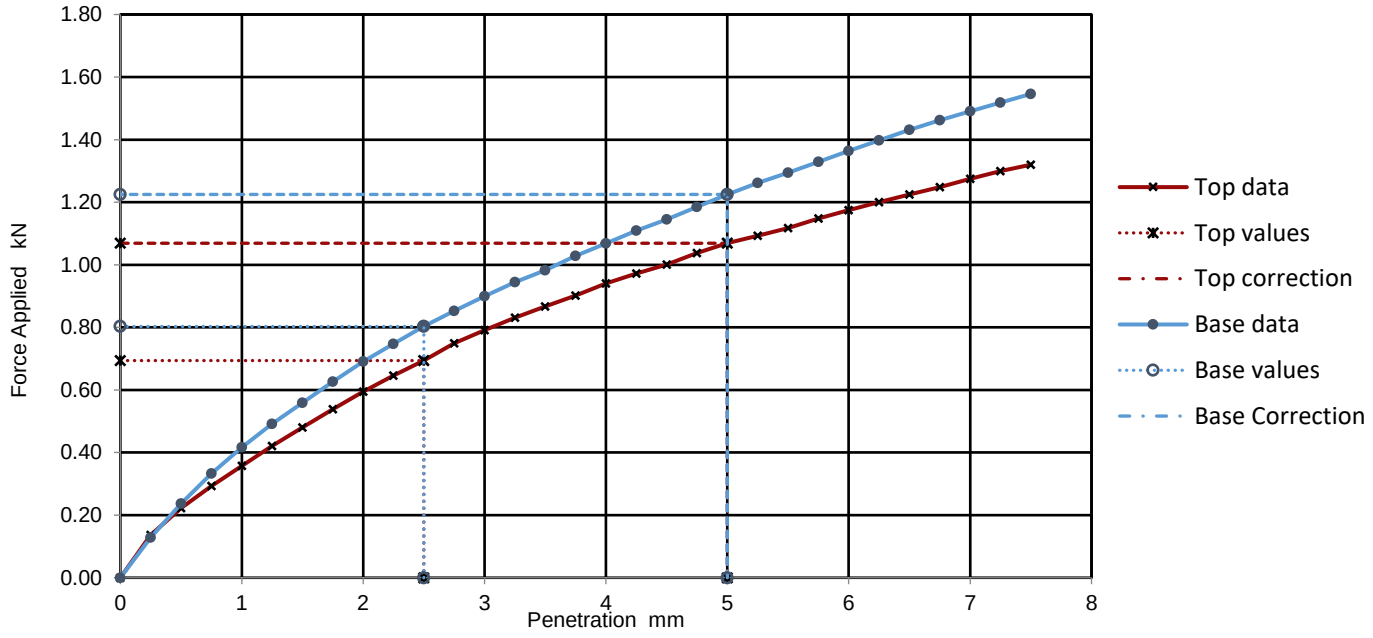
Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Surcharge Applied	15	kg

Test Results

	Curve Correction	CBR Values (%) 2.5mm	5.0mm	Highest	Mean*	Water Content (%)
TOP	No	5.3	5.3	5.3	5.7	22.8
BASE	No	6.1	6.1	6.1		22.4

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS 1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within ±10% of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

UKAS TESTING 0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample Type	Sample Reference	Description	Remarks
WS2	0.20 - 1.60	B	1	Stiff mottled pale brown, light grey and orangish brown silty CLAY with rare black speckling and decayed roots	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Material Retained on 20mm Sieve Removed		0.0	%
Initial Specimen Details:	Bulk Density	1.93	Mg/m³
	Dry Density	1.54	Mg/m³

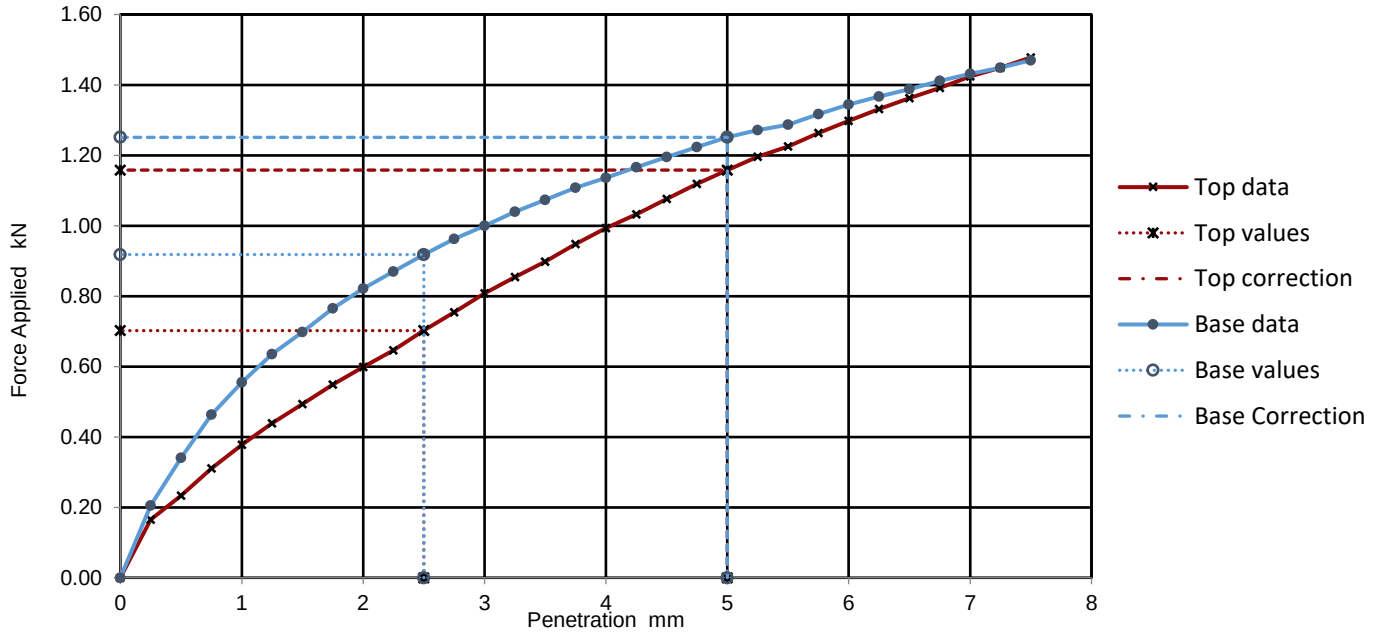
Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Surcharge Applied	15	kg

Test Results

	Curve Correction	CBR Values (%) 2.5mm	5.0mm	Highest	Mean*	Water Content (%)
TOP	No	5.3	5.8	5.8	6.4	24.9
BASE	No	7.0	6.3	7.0		25.0

Force v Penetration Plots



Method of Preparation: BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4

Method of Test: BS 1377: Part 4: 1990: 7

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter

Comments: *Only reported if the results from each end of the sample are within ±10% of the mean value.
Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.

Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

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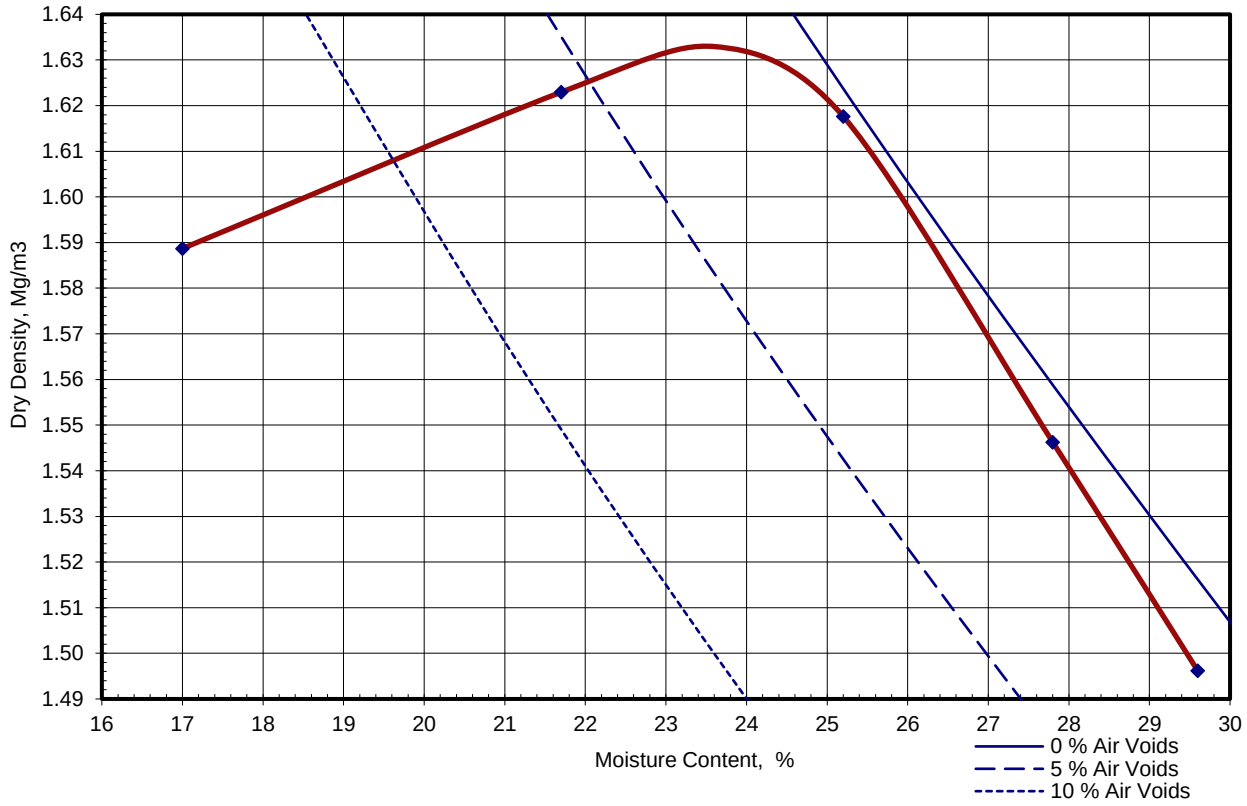
Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF DRY DENSITY / WATER CONTENT RELATIONSHIP

Borehole/ Pit No.	Depth (m)	Sample Type	Sample Reference	Water Content (%)	Description	Remarks
WS12	0.10 - 1.70	B	1	27.8	Firm olive brown silty CLAY with occasional light grey mottling and fine to coarse mudstone lithorelicts	

Percentage Retained 37.5mm	0.0 %	Maximum Size of Cohesive Lumps	20 mm
Percentage Retained 20.0mm	0.3 %	Single or Separate Samples	Composite
Grading Zone	2	Particle Density (Assumed)	2.75 Mg/m³
Mould Type	1 Litre	Method of Compaction	BS 2.5kg rammer Method (BS1377 Part 4: 1990: 3.3)
Maximum Dry Density	**1.63 Mg/m³**	**Optimum Water Content**	**24 %**



Method of Preparation: BS1377: Part 1: 2016: 8.6

Method of Test: BS1377: Part 2: 1990: 3.2 & Part 4: 1990: 3

Type of Sample Key: U= Undisturbed, B = Bulk, D - Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

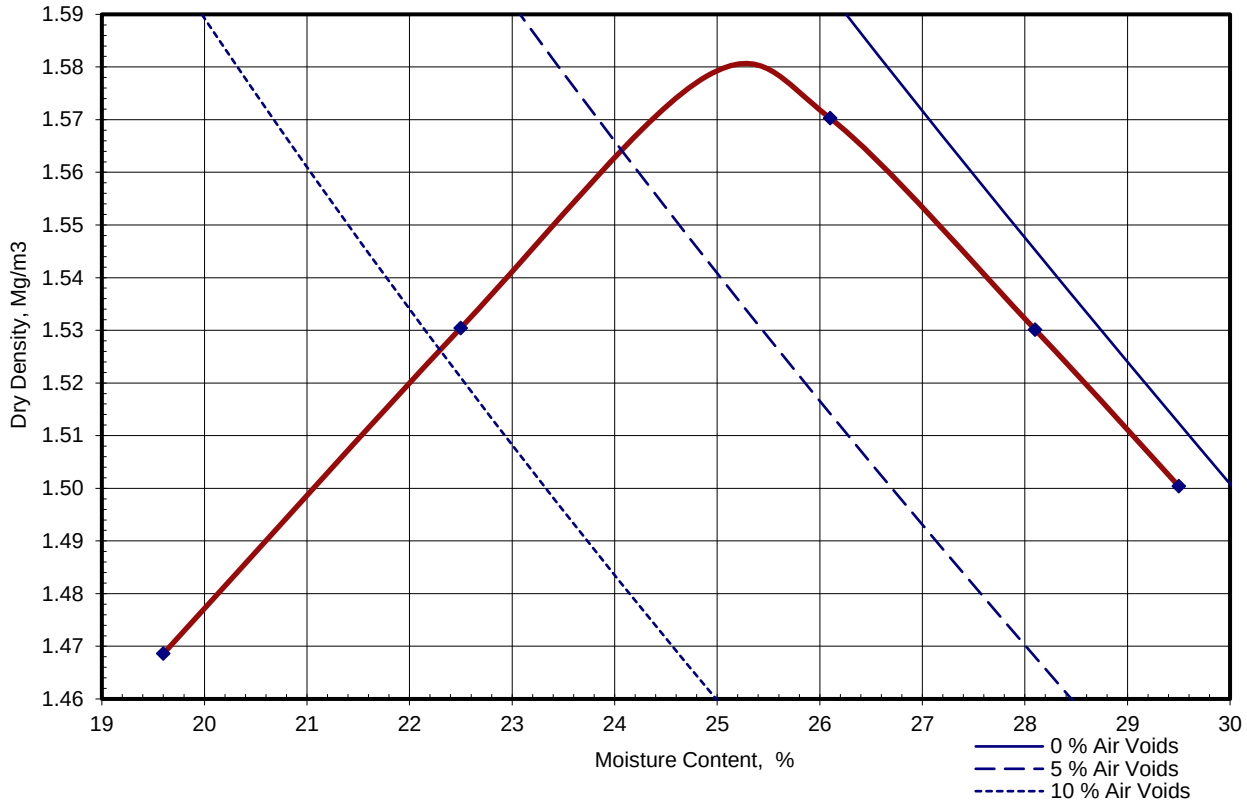
0998

Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF DRY DENSITY / WATER CONTENT RELATIONSHIP

Borehole/ Pit No.	Depth (m)	Sample Type	Sample Reference	Water Content (%)	Description	Remarks
WS13	0.25 - 1.00	B	1	28.1	Firm olive brown silty CLAY with occasional light grey and orangish brown mottling, fine and medium mudstone lithorelicts and recently active roots	

Percentage Retained 37.5mm	0.0 %	Maximum Size of Cohesive Lumps	20 mm
Percentage Retained 20.0mm	0.0 %	Single or Separate Samples	Composite
Grading Zone	1	Particle Density (Assumed)	2.73 Mg/m³
Mould Type	1 Litre	Method of Compaction	BS 2.5kg rammer Method (BS1377 Part 4: 1990: 3.3)
Maximum Dry Density	**1.58 Mg/m³**	**Optimum Water Content**	**25 %**



Method of Preparation: BS1377: Part 1: 2016: 8.6

Method of Test: BS1377: Part 2: 1990: 3.2 & Part 4: 1990: 3

Type of Sample Key: U= Undisturbed, B = Bulk, D - Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 17/03/2022

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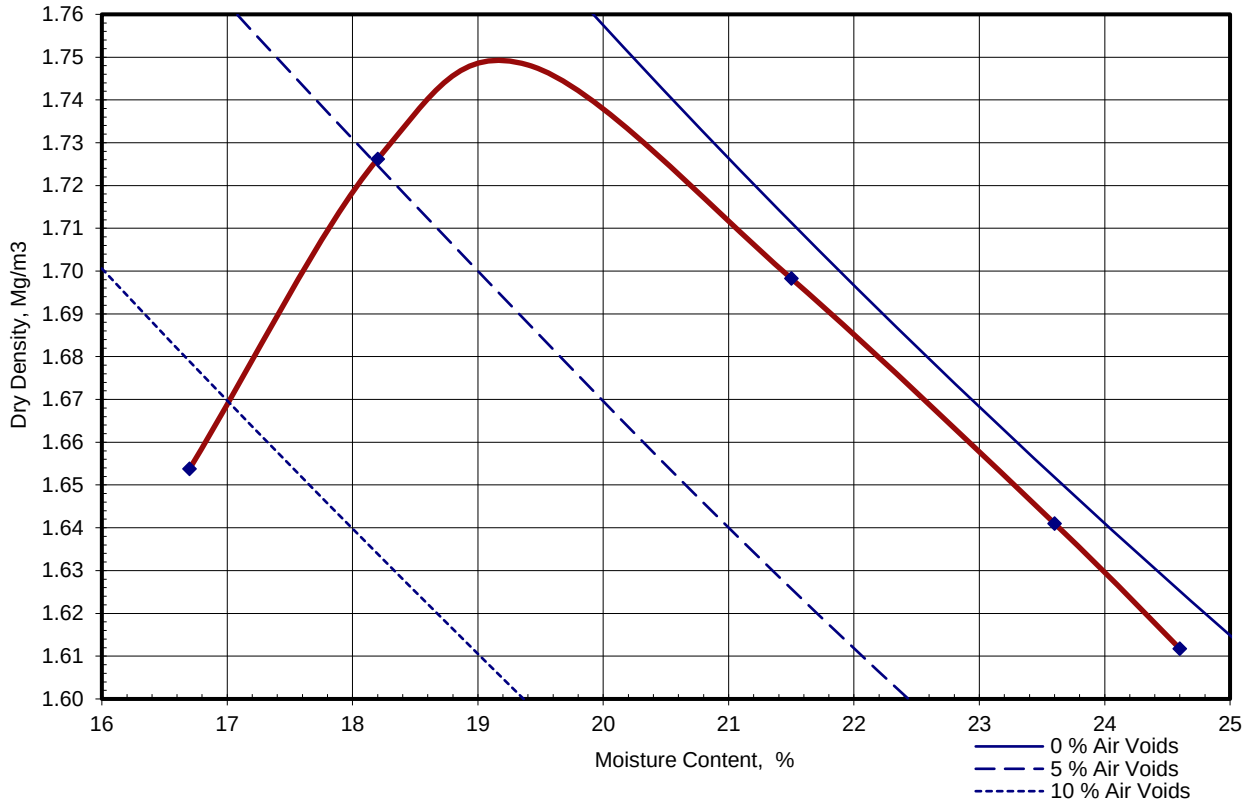
Contract	**Forge Wood High, Ifield, Horsham**
Serial No.	**40271_1**

DETERMINATION OF DRY DENSITY / WATER CONTENT RELATIONSHIP

Borehole/ Pit No.	Depth (m)	Sample Type	Sample Reference	Water Content (%)	Description	Remarks
WS7	0.25 - 1.40	B	1	21.5	Firm olive brown silty CLAY with occasional light grey and orange mottling and fine to coarse mudstone lithorelicts	

Percentage Retained 37.5mm	0.0 %	Maximum Size of Cohesive Lumps	20 mm
Percentage Retained 20.0mm	0.7 %	Single or Separate Samples	Composite
Grading Zone	2	Particle Density (Assumed)	2.71 Mg/m³
Mould Type	1 Litre	Method of Compaction	BS 2.5kg rammer Method (BS1377 Part 4: 1990: 3.3)
Maximum Dry Density	**1.75 Mg/m³**	**Optimum Water Content**	**19 %**



Method of Preparation: BS1377: Part 1: 2016: 8.6

Method of Test: BS1377: Part 2: 1990: 3.2 & Part 4: 1990: 3

Type of Sample Key: U= Undisturbed, B = Bulk, D - Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments:

APPENDIX 10 – PHOTOGRAPHS

Photograph 1

Photograph 2

Photograph 3

Photograph 4

GEOSPHERE ENVIRONMENTAL

DESCRIPTION

Photograph 1

WS1 - recovered material

Photograph 2

WS2 - recovered material

Photograph 3

WS3 - recovered material

Photograph 4

WS4 - recovered material

PROJECT

Forge Wood High School, Horsham, RH11 0LN

PROJECT NUMBER

6071,SI

TITLE

Selected Photographs Relating To Phase 2 Intrusive Investigation

DATE

06/04/2022