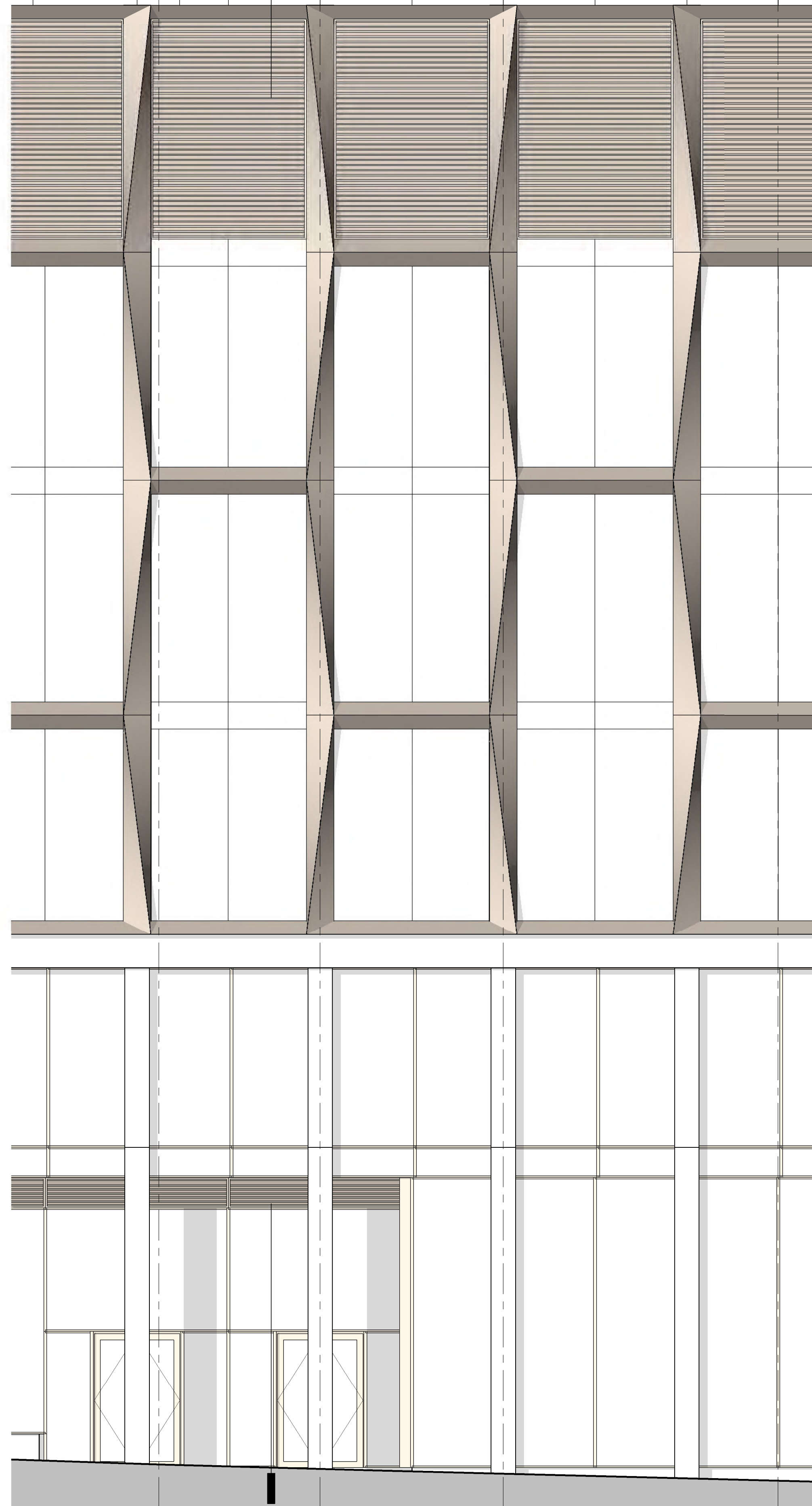


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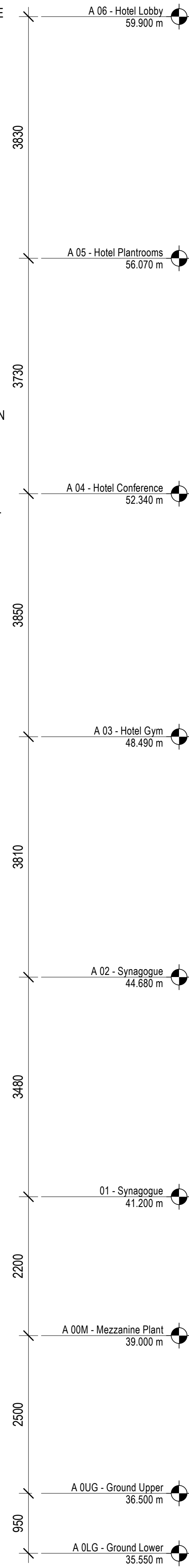
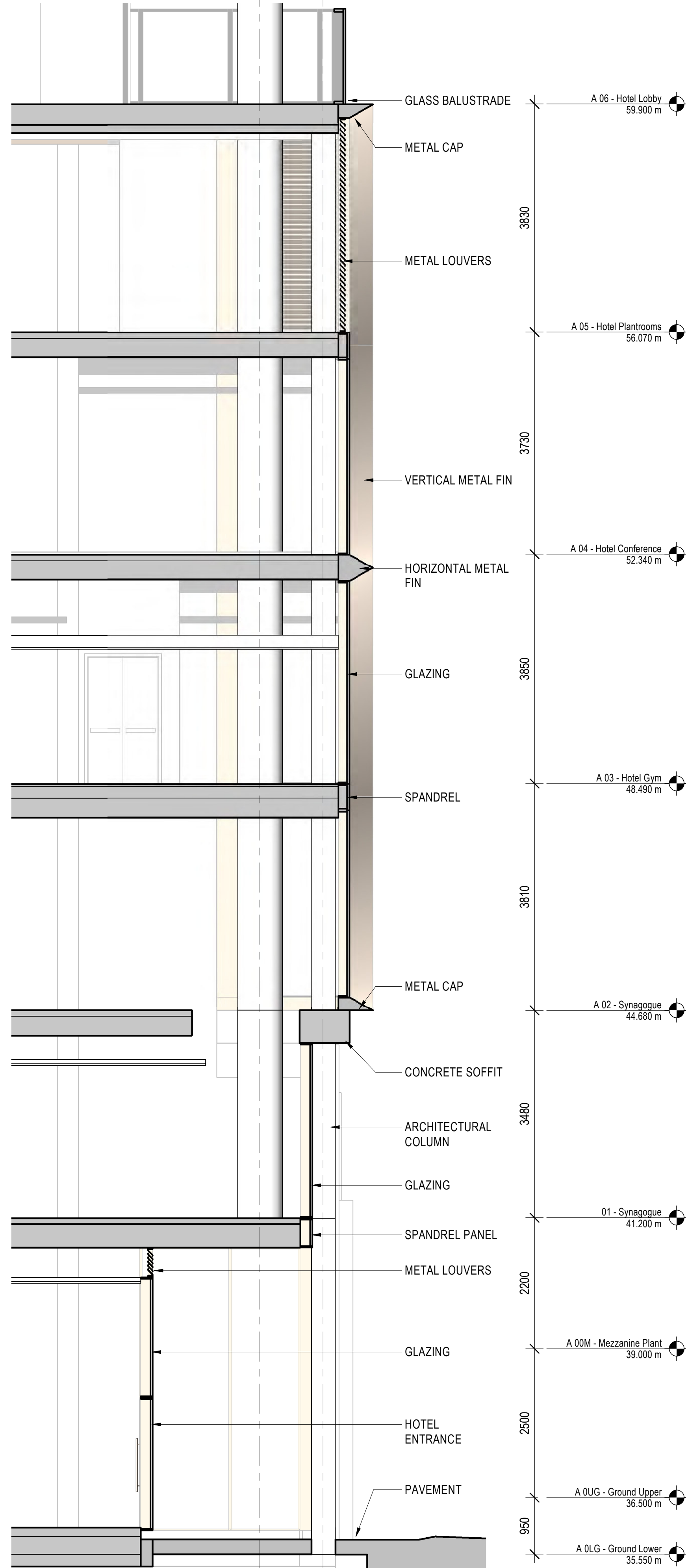
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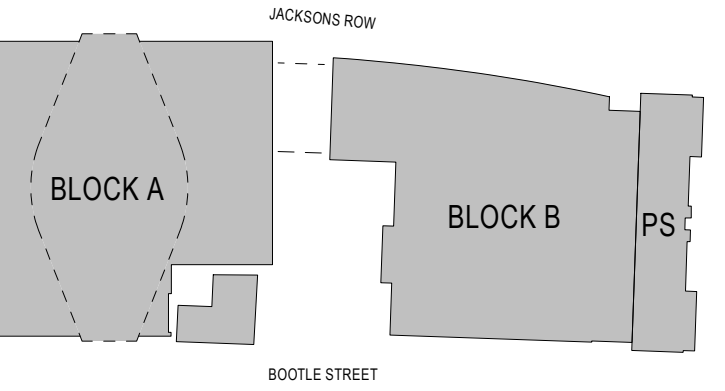
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TYP ENCLOSURE SECTION - HOTEL PODIUM

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Key Plan



General Notes

P03	06/09/21	S73 Submission
P02	20/08/21	S73 Submission DRAFT
P01	15/11/19	S73 Submission
NO:	DATE:	ISSUE:

Status

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Project Name ST. MICHAELS DEVELOPMENT, MANCHESTER

Drawing Title BUILDING ENCLOSURE - HOTEL PODIUM

Project No Scale @ A0 As indicated	Drawing No S73-511	Revision P03
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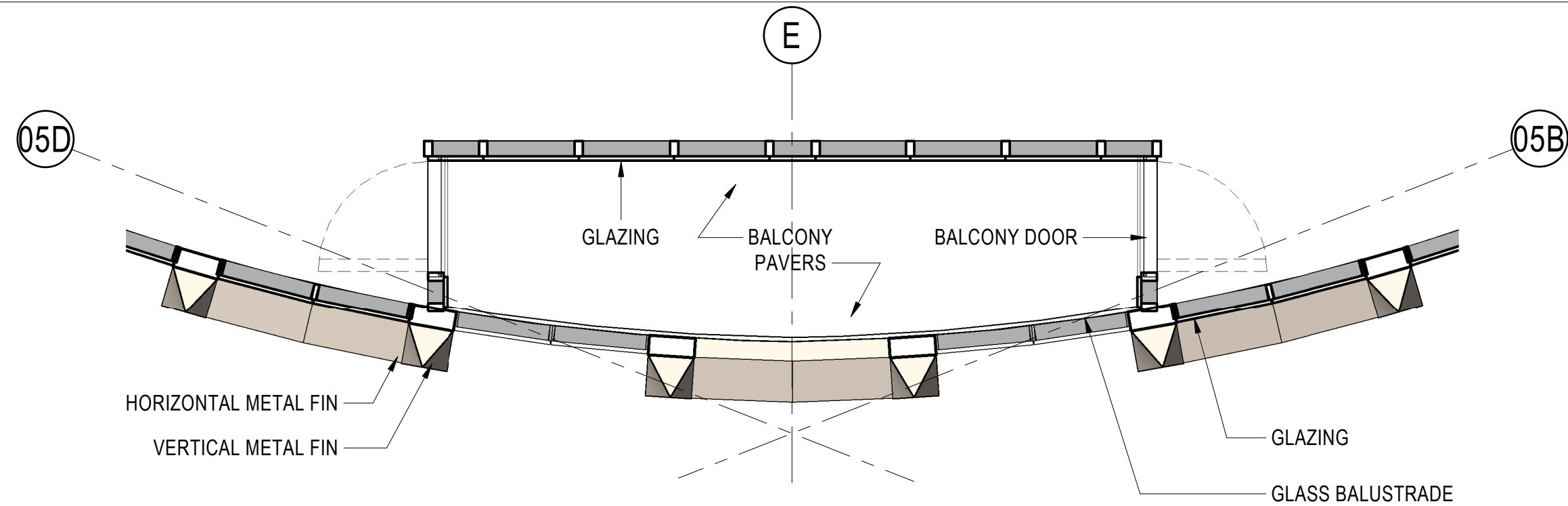
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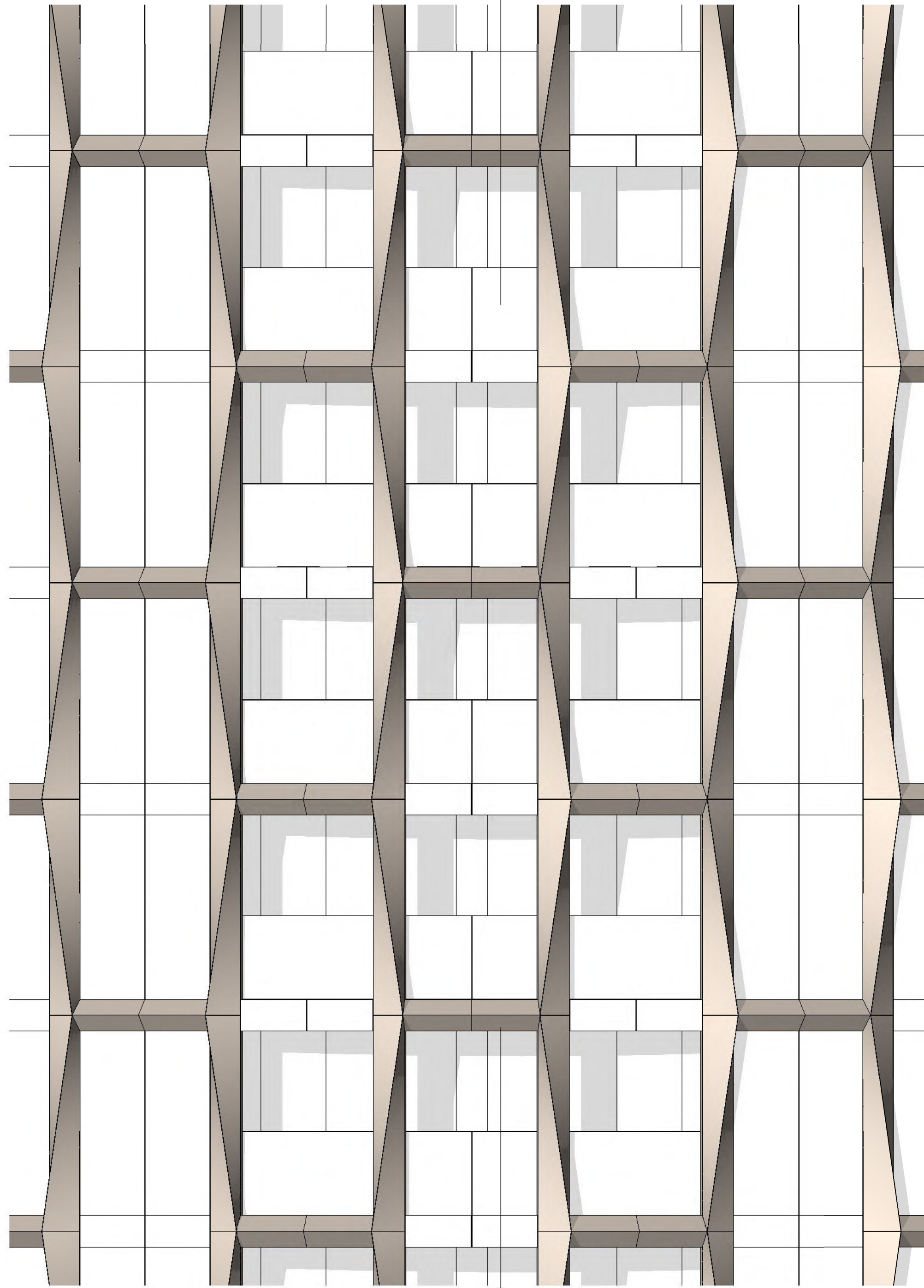
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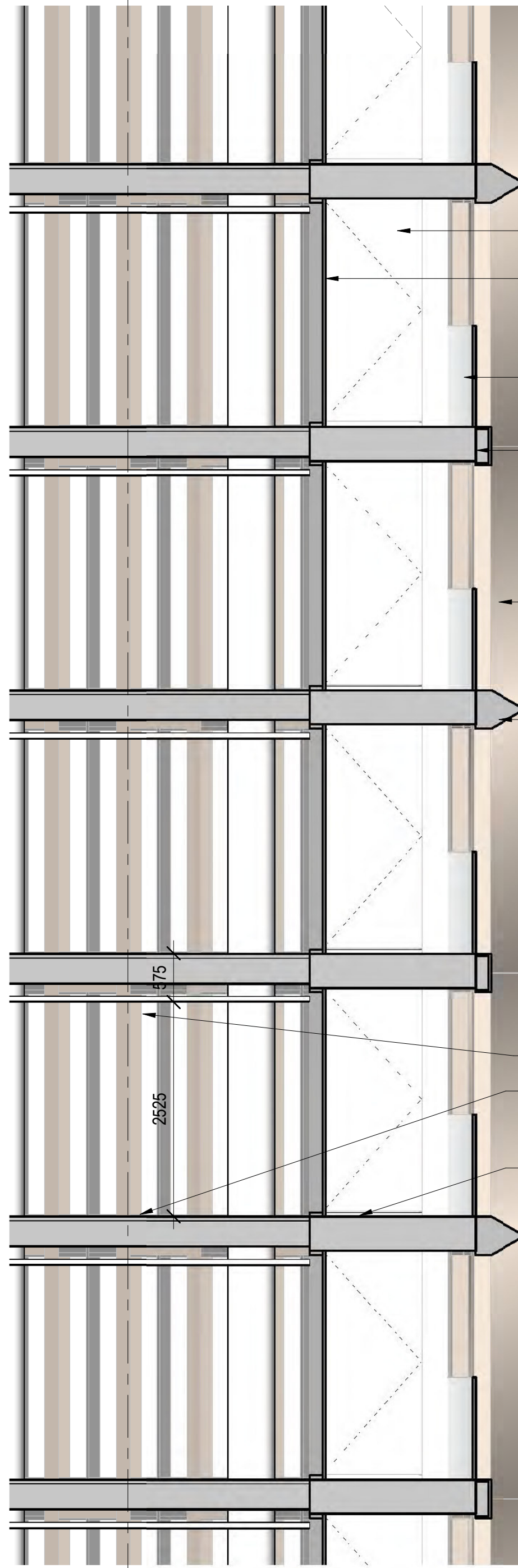
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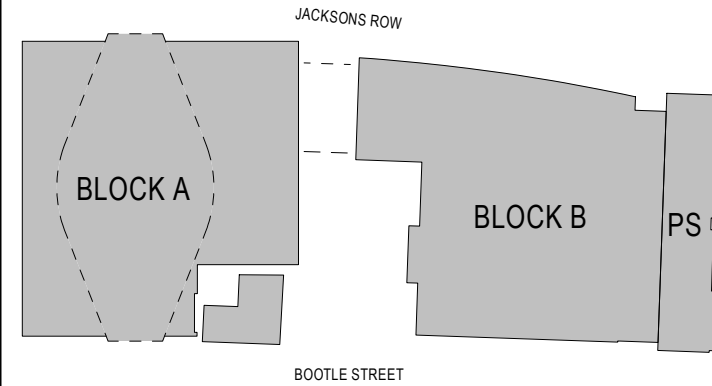
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TYP ENCLOSURE SECTION - RESIDENTIAL TOWER

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Key Plan



General Notes

P03	06/09/21	S73 Submission
P02	20/08/21	S73 Submission DRAFT
P01	15/11/19	S73 Submission
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FOR INFORMATION

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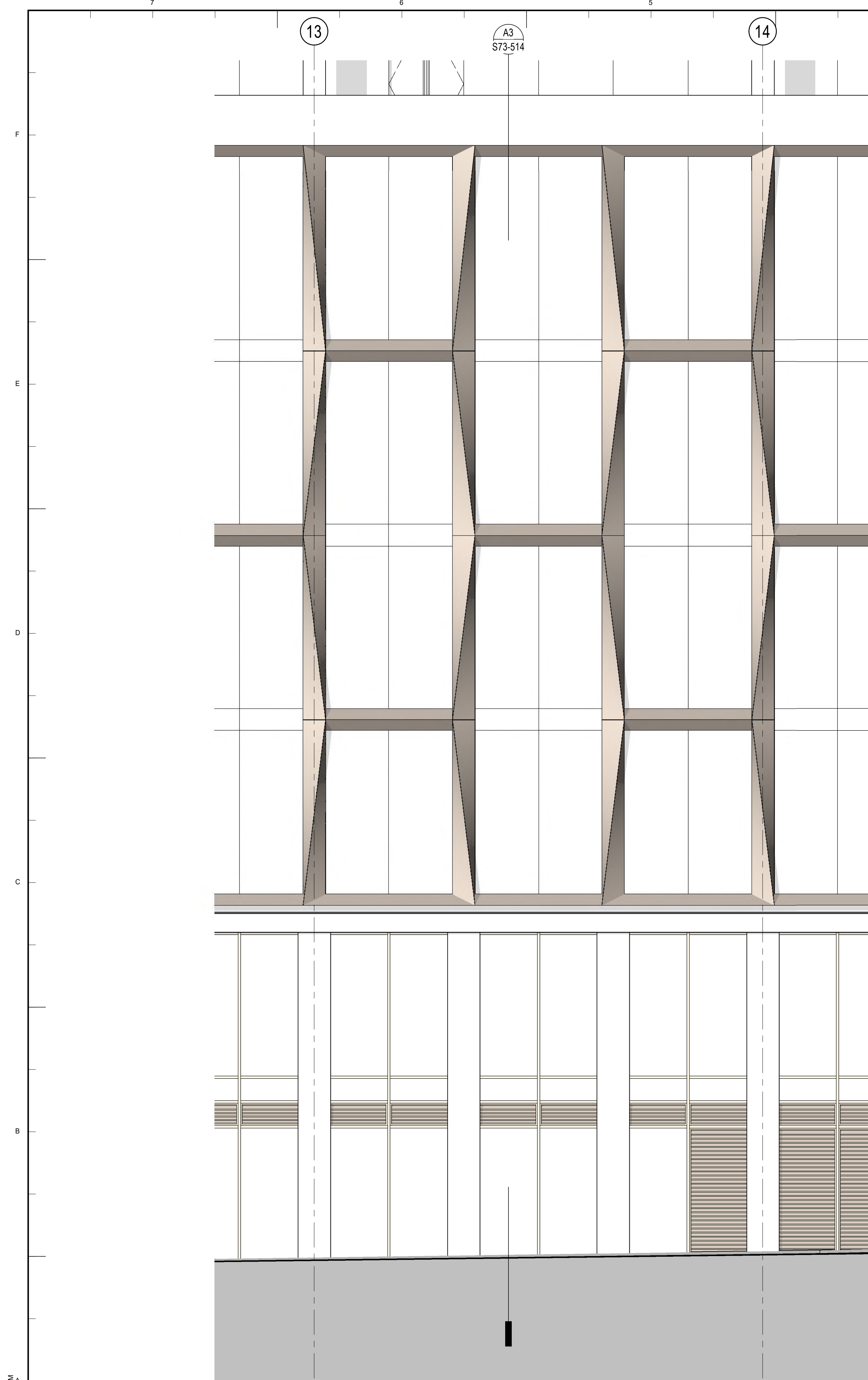
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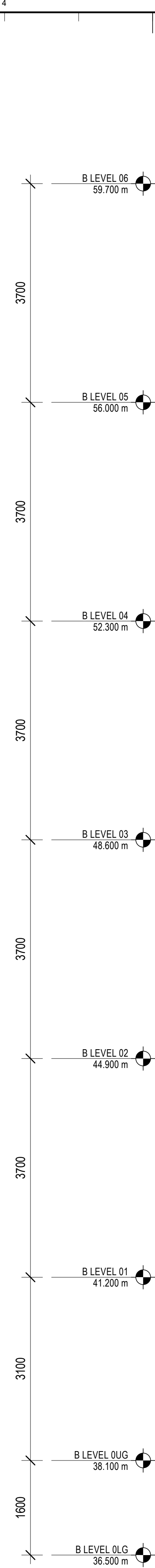
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Project No 218739	Drawing No S73-513	Revision P03
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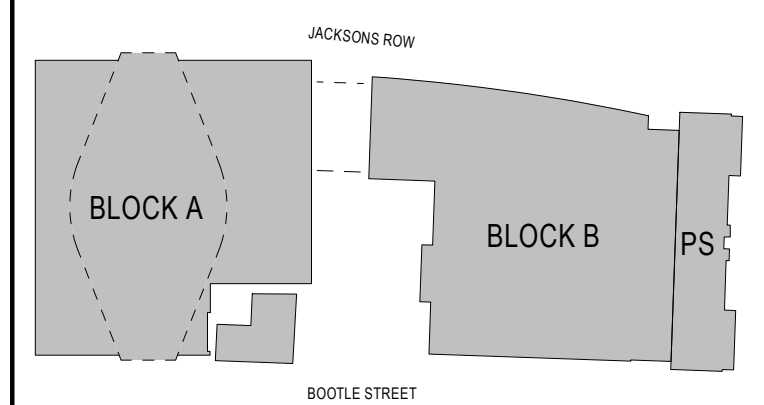
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General Notes

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P02	20/08/21	S73 Submission DRAFT
P01	15/11/19	S73 Submission
NO:	DATE:	ISSUE:

Status	
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MANCHESTER

Drawing Title

BUILDING ENCLOSURE -
OFFICE PODIUM

Project No	Drawing No	Revision
218739	S73-514	P03
Scale @ A0 As indicated		

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52.340 m

3850

A 03 - Hotel Gym
48.490 m

3810

A 02 - Synagogue
44.680 m

3480

GLAZING

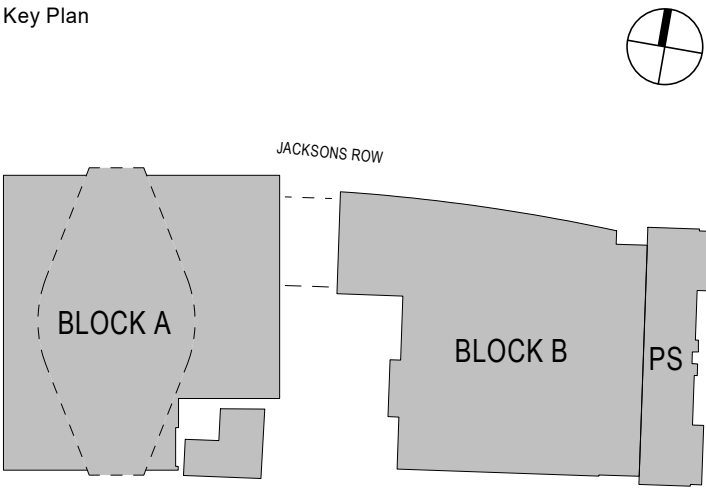
01 - Synagogue
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JERUSALEM STONE

5650

BRONZE FEATURE DOOR

A 0LG - Ground Lower
35.550 m



General Notes

P03	06/09/21	S73 Submission
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MANCHESTER

Drawing Title

BUILDING ENCLOSURE -
SYNAGOGUE

Project No	Drawing No	Revision
218739	S73-516	P03
Scale @ A0	As indicated	

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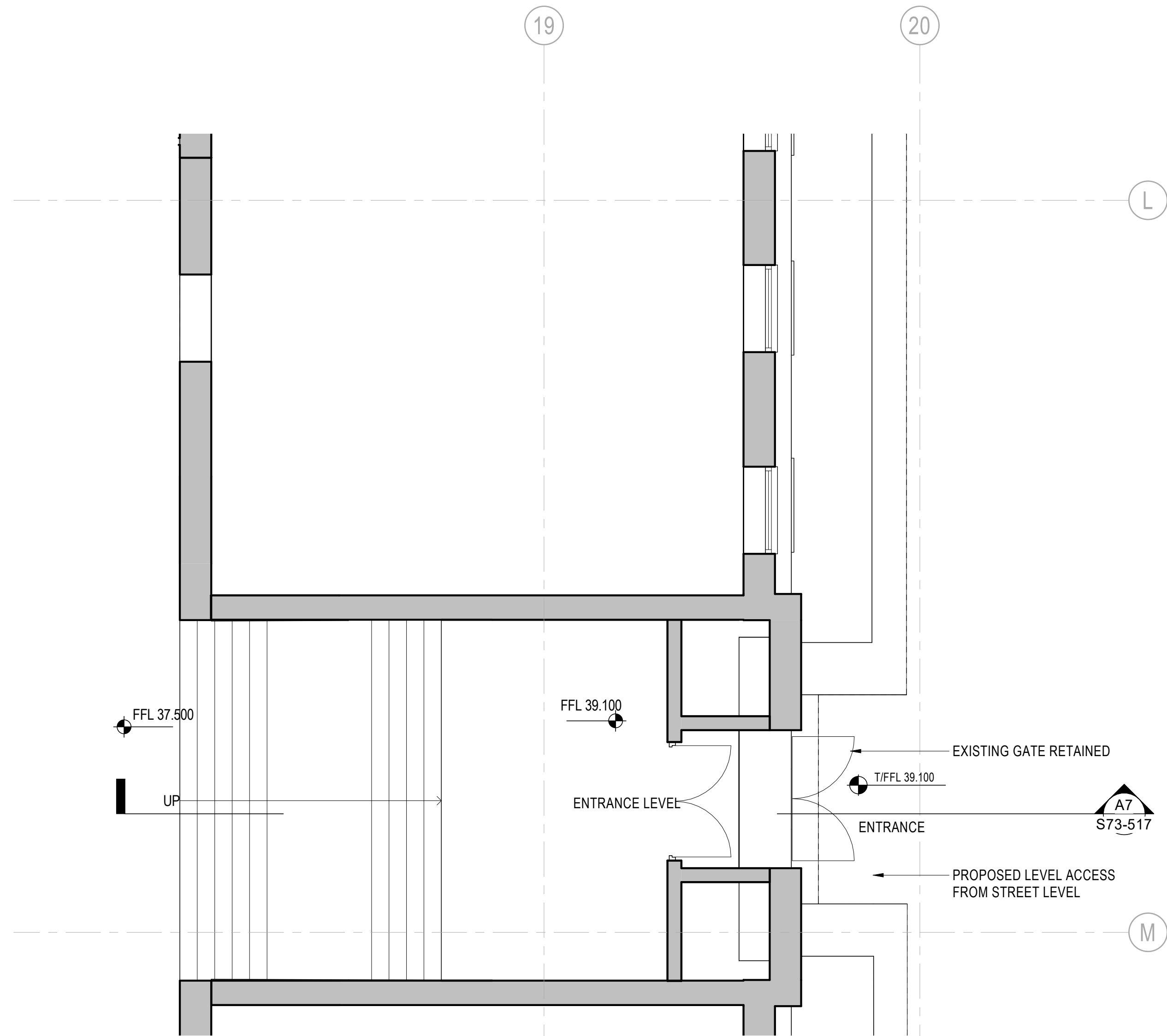
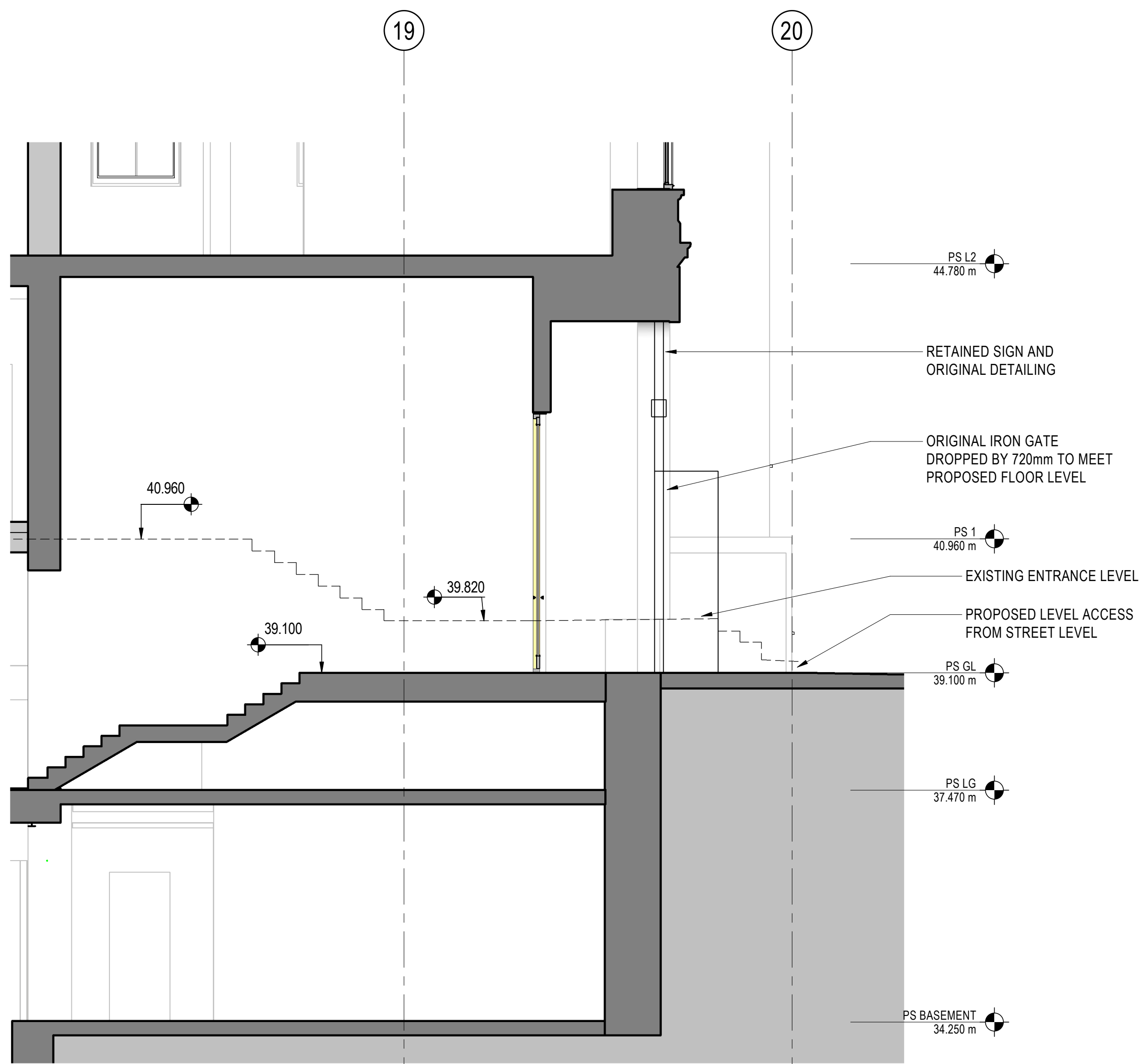
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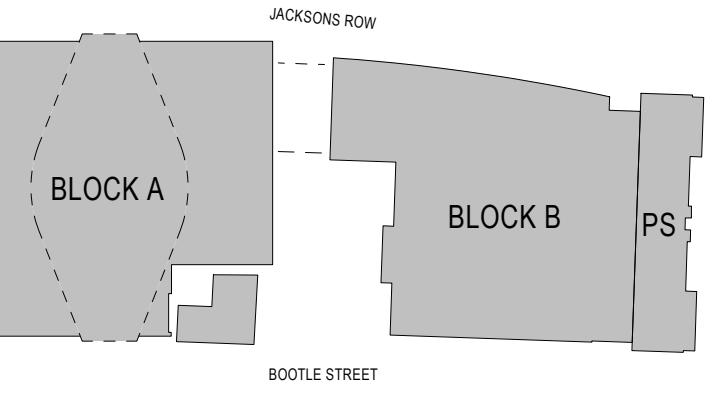
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PLAN

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Key Plan



General Notes

P03	06/09/21	S73 Submission
P02	20/08/21	S73 Submission DRAFT
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Status

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Project Name ST. MICHAELS DEVELOPMENT, MANCHESTER

Drawing Title

BUILDING ENCLOSURE -
POLICE STATION
ENTRANCE

Project No 218739	Drawing No S73-517	Revision P03
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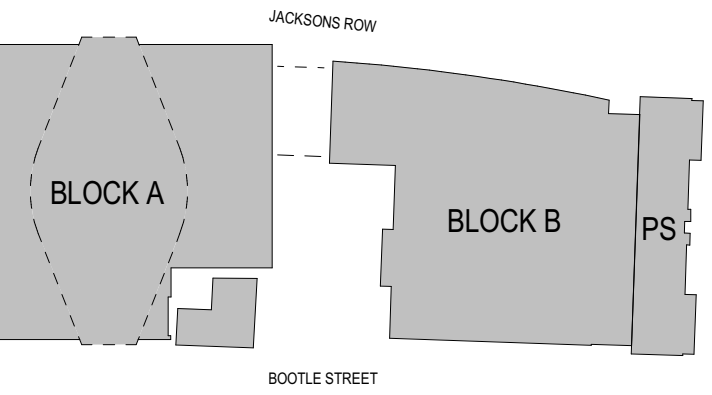
LEVEL B1 PLAN

1 : 200



- COMMERCIAL BIN STORE
- RESIDENTIAL BIN STORE
- BIN PRESENTATION COLLECTION POINT
- BLOCK A RETAIL AND PUB WASTE STORE
- BLOCK A RETAIL AND PUB WASTE STORE
- BIN TUG ROUTE
- PEDESTRIAN ACCESS

Key Plan



General Notes

P02	06/09/21	S73 Submission
P01	04/12/19	S73 Submission
NO:	DATE:	ISSUE:

Status

FOR INFORMATION

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Project Name
**ST. MICHAELS DEVELOPMENT,
MANCHESTER**

Drawing Title
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BASEMENT 1**

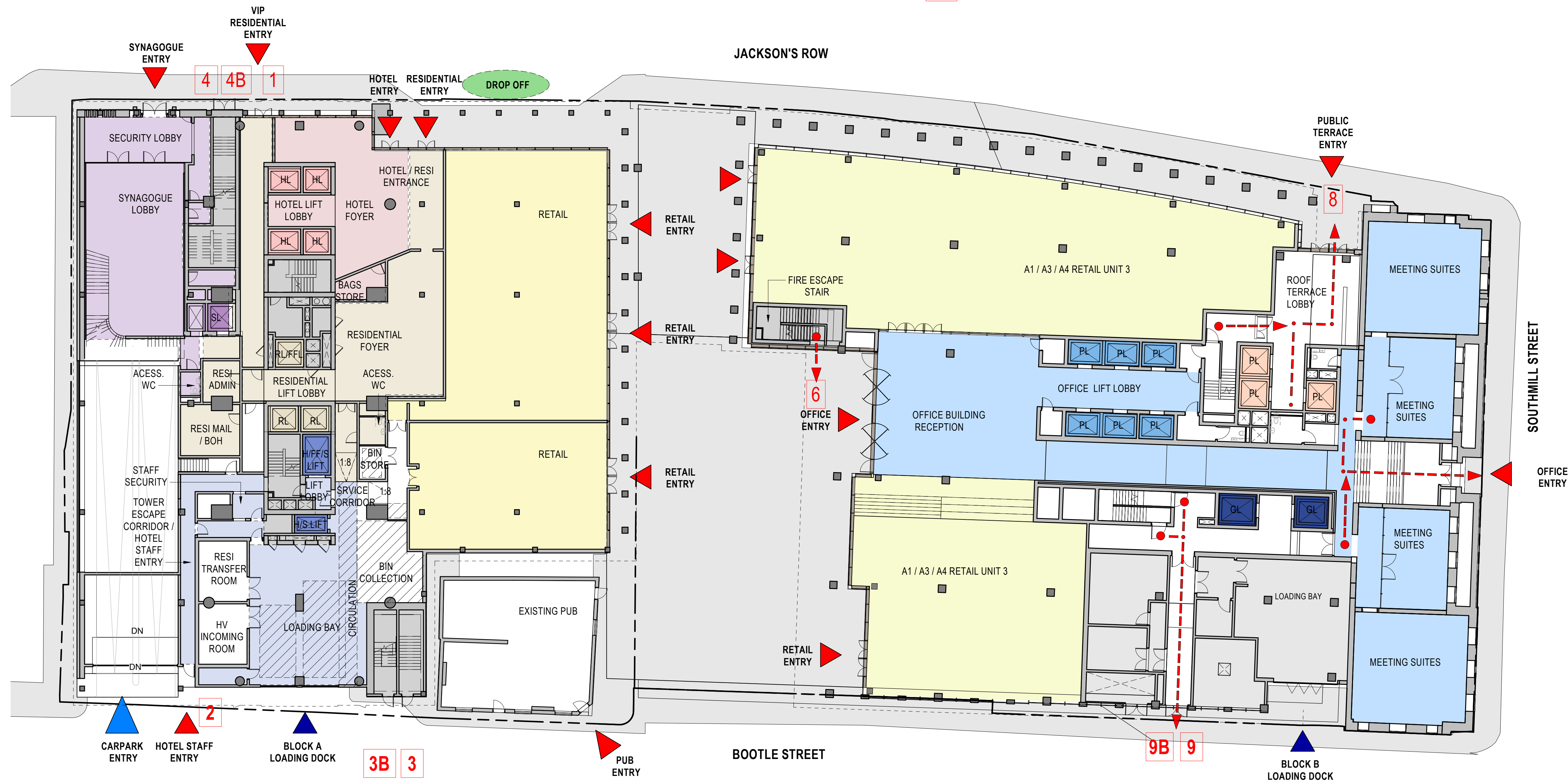
Project No	Drawing No	Revision
218739	S73-901	P02
Scale @ A0	As indicated	

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- PEDESTRIAN ENTRY/EXIT
- LOADING DOCK ENTRY/EXIT
- CARPARK ENTRY/EXIT
- ESCAPE ROUTE AND EXIT

- 1 TOWER STAIR 1 SERVES LEVELS GROUND TO LEVEL 40
- 2 TOWER STAIR 2 SERVES LEVELS GROUND TO LEVEL 39
- 3 PODIUM EXTERNAL STAIR 3 SERVES LEVELS GROUND TO LEVEL 6
- 3B BASEMENT STAIR 3B SERVES LEVELS BASEMENT 2 TO GROUND LEVEL
- 4 PODIUM STAIR 4 SERVES LEVELS GROUND TO LEVEL 4
- 4B BASEMENT STAIR 4B SERVES LEVELS BASEMENT 2 TO GROUND LEVEL CAN SERVE AS SYNAGOGUE CIRCULATION STAIR
- 6 OFFICE STAIR 6 SERVES LEVELS GROUND LEVEL TO LEVEL 8 CONNECTS TO PODIUM ON LEVELS 4 AND 6
- 8 OFFICE STAIR 8 SERVES LEVELS GROUND TO LEVEL 10 CONNECTS TO POLICE STATION BUILDING AND PUBLIC ROOF TERRACE
- 9 OFFICE STAIR 9 SERVES LEVELS GROUND TO LEVEL 10 CONNECTS TO POLICE STATION BUILDING AND PUBLIC ROOF TERRACE
- 9B BASEMENT STAIR 9B SERVES LEVELS BASEMENT TO GROUND

- HOTEL PASSENGER LIFTS
- RESIDENTIAL PASSENGER LIFTS
- SYNAGOGUE PASSENGER LIFTS
- GOODS LIFTS
- OFFICE PASSENGER LIFTS
- OFFICE / PUBLIC TERRACE GOODS LIFTS
- PUBLIC TERRACE PASSENGER LIFTS
- BOUTIQUE HOTEL PASSENGER / GOODS LIFTS



Key Plan

General Notes

P02	06/09/21	S73 Submission
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NO:	DATE:	ISSUE:

Status

FOR INFORMATION

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Services Engineer	HOARE LEA	
Fire Engineer	DESIGN FIRE	
Client	ST M	Landscape Designer
Architect	SOM	Project Manager
		zerum

Project Name

ST. MICHAELS DEVELOPMENT, MANCHESTER

Drawing Title

ACCESS - GROUND LEVEL

Project No	Drawing No	Revision
218739	S73-903	P02
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APPENDIX A

BSL Methodology and Guidance

BSL Phase I & II Geo-Environmental Assessment Reports - Methodology and Guidance

This Appendix provides information on the approaches, methods and guidance used by Brownfield Solutions Ltd in the preparation of this report.

The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential soils and groundwater contamination). The term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). It should be noted that this is an integrated investigation and these two main aspects are related, unless otherwise specified within the report.

Phase I reports are written in general accordance with the description of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and are also produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance

The first stage of the investigation and assessment of a site is the Preliminary Investigation/Tier 1 Preliminary Risk Assessment, often referred to as a Phase 1 Desk Study, comprising a desk study and walk-over survey and collation of desk-based searches, which culminates in the Preliminary Risk Assessment and the development of a preliminary/initial Conceptual Site Model (CSM). From this are identified any potential geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them.

From the geo-environmental perspective, the hazard Identification process uses professional judgement to evaluate all the hazards in terms of possible contaminant linkages (of source-pathway-receptor). Possible contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment as part of Phase II investigations and reports.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The Ground Investigation comprises field work and laboratory testing based on the findings of the Preliminary Risk Assessment, to reduce uncertainty in the geotechnical and geo-environmental hazard identification. This may include an exploratory, a detailed or/and supplementary Investigations as described in BS 10175:2011+A2:2017. Phase II Assessments are produced in general accordance with the recommendations for a Tier 2 Generic Quantitative Risk Assessment as described in LCRM guidance and are also intended to fulfil the requirements of a Ground Investigation Report (GIR) as detailed in BS EN 1997-2:2007.

Contaminated Land - Legislative Background

Land contamination can be addressed in several ways, e.g. during planning, under Part 2A, following an incident, during an investigation into environmental damages, or during the application of an environmental permit, or its surrender.

For the planning process the key test is **as a minimum the site cannot be determined as contaminated land**, e.g. there is not significant harm, significant possibility of significant harm to human health or that there is not significant harm to, or the significant possibility that the pollution of controlled waters will occur.

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act.
- The Contaminated Land Statutory Guidance, DEFRA – April 2012.
- The Contaminated Land (England) Regulations 2006.
- The Contaminated Land (England) Amendment Regulations 2012.
- Water Resources Act.
- Water Framework Directive.
- Environmental Damage Regulations.
- Environment Agency (EA) - Land Contamination Risk Management (LCRM) 2019.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

- 1) Significant harm is being caused or there is a significant possibility of such harm being caused.
- 2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

Source - substances that are potential contaminants or pollutants that may cause harm.

Pathway - a potential route by which contaminants can move from the source to the receptor, and the impact of that migration on the source e.g. attenuation.

Receptor - a receptor that may be harmed, for example the water environment, humans and water, considering the sensitivity of the receptor

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused. The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the S-P-R approach is 'suitable for use' criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents

This report has been prepared in accordance with the list of guidance below, however the list is not exhaustive:

- DETR: Circular 02/2000: Environmental Protection Act 1990: Part IIA: Contaminated land. 2012.
 - Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
 - BS 10175:2011+A2:2017.
 - Environment Agency (EA) - Land Contamination Risk Management (LCRM). 2019.
-

- Groundwater Protection - <https://www.gov.uk/government/collections/groundwater-protection>.
- UK Technical Advisory Group (UKTAG) - - Water Framework Directive
- Incidents and their classification: the Common Incident Classification Scheme (CICS) – Used by the Environment Agency to classify pollution incidents.

Relevant Legislative Documents

The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012).
- The Environment Protection Act (1990).
- The Water Resources Act (1991).
- The Environment Act (1995).
- The Contaminated Land (England) Act (2000).
- The Pollution Prevention and Control (England and Wales) Regulations (2000).
- The Landfill Regulations (England and Wales) Regulations (2002).
- The Landfill (England and Wales) (Amendment) Regulations (2004).
- Contaminated Land (England) Regulations (2012).
- The Environmental Damage (Prevention and Remediation) Regulations (2009).
- Environmental Permitting Regulations (England and Wales) Regulations (2010).
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- Health and Safety at Work Act.
- National Planning Policy Framework (NPPF)(2021).

Contaminated Land Risk Assessment Approach

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:

Hazard Identification ➡ Hazard Assessment ➡ Risk Estimation ➡ Risk Evaluation.

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under LCRM, three tiers of risk assessment exist – Stage/Tier Preliminary Risk Assessment, Stage 2 Generic Quantitative and Stage 3 Detailed Quantitative.

Further information can be found at the below site:

<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme

(CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report if applied.

The likelihood of a given receptor being impacted is related to a number of factors, e.g. the geology which could inhibit contaminant migration. For example, a site with a significant thickness of clay between it and a receptor may reduce migration of contamination via the subsurface, which will reduce the likelihood of a given receptor being impacted. The geology or drainage for example could offer a preferential pathway e.g. mines shafts/faults increasing the likelihood and potential magnitude of an impact. The depth of contamination will also affect the exposure pathway, for example petroleum hydrocarbons at depth are unlikely to reach a receptor via dermal contact but could via vapour pathways which will influence the likelihood of an impact being felt e.g. if there are no buildings on site.

The terms and definitions used for the assessment of the likelihood are provided below:

High likelihood: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.

Examples - Extensive areas with concentrations above saturation limits for mobile contamination e.g. petroleum hydrocarbons within the water table.

Likely: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term.

Examples – Localised areas of contaminants with concentrations above saturation limits for mobile contamination e.g. localised petroleum hydrocarbons within the water table; shallow contamination above relevant human health generic assessment criteria is present with little or no hardstanding,

Low likelihood: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term.

Examples - A thickness/distance of low permeability deposits preventing contaminant migration to a receptor is present; a site is mostly covered hard standing preventing exposure to soil contamination.

Unlikely: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

Examples – A site is underlain by a substantial thickness of low permeability clays, between the source and potential receptors which will inhibit significantly, but not completely rule out migration to sensitive receptors.

The severity is also classified using a system based on CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme (CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report, if applied. The terms and definitions are:

Severe: Short term (acute) risk to human health likely to result in ‘significant harm’ as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in ‘Draft Circular on Contaminated Land’, DETR 2000);

Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse.

Medium: Chronic damage to human health (‘significant harm’ as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in ‘Draft Circular on Contaminated Land’, DETR 2000);

Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve.

Mild: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment.

Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.

Minor: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.

Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low
	No Linkage	Negligible			

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

Very high: 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 is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required.

High: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term.

Moderate: 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 would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.

Low: 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.

Very Low: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled 'no linkage' in the summary table, which give rise to a **negligible** risk category and no further action is required.

Ground Gas Risk Assessment Guidance

BS8485:2015+A1:2019, BS 8576:2013, CIRIA C665 and CL:AIRE RB17 are the current guidance which gives up-to-date advice on all aspects of ground gas. They outline good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to ground gas contamination.

Within BS8485:2015+A1:2019, BS 8576:2013 and CIRIA C665, two semi-quantitative methods are set out for the assessment of risk:

- 1 For low rise housing with a ventilated under floor void at minimum 150 mm (Boyle and Witherington).
- 2 For all other development types (Wilson and Card).

Both methods use the concept of Gas Screening Values (GSVs) to identify levels of risk. The mitigation and management of potentially unacceptable risk is described with reference to both passive and active systems of gas. Source removal is also discussed as an option. A separate approach is discussed under the RB17 header further below.

The aim of the guidance is for a consistent approach to decision making, particularly relating to the scope of protective design measures on a site-specific basis.

Legislative Framework

BS8485:2015+A1:2019, BS 8576:2013 and CIRIA C665 provides technical guidance, however they also recognise the context into which the guidance has to be employed. Government policy is based upon a “suitable for use approach”, which is relevant to both the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the “source” in a “pollutant linkage” which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be “contaminated land” under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 *Statutory guidance on contaminated land*.

Generation Potential of Sources

BS 8576:2013 Figure 6 provides a basis for assessing the generation potential from sources identified as part of the Phase I Assessment. These are summarised below:

Generation Potential	Typical Sources
Very Low	- Natural carbonate soil and strata, e.g. chalk and limestone. - Natural soil strata with a low degradable organic content, e.g. alluvium, peat. - In-filled pond less than 15 m diameter, in-filled before 1930s to 1940s. - Made ground with low degradable organic content (e.g. up to 5% organic material such as pieces of wood, pieces of paper, rags, etc. with a high proportion of ash and no food or other easily degradable waste). - Mine workings shallow or shaft (where there is clear evidence that they are flooded). - Inert landfill sites.
Low	- Natural soil strata with a high degradable organic content (DOC). - Made ground with total organic carbon (TOC) up to 6% (e.g. dock silt, no food or other easily degradable waste). - Foundry sand (includes phenolic binders, rags and wood that decay, albeit at low rates). - Landfill 1945 to mid 1960s (see also Moderate below).
Moderate	- Sewage sludge. - Mine workings – unflooded, more than 50 years since last worked (gas is liberated from coal when mine workings are excavated; this continues for up to about 50 years). - Landfill 1945 to mid 1960s (this could also be “low” or, if disturbed, “high”).

Generation Potential	Typical Sources
High	- Landfill mid 1960s to early 1990s. - Mine workings – unflooded – less than 50 years since last worked.
Very High	- Municipal landfill sites. - Landfill early 1990s onward.

Frequency and Duration of Monitoring

The monitoring period for a specific site covers the “worst case” scenario. A “worst case” scenario will typically occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather.

The benefits of the additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with soil gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection. CL:AIRE publication TB17 “Ground Gas Monitoring and ‘Worst-Case’ Conditions” provides further guidance.

Below are matrices that will aid in determining an appropriate number of gas monitoring visits and the length of monitoring period.

Typical/idealised periods of monitoring

		Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	1 month	2 months	3 months	6 months	12 months
	Moderate (Apartments)	2 months	3 months	6 months	12 months	24 months
	High (Low rise Residential)	3 months	6 months	6 months	12 months	24 months

Typical/idealised frequency of monitoring/Number of Visits Required

		Gas Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	4	6	6	12	12
	Moderate (Apartments)	6	6	9	12	24
	High (Low rise Residential)	6	9	12	24	24

Note

- NHBC guidance also recommends this period of monitoring (Boyle and Witherington, 2007).
- Generation potential of sources based on descriptions within BS 8576:2013.
- At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

It is recommended that newly installed monitoring wells are left for 24 hours to allow the soil gas to reach equilibrium. It should be recognised, however, that some soil gas regimes could take considerably longer (up to seven days). Interpretation of any initial readings should take this equilibrium process into account.

RB17 Approach

CL:AIRE RB17 (Card et al 2012) is a pragmatic approach to ground gas risk assessment and was developed because gas concentration, pressure and flow rate measured in a well headspace may not be representative of the conditions in the surrounding formation.

In these low-risk situations, the approach is to use the conceptual site model and the estimation of the likely gas generation from a source to identify where or if gas monitoring is required to better define the risks.

Under this approach, for sites with natural soils only with no credible methane source, then no action is required (no monitoring or gas protection measures) as this represents Characteristic Situation 1 (CS1).

Unexploded Ordnance (UXO) Guidance

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA report C681.

BSL carry out non-specialist UXO screening exercises by considering any evidence of UK defence activities on or near the site evident from gathered desk study information and the unexploded aerial delivered bomb (UXB) online risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available online Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experienced and considered competent in the assessment of UXO.

Contaminated Land Screening Values

In assessing the potential for contamination Brownfield Solutions Limited (BSL) follows UK guidance and current best practice.

General

The current recommended method for assessing contamination is on the basis of:

Source-Pathway-Receptor

Where any one of these “pollution linkages” is absent there is deemed to be no risk.

Fundamentally, receptors can be considered as humans (human health) and controlled waters (surface and ground waters).

The purpose of using generic Tier 1 screening levels is to have a simple means of assessing the potential contamination of a site and to inform decisions on whether further investigation is warranted or whether an option to undertake clean up based on the data to hand is cost effective.

Human Health

Current UK guidance is provided by DEFRA and the Environment Agency (EA). Publications forming part of the guidance include the CLEA Model and toxicological reports collectively referred to as the CLEA Guidance. The CLEA Guidance has included a number of publications which have provided initial screening values for soil contamination based on standard land uses and soil assumptions.

CLEA guidance has gone through a number of revisions over time. Tier 1 generic S4UL values have been published using the CLEA 1.06 Model by CIEH/LQM. These are the third set of generic assessment criteria generated by CIEH and replace the previous two sets of GACs (Generic Assessment Criteria). The revised S4UL values are based on greater knowledge of relevant toxicology and further consideration of exposure frequencies.

C4SL values for six determinands including lead was published by DEFRA/CL:AIRE in December 2014 and they represent a low risk as opposed to minimal risk. These screening values were published by DEFRA for Part 2A use, although with the dual purpose for use under planning. However, S4ULs remain the first reference due to the broader range of end uses and soil organic content.

The preference from the EA is that site specific screening levels are used wherever possible. Due to numerous factors it is not always possible to utilise site specific values. In these instances the following data sources are used in the order of preference given below:

- CIEH S4UL values (derived by CIEH/LQM).
- DEFRA/CL:AIRE C4SL's.
- CL:AIRE GAC values.
- Guidance from other European countries.
- Guidance from the outside Europe.

Controlled Waters

The European Water Framework Directive (WFD) became UK law in December 2003. It was created to ensure that European countries manage their rivers, groundwater and lakes so that they stay healthy for people and for wildlife.

This is achieved by the use of chemical standards for surface waters and groundwater. These values describe concentrations of chemicals that are not expected to cause harm to environmental organisms or human health, provided they are not exceeded. The same chemical may have several standards for different environmental regimes, and for different protection objectives.

Statutory Standards are set in legislation and if exceeded, this constitutes non-compliance with statutory obligations. European Directives are implemented in England and Wales by corresponding statutory instruments (i.e. regulations). The statutory instruments can be the exact same standards as they appear in the Directive or be more stringent.

A number of non-statutory standards also exist, these are set by various organisations (including the EA) for chemicals that are considered to be of concern, but are not covered by any specific legislation.

The chemical standards used in the UK to control impaction of contamination on controlled waters are Environmental Quality Standards (EQS). The EQS's cover a large number of compounds.

Where certain compounds are not covered by the EQS these are commonly compared to the UK Drinking Water Standards (DWS).

Further Assessment

When screening values are exceeded then further consideration is required. This could include the use of simple measures to break the pollution pathway and mitigate the risk, further additional detailed investigation, including the deriving of site-specific values to better define the risk, and to design appropriate remedial measures.

Re-Use Of Waste - Guidance Note

Definition of Waste

The Environment Agency considers waste to be “...any material that is discarded, or intended to be discarded...” This includes any soil from trenches, footing, site strip etc. It is no longer required in its original location, therefore it is considered to be waste.

CL:AIRE: Code of Practice

Where materials are excavated for construction purposes, wherever possible these should be retained on site for engineering purposes if they are suitable for use. This can be implemented under the CL:AIRE “Development Industry Code of Practice for the Definition of Waste” (CL:AIRE DoWCoP), also commonly referred to as a “Materials Management Plan”.

The developer/contractor is advised to complete all works under the DoWCoP.

Potential scenarios where soils may be able to be re-used:

- Material capable of being used in another place on the same site without treatment.
- Material capable of being used in another place on the same site following ex-situ treatment on site.
- Material capable of being used in another development site without treatment (Direct Transfer).
- Material capable of being used in another development site following ex-situ treatment on another site eg Hub site.

The Code of Practice requires 4 No. Factors to be addressed:

- 1) Protection of human health and protection of the environment.
- 2) Suitability of use, without further treatment.
- 3) Certainty of use.
- 4) Quantity of material.

In order to satisfy these requirements the following are required:

- i) Consultation/approval with Local Authority & Environment Agency to confirm they have no objections to the proposed re-use of waste soils, or the risk assessments for the site.
- ii) Risk Assessments to demonstrate that the site does not present an Environmental Hazard.
- iii) Remediation Strategy for contaminated sites (or Design Statement for non-contaminated sites).
- iv) Materials Management Plan (MMP) which details material generated stockpiles and the end use.
- v) Volume calculations.
- vi) Planning permission for the development.
- vii) Contractual details to be clear, regarding who steps in if a contractor goes into administration/liquidation.

The use of the CoP is effectively industry regulated, there is a requirement to appoint an independent Qualified Person (QP) who checks all the requirements have been met and registers the documentation with the Environment Agency. This person must not have had any involvement with the preparing of the risk assessments or remedial strategy on the site.

Soils which require treatment on site (eg bioremediation, stabilisation) will require an Environmental Permit for treatment, together with justification and validation to prove, once treated, this material is suitable for use. Site management procedures need to be in place to ensure that material is tracked through from excavation stockpiling, treatment and remediation processes. Should the process of material tracking be considered non-robust, or not adhered to, this may fail the test whether excavated materials may be considered non-waste.

Waste Classification for Soils

Introduction

Waste producers have a duty of care to classify the waste they are producing:

- Before it is collected, disposed of or recovered.
- To identify the controls that apply to the movement of the waste.
- To complete waste documents and records.
- To identify suitably authorised waste management options.
- To prevent harm to people and the environment.

The most sustainable and economic method of dealing with waste soil is usually the retention and re-use on site. Where this is not possible there are three main options for the disposal of soils:

1. Disposal to a permitted waste recycling facility.
2. Re-use on another site (subject to the suitability).
3. Disposal to a landfill site.

The disposal to a permitted facility will be subject to the **specific conditions of the permits for each individual facility** and will vary dependent on location and environmental sensitivity of the receiving site. Re-use on another site will also be subject to the acceptability criteria of that site.

The guidance below relates to disposal to **landfill sites only**.

Background for Landfill Disposal

In July 2005 the United Kingdom implemented the European Directive 1999/31/EC (The Landfill Directive), this introduced the current regime for waste and waste disposal to landfill. The Landfill Directive places controls on waste disposal. These controls include requirements to follow the waste acceptance procedures and criteria that have been agreed by the Council of the European Union and are laid out in Council Decision 2003/33/EC.

Before a waste can be accepted at a landfill site, the landfill **operator** must be satisfied that the waste meets his permit conditions, the waste acceptance procedures (WAP) and waste acceptance criteria (WAC).

If disposal to landfill is the best management option for the waste soils, these procedures **must** be followed or the operator may refuse to accept the waste.

Key Points:

- Not all waste can be landfilled
- Landfills are classified according to whether they can accept hazardous, non-hazardous or inert wastes.
- Wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill.
- Most wastes must be treated before you can send them to landfill.
- There are formal processes for identifying and checking wastes that must be followed before wastes can be accepted at a landfill site.

Classification

Wastes are listed in the European Waste Catalogue (EWC 2002) and grouped according to generic industry, process or waste types. Wastes within the EWC are either hazardous or non-hazardous. Some of these wastes are hazardous without further assessment (absolute entries) or are 'mirror' entries that require further assessment of their hazardous properties in order to determine whether they are hazardous waste.

Waste soil has mirror entries on the EWC and as such the first phase of the waste classification process is that of determining if the waste is hazardous or not i.e the hazard assessment. The most common EWC waste codes related to soil are:

17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 03*	soil and stones containing dangerous substances
17 05 04	soil and stones other than those mentioned in 17 05 03

Soils may contain certain contaminants (eg asbestos, oil,) which have prescribed concentration thresholds, that if breached will render the material hazardous waste. These are based on specific “hazardous properties” which include hazards such as carcinogenicity, flammability and toxicity.

In the first instance the concentrations of plausible contaminants within the soil should be identified and wastes should be **classified based on their total concentrations**.

Waste Definitions

Inert	- Will not undergo any significant physical, chemical or biological transformations. - Will not dissolve. - Will not burn. - Will not physically or chemically react. - Will not biodegrade. - Will not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health. - Has insignificant total leachability and pollutant content. - Produces a leachate with an ecotoxicity that is insignificant (if it produces leachate).
Non-Hazardous	Is not inert (see above) Is not hazardous (see below)
Hazardous	Soil has hazardous properties as defined in WM3 (Guidance on the classification and assessment of waste (1st edition 2015)- Technical Guidance)
Stable Non-reactive hazardous waste#	Hazardous waste, the leaching behaviour of which will not change adversely in the long-term, under landfill design conditions or foreseeable accidents either: in the waste alone (for example, by biodegradation), under the impact of long-term ambient conditions (for example, water, air, temperature or mechanical constraints) or by the impact of other wastes (including waste products such as leachate and gas).

This option allows hazardous waste that is stable and thus has a low leaching potential to be deposited in cells with a standard of containment consistent with non-hazardous wastes.

WAC Testing

The purpose of WAC analysis is to confirm that the waste complies with the relevant WAC for the receiving landfill. If the waste has any disposal route other than a landfill site (e.g. recycling facility, incineration etc) the WAC is not relevant. Furthermore, the WAC limits **cannot** be used to make an assessment of whether a waste is hazardous. WAC testing does however define if a non-hazardous waste is suitable for an inert landfill.

Classification based on Total Concentrations ¹	Non-Hazardous Waste		Hazardous Waste	
	Below inert WAC limit values:	Above inert WAC limit values:	Below hazardous WAC limit values	Above hazardous WAC limit values
WAC testing				
Landfill requirements	INERT landfill	NON-HAZARDOUS landfill ²	HAZARDOUS landfill	PRE-TREATMENT ³

1 Total concentrations are defined as tests results on solids as opposed to leachate (i.e. a liquid).

2 Individual sites may have certain limit values pre-determined in their licence.

3 After pre-treatment the material characteristics may have changed to an extent that allow the soil to be re-classified.

Hydrocarbons in Soils

WM3 uses the term Oil or Waste Oil to cover hydrocarbons products such as fuel oil, petrol or diesel. These are defined by WM3 as hazardous under an absolute entry in the List of Wastes. However, hydrocarbons in soils are a mixture rather than a pure product and are therefore not absolute entries.

Known Oils

The simplest scenario is where the identity of the contaminating oil is known or can be identified. If the oil is known the manufacturer's or supplier's REACH compliant safety data sheet for the specific oil can be obtained and the hazard statement codes on that Safety Data Sheet can be used for the hazardous waste assessment.

Where the identity of the oil can only be identified down to a petroleum group level (i.e. the contaminating oil is known to be diesel, but the specific type/brand is unknown), then the classification of that petroleum group should be used in the assessment. The marker compounds associated with that petroleum group may be used to confirm carcinogenicity.

Oils may contain a range of hydrocarbons, so the presence of for instance Diesel Range Organics (DRO) does not enable the assessor to conclude that diesel is present. These hydrocarbons may have arisen from other oils, the laboratory needs to provide an interpretation of the chromatograph to determine if it is consistent with diesel or weathered diesel as a whole.

The concentration of known oils should be determined using a method that as a minimum spans the range in which the carbon numbers for that known oil fall.

Unknown Oils

Where hydrocarbons are contaminating soils, it is likely that the oil will be unknown or cannot be determined.

WM3 states that:

For contaminated land specific consideration must be given to the following before proceeding;

- The presence of other organic contaminants, for example solvents or coal tar that could be detected as hydrocarbons. Coal Tar is not an oil and is considered separately in WM3 example 2. Where the site history or investigation indicates the presence of hydrocarbons from oil and other sources (e.g. coal tar), and the origin of the hydrocarbons cannot reliably be assigned to either, then a worst case approach of considering the hydrocarbons both as waste oil (in accordance with this example) and from other sources, for example coal tar should be taken.
- The presence of diesel, or weathered diesel, should be specifically considered by the laboratory and where this is confirmed by the hydrocarbon profile the oil should be assessed as a known or identified oil (diesel).

The use of marker compounds is optional; however, it is recommended that where possible the marker compounds should be used. WM3 states:

If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic/mutagenic due to the presence of oil if all three of the following criteria are met:

- The waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.1 of the CLP for BaP)
- This has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D of WM3, and
- The analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel.

For example:

TPH Concentration (mg/kg)	Petrol or Diesel	BaP (mg/kg)	Classification
10,000	No	0.9	Non- Hazardous
1,000	No	Not available	Hazardous
1,000	Yes	Not relevant	Hazardous

References

1. Environmental Permitting (England and Wales) Regulations 2010 (as amended) (EP Regulations), the Landfill Directive (1999/31/EC) and the subsequent Council Decisions.
2. Environment Agency Environmental Permitting Regulations: "Inert Waste Guidance- Standards and Measures for the Deposit of Inert Waste on Land" 2009.
3. Environment Agency "Waste acceptance at landfills - Guidance on waste acceptance procedures and criteria" Nov 2010.
4. Environment Agency "Guidance on the classification and assessment of waste (Technical Guidance WM3)".
5. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).
6. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
7. 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament
8. Environmental Permitting Guidance The Landfill Directive For the Environmental Permitting (England and Wales) Regulations 2010 Updated March 2010 Version 3.1
9. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).

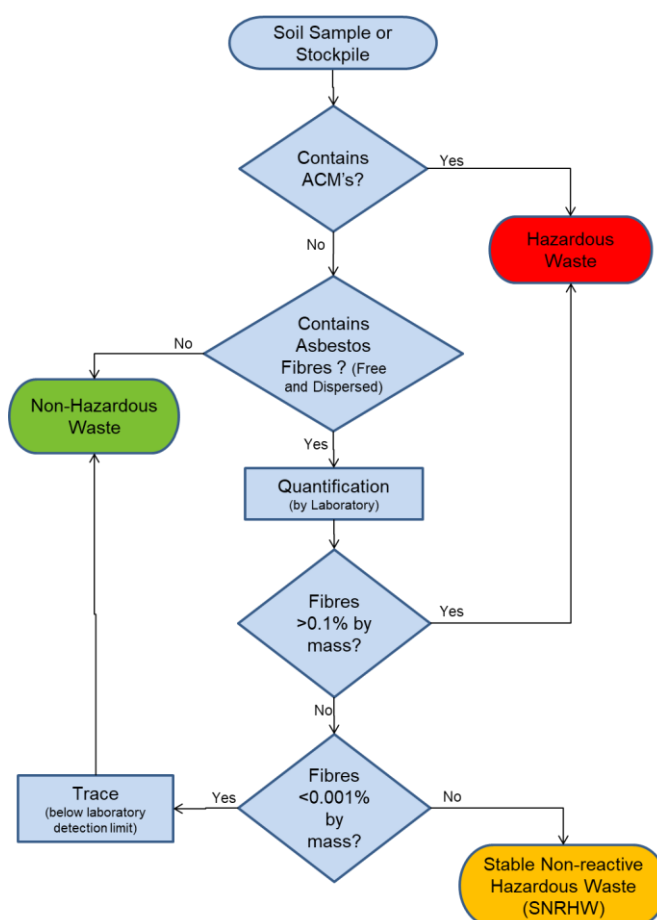
Additional Asbestos Guidance Notes

Disposal

The 1st Edition of WM3 "Guidance on the classification and assessment of waste", details the way in which Asbestos is assessed within soils.

The assessment of asbestos containing waste is dependent on whether the asbestos is present as:

- Fibres that are free and dispersed, or
- Identifiable pieces of asbestos containing materials (ACM's)



Identifiable pieces of asbestos are any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. The result is that commonly soils with visible ACM's are sorted and the ACM's removed by hand picking and separate disposal.

Asbestos concentrations below 0.001% by mass are below standard laboratory detection limits and are not currently regarded as containing asbestos for the purposes of disposal and may be disposed of to an inert landfill site¹. These levels are often termed "trace" by laboratories.

Asbestos concentrations between 0.001% and 0.1% are stable non-reactive hazardous waste (SNRHW)¹. Waste transfer stations where soil recycling takes place may be able to take SNRHW, but are unlikely to take soils containing asbestos above trace concentrations.

The following codes should be assigned to the asbestos waste as appropriate:

17 06	Insulation materials and asbestos-containing construction materials
17 06 01	Insulation materials containing asbestos
17 06 03	Other insulation materials consisting of or containing hazardous substances
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05	Construction material containing asbestos

WM3 indicates that 17 06 05 would normally be used in preference to 17 06 01 for the asbestos in asbestos contaminated soil and stones.

Construction materials containing asbestos and "*other suitable materials*" may be landfilled at landfills for non-hazardous waste in accordance with the Landfill Directive without testing.

This means that wastes that are only hazardous because of their asbestos content can be disposed of at landfills for non-hazardous waste in separate landfill cells that only accept asbestos wastes and other suitable materials. The Landfill Directive requires that stable non-reactive hazardous waste shall not be deposited with biodegradable waste (for example organic material, household waste, paper etc..) and must meet the waste acceptance criteria set out in accordance with Annex II.

Construction

Health and Safety Executive (HSE) guidance on asbestos is not directly related to soil and much of the guidance focuses on the removal of asbestos from buildings. The overarching legislation is the Control of Asbestos Regulation (CAR 2012). However, where work involves (or is likely to involve) contact with asbestos then CAR 2012 requires a risk assessment including whether or not the work is licensed or notifiable non-licensed work and may require an Asbestos Management Plan. Work becomes notifiable if it is considered that the control limit could be exceeded.

Brownfield sites frequently have soils that contain asbestos and the presence of asbestos needs to be considered within the context of construction, particularly in relation to groundworks. The exposure of soils and the use of excavators and plant to move soil around increases the possibility of fibres becoming airborne. However, it is good site practice to not generate dusts and to employ dust suppression on all sites regardless of the presence of asbestos.

The legal control limit for asbestos is 0.1f/ml over a continuous four-hour period. The control limit is not a 'safe' level and exposure from work activities involving asbestos must be reduced to as far below the control limit as possible.

Clearly the higher the concentrations in the soil the greater potential there is for fibres to be released, however IOM publication TM/88/14 "the release of dispersed asbestos fibres from soil" 1988 concludes that:

- Mixtures of asbestos in dry soils with asbestos content as low as 0.001% can produce airborne respirable asbestos concentrations greater than 0.1f/ml in dust clouds where the respirable dust concentrations are less than 5mg/m³.
- An action limit is recommended of no higher than 0.001% asbestos in soils above which steps should be taken to minimise exposure to airborne fibres (e.g. by wetting).
- The addition of relatively small quantities (10%) of water can reduce the airborne fibre concentrations by an order of magnitude.

Where asbestos has been identified at concentrations above 0.001% as free and dispersed fibres in the soil precautions need to be adopted. Concentrations below this are considered to be normal background, although good site practice dictates that the generation of dusts should be avoided and therefore any fugitive fibre release from minor concentrations should be kept to a practical minimum.

End Use

The use of materials containing asbestos and material containing asbestos is prohibited under EU legislation. There is currently a Joint Industry Working Group (JIWG) tasked with producing a Code of Practice for Asbestos in Soil, Made Ground and Construction & Demolition Material that will clarify in due course the position of the various government agencies.

Asbestos containing materials can remain in situ under a suitable cover system which may be hardsurfacing or soft landscaping (with or without hard dig layers and markers).

There is a risk that future maintenance may compromise such systems and details of the presence of asbestos should be kept in the Health and Safety File.

Preliminary publications from JIWG (April 2015) provide guides for decision making in relation to construction.

The re-use of waste soils should be undertaken in accordance with the CL:AIRE Code of Practice and is subject to suitable risk assessments demonstrating low risk. There is nothing that specifically excludes the re-use of soils containing asbestos as fill to raise levels. However, the movement of materials increases the risk of fibres becoming airborne and suitable precautions will be required.

The re-use of soils containing asbestos at concentrations above hazardous waste levels is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be feasible where there is a long program for implementation.

Asbestos in Soil as Free Fibres

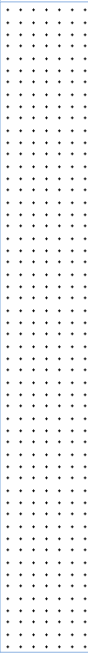
Concentration (by weight)	Waste Disposal				Construction Issues	End Use	
	Recyc	Inert	SNR	Hazardo		Suitable for re-use on site	Precautions
Not detected	√	√			No precautions necessary, however on a brownfield site asbestos not previously identified may be found during works and a statement within the contractors method statement for how they will deal with this unforeseen asbestos would be good practice to ensure compliance with CAR2012.	Yes	None
Trace (<0.001%)		√ ²			Precautions are unlikely to be required, however a detailed method statement may be required to ensure compliance with CAR2012. Basic asbestos management good practice will be required. Typically precautions would include: - Ensuring soils do not dry out to become dusty. - Site personnel have the risk communicated at induction stage.	Yes Soils can be re-used under CL:AIRE CoP with the correct precautions in place.	Generally clean cover or hardstanding cover required.
0.001% – 0.099%			√		Contractor needs to produce an Asbestos Management Plan in accordance with CAR2012 as part of their method statement. Typical precautions would include: - Site personnel have the risk communicated at induction stage. - Ensuring personnel have suitable training. - Task monitoring to inform PPE requirements. - Ensuring soils do not dry out to become dusty and that misting is available during groundworks. - Separate stockpiling. - Clean haulage routes.	Possibly Soils may be able to be re-used under CL:AIRE CoP, subject to a satisfactory Risk Assessment and regulatory agreement with the correct precautions in place.	Clean cover or hardstanding cover required.
0.1+%				√	Contractor needs to produce an Asbestos Management Plan in accordance with CAR2012 as part of their method statement. Typical precautions would include: - Site personnel have the risk communicated at induction stage. - Ensuring personnel have suitable training. - Task monitoring to inform PPE requirements. - Site wide and or perimeter monitoring. - Ensuring soils do not dry out to become dusty and that misting is available during groundworks. - Separate stockpiling. - Clean haulage routes. - Decontamination unit	Unlikely ³ Re-use of soils containing asbestos within an earthworks scheme will involve significant engineering and the Risk for generating dusts will be significantly increased with	Clean cover and a hard dig layer. A plan should be in place for future excavations as part of the Health and Safety File.

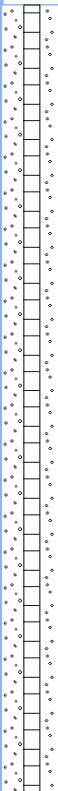
Concentration (by weight)	Waste Disposal				Construction Issues	End Use	
	Recyc	Inert	SNR	Hazardo		Suitable for re-use on site	Precautions
						repeated handling and compaction.	

1. The standard laboratory detection limit is normally 0.001%. Below 0.001% is trace and currently regarded as not containing asbestos for the purposes of disposal off site. However the waste producer has a duty to fully classify the waste and the presence of trace asbestos should be declared. Consequently it is unlikely that a waste treatment site will take this soil and an inert landfill may make a commercial decision to only take it under some circumstances.
2. The re-use of soils containing asbestos at concentrations above hazardous waste is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be warranted where there a long program for implementation.

APPENDIX B

Exploratory Hole Logs

BROWNFIELD SOLUTIONS LTD							Borehole Log			Rotary Borehole No.	
										BH01	
										Sheet 1 of 5	
PROJECT NO: C5128							CO-ORDS:			Hole Type	
										RC	
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:			Scale	
										1:50	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 13/12/22 - 19/12/22			Logged	Checked
										JEM	JM
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.10 0.25			MADE GROUND: Reinforced concrete. 10mm rebar at 0.08m bgl.	1.0		
						MADE GROUND: Grey sub-angular fine to coarse gravel of limestone.					
						MADE GROUND: Greyish brown sandy gravel with low cobble content. Sand is fine to coarse. Gravel is sub-angular fine to coarse of brick, concrete and limestone. Cobbles are angular of brick up to 200mm in diameter.					
			1.20	SPT	N=1 (1,1/0,0,0,1)						
			2.00	SPT	N=5 (1,2/1,1,1,2)					2.0	
			3.00	SPT	N=20 (3,4/4,6,5,5)	2.85			Orange brwn silty gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of mudstone, sandstone and quartz.	3.0	
			4.00	SPT	N≥50 (4,5/50 for 170mm)	4.05			Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.	4.0	
			5.43-5.50	D						5.0	
			5.50 - 7.00	4	100 77 61	5.50			Moderately strong partially weathered brownish red fine to coarse SANDSTONE. 5.50-7.00m bgl: Discontinuites are widely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	6.0	
			6.80 - 7.00	D					7.00-7.50m bgl: Discontinuites are widely spaced, smooth, undulating, planar and horizontal to sub-horizontal (0-5 degrees).	7.0	
			7.00 - 8.50	4	100 87 67				7.50-7.60m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	8.0	
									7.60-8.50m bgl: Discontinuites are moderately spaced, smooth, undulating, planar and horizontal to sub-horizontal (0-5 degrees).		
				7					8.35-8.50m bgl: Sub-vertical fracture (88 degrees).		
			8.50 - 10.00	5	100 95 51				8.50-9.05m bgl: Discontinuites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	9.0	
				NI					9.05-9.13m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.		
		6				9.13-10.00m bgl: Discontinuites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).					
			TCR	SCR	RQD						
Remarks								1. Service clearance by BSL Engineer. 2. UXO Clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.50m bgl with Rotary Coring follow on to 43.50m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.			
							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane				

 BROWNFIELD SOLUTIONS LTD									Rotary Borehole No.		
									BH01		
									Sheet 2 of 5		
PROJECT NO: C5128									Hole Type		
									RC		
PROJECT NAME: ST MICHAELS, MANCHESTER									Scale		
									1:50		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									Logged	Checked	
									JEM	JM	
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description	
				TCR (%)	SCR (%)	RQD (%)					
		9.93 - 10.00	D	100	100	94				10.00-11.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	10.0
		10.00 - 11.50	10								11.0
		11.50 - 13.00	1	100	93	80				11.50-11.63m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	12.0
			NI							11.63-11.70m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.	
			0							11.70-11.80m bgl: No discontinuities.	
			+							11.80-11.84m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.	
		12.57 - 12.80	D							11.50-11.63m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	13.0
		13.00 - 13.08	D	100	93	90				11.70-11.80m bgl: No discontinuities.	14.0
		13.00 - 14.50	NI							13.08-13.09m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.	
			0							13.09-14.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			+								
		14.50 - 16.00	8	100	97	90				14.50-15.80m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	15.0
		16.50 - 16.60 16.00 - 17.50	NI							15.80-15.90m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	16.0
			0	100	97	70				15.90-16.00m bgl: No discontinuities.	
			D							16.00-17.20m bgl: Slightly gravelly of fine to coarse quartz. Discontinuities are moderately spaced, smooth, undulating, planar and horizontal to sub-horizontal (0-5 degrees).	
			7								
		17.50 - 17.80	NI							17.20-17.25m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.	18.0
			0	100	90	70				17.25-17.50m bgl: Slightly gravelly of fine to coarse quartz. Discontinuities are moderately spaced, smooth, undulating, planar and horizontal to sub-horizontal (0-5 degrees).	
			D							17.50-17.75m bgl: No discontinuities.	
			0							17.75-17.85m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.	
		17.50 - 19.00	NI							17.85-18.20m bgl: Slightly gravelly of fine to coarse quartz. Discontinuities are moderately spaced, smooth, undulating, planar and horizontal to sub-horizontal (0-5 degrees).	19.0
			4							18.20-18.25m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse of sandstone and quartz.	
			5							18.25-19.00m bgl: Slightly gravelly of fine to coarse quartz. Discontinuities are moderately spaced, smooth, undulating, planar and horizontal to	
		19.00 - 19.10	D	100	97	63					
Remarks											
1. Service clearance by BSL Engineer. 2. UXO Clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.50m bgl with Rotary Coring follow on to 43.50m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.										ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	



Rotary Borehole No.

Sheet 3 of 5

CO-ORDS:

LEVEL:

DATES: 13/12/2022 - 19/12/2022

Logged

Checked

JEM

JM

Remarks	1. Service clearance by BSL Engineer. 2. UXO Clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.50m bgl with Rotary Coring follow on to 43.50m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane
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Rotary Borehole No.

Sheet 4 of 5

CO-ORDS:

LEVEL:

DATES: 13/12/2022 - 19/12/2022

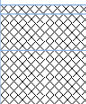
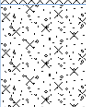
Logged	Checked
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JEM

JM

Remarks	1. Service clearance by BSL Engineer. 2. UXO Clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.50m bgl with Rotary Coring follow on to 43.50m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane
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 BROWNFIELD SOLUTIONS LTD									Rotary Borehole No.		
									BH01		
									Sheet 5 of 5		
PROJECT NO: C5128									CO-ORDS:		
PROJECT NAME: ST MICHAELS, MANCHESTER									Hole Type		
									RC		
									Scale		
									1:50		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									Logged	Checked	
									JEM	JM	
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description	
				TCR (%)	SCR (%)	RQD (%)					
		39.55 - 39.75	D							39.15-39.18m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 39.18-40.50m bgl: Discontunites are moderately spaced, smooth, undulating, planar and horizontal to sub-horizontal (0-5 degrees). 39.25-39.35m bgl: Vertical fracture.	
		39.00 - 40.50	5								40.0
				100	93	67					
		40.50 - 42.00	5								41.0
		41.50 - 41.60	D								
			NI								
			1	100	90	15					42.0
		42.00 - 43.50	19								43.0
			NI								
								43.50			
										45.0	
										46.0	
										47.0	
										48.0	
										49.0	
Remarks										1. Service clearance by BSL Engineer. 2. UXO Clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.50m bgl with Rotary Coring follow on to 43.50m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	
										ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD						Borehole Log		Rotary Borehole No.			
PROJECT NO: C5128						CO-ORDS:		BH02			
								Sheet 1 of 2			
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:		Hole Type			
								RC			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 07/11/22 - 21/12/22		Scale			
								1:50			
								Logged	Checked		
								CM	JM		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.06						MADE GROUND: Asphalt.		1.0	
		0.30						MADE GROUND: Greyish brown sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of limestone and sandstone.			
								MADE GROUND: Brownish grey gravelly clay. Gravel is sub-angular fine to coarse of brick and sandstone. Rare coal.			
		1.20	SPT	N=1 (1,0/0,0,0,1)	1.55			Orange brown silty gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of mudstone, sandstone and quartz.		2.0	
		1.30-1.50	D ES								
		2.00	D SPT	N=18 (3,4/5,4,4,5)							
		3.00	D SPT	N≥50 (9,10/50 for 275mm)	4.25			Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz. 4.50-6.00m bgl: No recovery.		3.0	
		4.00 / 275	SPT	N≥50 (6,6/50 for 275mm)							
					NR	67 67 7	6.50		6.00-6.50m bgl: No recovery.		6.0
		6.00 - 7.50	NI								
			10	95 83 63							
		7.50 - 9.00	11					7.50-8.25m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).		8.0	
			NR					8.25-9.00m bgl: No recovery.			
		9.00 - 10.00	6	100 100 92				9.00-10.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			

 BROWNFIELD SOLUTIONS LTD									Rotary Borehole No.		
									BH02		
									Sheet 2 of 2		
PROJECT NO: C5128									CO-ORDS:		
PROJECT NAME: ST MICHAELS, MANCHESTER									Hole Type		
									RC		
									Scale		
									1:50		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									DATES: 07/11/2022 - 21/12/2022		
									Logged	Checked	
									CM	JM	
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description	
				TCR (%)	SCR (%)	RQD (%)					
				100	97	70					10.0
		10.00 - 11.50	8							10.00-11.01m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			NI								
			2							11.01-11.06m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	11.0
		11.50 - 13.00	11	100	97	57				11.06-11.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			NI							11.50-12.72m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	12.0
			0								
			NR	53	53	27				12.72-12.77m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded of fine to coarse sandstone.	13.0
		13.00 - 14.50	3							13.00-13.14m bgl: No recovery.	
			NR							13.14-13.40m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			3							13.40-13.66m bgl: No recovery.	
			NR							13.66-13.90m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	14.0
			NR							13.90-14.10m bgl: No recovery.	
			2							14.10-14.34m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			NR	100	100	42				14.35-14.50m bgl: No recovery.	14.0
		14.50 - 15.00	7							14.50-15.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
				100	97	40				15.00-15.40m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	15.0
		15.00 - 16.50	4							15.40-15.43m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			3							15.43-15.47m bgl: Sub-vertical fracture (48 degrees).	16.0
			1							15.43-15.64m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			7							15.59-15.61m bgl: Sub-vertical fracture (20 degrees)	
				100	100	30				15.67-15.81m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
		16.50 - 17.50	12							15.81-15.83m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded of sandstone.	17.0
										15.83-16.50m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
										16.50-17.50m bgl: Discontinunties are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
		17.50 - 19.00	15	100	100	47				17.50-19.00m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	18.0
							19.00			End of Borehole at 19.00m	19.0
Remarks										ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	
1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 4.00m bgl with Rotary Coring follow on to 19.00m bgl 5. No groundwater encountered. 6. Borehole progress halted at 19.00m bgl.											

 BROWNFIELD SOLUTIONS LTD						Borehole Log		Rotary Borehole No. BH03 Sheet 1 of 3 Hole Type RC Scale 1:50 Logged CM Checked JM	
PROJECT NO: C5128						CO-ORDS:			
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 07/11/22 - 21/12/22			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.06-0.25	D ES		0.06 0.25			MADE GROUND: Asphalt.	
		0.50-0.70	D ES					MADE GROUND: Greyish brown sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of limestone and sandstone.	
		1.20	SPT	N=18 (3,3/4,4,5,5)	0.85			MADE GROUND: Brownish grey sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of brick, concrete and sandstone.	1.0
		1.50-1.70	D ES					MADE GROUND: Reddish brown slightly sandy gravel with high cobble content. Sand is fine to coarse of ash. Gravel is angular to sub-angular fine to coarse of brick. Cobbles are angular of brick up to 200mm in diameter.	
		2.00	SPT	N=9 (3,4/4,2,1,2)					2.0
		3.00	D SPT		2.95				
		4.00	SPT	N=10 (3,3/3,2,3,2)				Orange brown slightly gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and limestone.	3.0
		4.00 - 5.00	NR		4.05			4.00- 5.00mbgl: No recovery.	4.0
			NI	100	67	14		Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.	
		5.00 - 6.50	10		5.00 5.12			Non intact SANDSTONE recovered as brownish red fine to coarse sandy GRAVEL. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	5.0
			NI					5.00-5.12m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			NI					Moderately strong partially weathered brownish red fine to coarse SANDSTONE.	6.0
			NI					5.12-5.82m bgl: Discontinuites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			NI					5.82- 5.90m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			NI					5.95-6.00m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	7.0
			NI					6.00-6.10m bgl: Discontinuites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			NI					6.10-6.22m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			NI					6.22-6.30m bgl: Discontinuites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	8.0
			NI					6.30-6.50m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			NI					6.50-7.00m bgl: No recovery.	
			NI					7.00-7.12m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	9.0
			NI					7.12-7.20m bgl: Discontinuites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
			NI					7.20-7.24m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			NI						
			TCR	SCR	RQD				
Remarks						1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 4.00m bgl with Rotary Coring follow on to 24.50m bgl. 5. No groundwater encountered. 6. Hole progress halted at 24.50m bgl.			
						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			

 BROWNFIELD SOLUTIONS LTD									Rotary Borehole No.					
									BH03					
									Sheet 2 of 3					
PROJECT NO: C5128									CO-ORDS:					
PROJECT NAME: ST MICHAELS, MANCHESTER									LEVEL:					
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									DATES: 07/11/2022 - 21/12/2022					
									Logged	Checked				
									CM	JM				
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description				
				TCR (%)	SCR (%)	RQD (%)								
		9.50 - 11.00	13							7.24-7.39m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 7.30-7.32m bgl: Sub-vertical fracture (30 degrees). 7.34-7.39m bgl: Sub-vertical fracture (45 degrees). 7.39-4.49m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 7.49-8.00m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 7.54-7.60m bgl: Sub-vertical fracture (48 degrees). 8.00-8.10m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 8.10-8.13m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. . 8.13-8.73m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 8.72-8.82m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 8.81-9.40m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 9.40-9.46m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 9.46-9.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 9.50-11.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 11.00-11.17m bgl: No recovery. 11.17-12.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 12.50-12.72m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 12.72-12.80m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 12.80-13.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 13.40-13.42m bgl: Sub-vertical fracture (85 degrees). 13.43-13.50m bgl: Vertical fracture (91 degrees). 13.50-13.62m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 13.62-14.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 14.00- 15.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 15.50-17.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	10.0			
			NR	95	97	80					11.0			
		11.00 - 12.50	10								12.0			
			1	100	93	73					13.0			
			NI											
		12.50 - 14.00	7											
			NI											
			4	100	99	87					14.0			
		14.00 - 15.50	14								15.0			
				100	99	60					16.0			
		15.50 - 17.00	9								17.0			
			NI	100	93	63				17.00-17.11: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 17.11-18.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	18.0			
		17.00 - 18.50	12											
				100	93	73				18.50-19.33m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	19.0			
		18.50 - 20.00	8											
			0							19.42- 20.00m bgl: Discontinuities are moderately spaced, smooth, planar				
Remarks									1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 4.00m bgl with Rotary Coring follow on to 24.50m bgl. 5. No groundwater encountered. 6. Hole progress halted at 24.50m bgl.			ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane		



Rotary Borehole No.

Sheet 3 of 3

CO-ORDS:

LEVEL:

DATES: 07/11/2022 - 21/12/2022

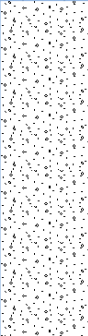
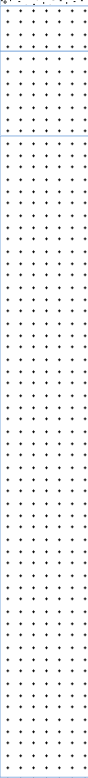
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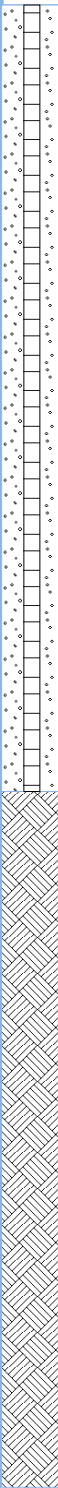
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CM

JM

Remarks	1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 4.00m bgl with Rotary Coring follow on to 24.50m bgl. 5. No groundwater encountered. 6. Hole progress halted at 24.50m bgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane
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 BROWNFIELD SOLUTIONS LTD						Rotary Borehole No.					
						BH04					
PROJECT NO: C5128						Sheet 1 of 5					
						Hole Type					
PROJECT NAME: ST MICHAELS, MANCHESTER						RC					
						Scale					
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						1:50					
						Logged	Checked				
						CM	JM				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.30-0.50	D ES		0.10 0.25			MADE GROUND: Asphalt.	1.0		
								MADE GROUND: Grey sub-angular fine to coarse gravel of limestone.			
		1.20-1.40	D ES					MADE GROUND: Brownish grey sandy gravel with low cobble content. Sand is fine to coarse. Gravel is sub-angular fine to coarse of brick, sandstone and limestone. Rare coal and ceramic fragments. Cobbles are angular of brick up to 200mm in diameter.			
		1.20	SPT	N=3 (1,0/1,1,0,1)							
		2.00	D SPT	N=7 (2,1/1,2,2,2)							
					2.45						
									Brown gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.	2.0	
		3.00	D SPT	N≥50 (10,10/12,12,13,13)						3.0	
		4.00	SPT	N=34 (6,6/8,8,8,10)						4.0	
		4.70	SPT	N≥50 (25 for 100mm/50 for 140mm)	4.70						
					5.00					5.0	
				NR					Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.		
					100	77	7		5.56	Weak weathered brownish red fine to coarse SANDSTONE.	
		5.50 - 7.00								Moderately strong partially weathered brownish red fine to coarse SANDSTONE.	6.0
			13							5.56-6.19m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
										5.80-5.82m bgl: Sub-vertical fracture (45 degrees).	
			5							6.03-6.09m bgl: Vertical fracture (90 degrees).	
			NI							6.19-6.24m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			3							6.24-6.50m bgl: Discontinunites are closely spaced, smooth, planar to horizontal to sub-horizontal (0-5 degrees).	7.0
			5							6.50-6.72m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
			NI							6.72-6.86m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	8.0
		7.00 - 8.50		9					6.86-6.91m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.		
									6.91-7.00m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).		
			3						7.00-7.06m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	9.0	
					100	100	20		7.00-7.78m bgl: Vertical fracture (45 degrees).		
								7.75-7.88m bgl: Vertical fracture (45 degrees).			
8.50 - 10.00		16					8.01-8.04m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.				
							8.04-8.50m bgl: Discontinunites are moderately spaced, smooth, planar				

 BROWNFIELD SOLUTIONS LTD								Rotary Borehole No.					
								BH04					
PROJECT NO: C5128								CO-ORDS:		Sheet 2 of 5			
										Hole Type			
PROJECT NAME: ST MICHAELS, MANCHESTER								LEVEL:		RC			
										Scale			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD								DATES: 17/11/2022 - 25/11/2022		1:50			
										Logged	Checked		
										CM	JM		
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description			
				100	100	70				and horizontal to sub-horizontal (0-5 degrees). 8.24-8.38m bgl: Vertical fracture (45 degrees)>. 8.50-10.00m bgl: Discontinuities are close to moderately spaced, smooth, planar to undulating and horizontal to sub-horizontal (0-5 degrees). 8.94-8.99m bgl: Vertical fracture (33 degrees). 9.01-9.12m bgl: Vertical fracture (45 degrees). 9.02-9.31m bgl: Vertical fracture (45 degrees). 9.30-9.61m bgl: Vertical fracture (45 degrees). 9.71-9.86m bgl: Vertical fracture (40 degrees). 10.00-11.50m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 10.01-10.12m bgl: Vertical fracture (43 degrees). 11.50-13.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).		10.0	
		10.00 - 11.50	11									11.0	
				95	95	15						12.0	
		11.50 - 13.00	28										
				100	93	40						13.0	
		13.00 - 14.50	8										
			NI										
			5									14.0	
			3										
		14.50 - 16.00	12			100	100	43					15.0
			NR	93	87	33							16.0
		16.00 - 17.50	10										17.0
				100	100	70							18.0
		17.50 - 19.00	6									17.50-19.00m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 18.41-18.52m bgl: Vertical fracture (90 degrees).	
				60	60	33						19.00-19.60m bgl: No recovery.	19.0
			NR										
		Remarks										1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	
										ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			



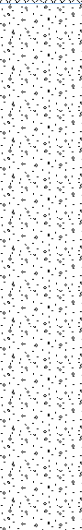
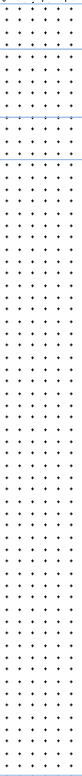
Rotary Borehole No.	
BH04	
Sheet 3 of 5	
Hole Type	
RC	
Scale	
1:50	
Logged	Checked
CM	JM

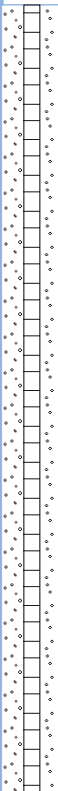
DATES: 17/11/2022 - 25/11/2022

Remarks	1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane
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 BROWNFIELD SOLUTIONS LTD								Borehole Log				Rotary Borehole No. BH04 Sheet 4 of 5 Hole Type RC Scale 1:50 Logged CM Checked JM	
PROJECT NO: C5128								CO-ORDS:					
PROJECT NAME: ST MICHAELS, MANCHESTER								LEVEL:					
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD								DATES: 17/11/2022 - 25/11/2022					
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description			
				TCR (%)	SCR (%)	RQD (%)							
		29.50 - 30.00	4	100	100	60				29.50-30.00m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			
		30.00 - 31.50	11	100	100	37				30.00-31.50m bgl: Discontinunites are moderately spaced, smooth planar and horizontal to sub-horizontal (0-5 degrees).	30.0		
		31.50 - 33.00	4	100	100	57				30.86-30.87m bgl: Sub-vertical fracture (45 degrees).	31.0		
			5							31.50-32.06m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	32.0		
			NR							32.06-32.16m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			
			3							32.09-32.11m bgl: Sub-vertical fracture (45 degrees).			
		33.00 - 34.50	12	73	73	40				32.11-32.12m bgl: Sub-horizontal fracture (30 degrees).			
			NR							32.13-32.16m bgl: Sub-vertical fracture (45 degrees).			
		34.50 - 36.00		73	73	40				32.50-32.58m bgl: No recovery.			
										32.58-33.00m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	33.0		
										33.00-34.10m bgl: Discontinunites are close to moderatley spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	34.0		
										34.10-34.50m bgl: No recovery.			
										34.50-34.90m bgl: No recovery.			
										34.90-36.00m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	35.0		
		36.00 - 37.50		100	100	43				36.00-36.70m bgl: Disconntinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	36.0		
										36.55-36.57m bgl: Vertical fracture (45 degrees).			
										36.70-36.92m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			
										36.71-36.79m bgl: Vertical fracture (90 degrees).			
										36.91-37.12m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal and sub-horizontal (0-5 degrees).	37.0		
										37.12-37.17m bgl: No recovery.			
										37.12-37.50m bgl: Dicontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			
										37.55-37.61m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.			
										37.80-37.82m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	38.0		
										37.82-39.00m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal and sub-horizontal (0-5 degrees).			
										39.00-40.02m bgl: Discontinunites are moderately spaced, smooth,	39.0		
Remarks										1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.			
										ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			

 BROWNFIELD SOLUTIONS LTD									Rotary Borehole No.		
									BH04		
									Sheet 5 of 5		
PROJECT NO: C5128									CO-ORDS:		
PROJECT NAME: ST MICHAELS, MANCHESTER									Hole Type		
									RC		
									Scale		
									1:50		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									DATES: 17/11/2022 - 25/11/2022		
									Logged	Checked	
									CM	JM	
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description	
				TCR (%)	SCR (%)	RQD (%)					
		39.00 - 40.50	4							planar and horizontal and sub-horizontal (0-5 degrees).	
				83	77	47				40.02-40.05m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	40.0
										40.14-40.23m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
		40.50 - 42.00	10							40.50-41.64m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal and sub-horizontal (0-5 degrees).	41.0
			NR								
			NI								
			NR								
			2	100	100	30				41.64-41.75m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	42.0
			3							41.86-42.00m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
		42.00 - 43.50	3							42.00-42.24m bgl: Discontinunites are closely spaced, smooth, planar and horizontal and sub-horizontal (0-5 degrees).	
			NI							42.24-42.34m bgl: Discontinunites are closely spaced, smooth, planar and horizontal and sub-horizontal (0-5 degrees).	43.0
			4							42.25-42.29m bgl: Vertical fracture (90 degrees).	
				100	100	67				42.34-42.78m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	
		43.50 - 45.00	7							42.78-42.86m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	44.0
							45.00		42.86-43.50m bgl: Discontinunites are closely to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).		
									43.50-45.00m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	45.0	
									End of Borehole at 45.00m	46.0	
										47.0	
										48.0	
										49.0	
Remarks										ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	
1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.											

BROWNFIELD SOLUTIONS LTD							Borehole Log			Rotary Borehole No.		
										BH05		
										Sheet 1 of 5		
PROJECT NO: C5128							CO-ORDS:			Hole Type		
										RC		
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:			Scale		
										1:50		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 17/11/22 - 22/11/22			Logged	Checked	
										CM	JM	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description				
		Depth (m)	Type	Results								
					0.10	-0.10		MADE GROUND: Asphalt.				
					0.25	-0.25		MADE GROUND: Grey sub-angular fine to coarse gravel of limestone.				
		0.70	D ES					MADE GROUND: Brownish grey sandy gravel with low cobble content. Sand is fine to coarse. Gravel is sub-angular fine to coarse of brick, sandstone and mudstone. Cobbles are angular of brick up to 200mm in diameter.			1.0	
		1.20-1.40	D ES		1.20	-1.20		Brown gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.				
		1.20	SPT	N=4 (3,2/2,1,1,0)								
		2.00	D SPT	N=15 (2,2/3,3,4,5)							2.0	
		3.00	D SPT	N=48 (6,8/10,12,12,14)							3.0	
		4.00	SPT	N≥50 (8,10/50 for 225mm)							4.0	
		4.70	SPT	N≥50 (25 for 110mm/50 for 95mm)	4.70	-4.70						
		5.00 - 5.50	10	100 100 0	5.00	-5.00		Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.			5.0	
			6	100 100 37	5.45	-5.45		Weak weathered brownish red fine to coarse SANDSTONE. 5.00-5.46m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).				
		5.50 - 7.00	13		5.73	-5.73		Weak partially weathered brownish red fine to coarse SANDSTONE. 5.46-5.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 5.50-5.73m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			6.0	
			NR	87 87 81				Moderately strong partially weathered brownish red fine to coarse SANDSTONE. 5.73-7.00m bgl: Discontinuities are closely spaced, smooth, planar to undulating and horizontal to sub-horizontal (0-5 degrees). 5.85-5.87m bgl: Vertical fracture (30 degrees). 7.00-7.20m bgl: No recovery. 7.20-8.50m bgl: Discontinuites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			7.0	
		7.00 - 8.50	14								8.0	
			NR	67 67 33				8.50-9.00m bgl: No recovery.				
		8.50 - 10.00	8					9.00-9.30m bgl: Discontinuites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			9.0	
			NI					9.30-9.46m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.				
			9									
			TCR	SCR	RQD							
	Remarks							1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.				
							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane					

 BROWNFIELD SOLUTIONS LTD								Borehole Log				Rotary Borehole No. BH05 Sheet 2 of 5 Hole Type RC Scale 1:50 Logged CM Checked JM			
PROJECT NO: C5128								CO-ORDS:							
PROJECT NAME: ST MICHAELS, MANCHESTER								LEVEL:							
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD								DATES: 17/11/2022 - 22/11/2022							
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description					
		10.00 - 11.50	7	100	97	67				9.46-10.00m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 10.00-10.91m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	10.0				
		11.50 - 13.00	11	100	100	67				19.91-10.95m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 10.95-11.50m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 11.50-13.00m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	11.0				
		13.00 - 14.50	11	100	97	70				13.00-14.45m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	13.0				
		14.50 - 16.00	6	100	97	73				14.35-14.37m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 14.37-14.50m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 14.50-15.30m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	14.0				
										15.30-15.49m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 15.49-16.00m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	15.0				
		16.00 - 17.50	12	100	100	20				16.00-17.00m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 16.22-16.32m bgl: Vertical fracture (90 degrees).	16.0				
		17.50 - 19.00	3	100	97	80				16.84-18.87m bgl: Vertical fracture (45 degrees). 17.50-18.33m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	17.0				
										18.33-18.39m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 18.39-19.00m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	18.0				
			2	100	93	30				19.00-20.50m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	19.0				
		Remarks										1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane		



Rotary Borehole No.

BH05

Sheet 3 of 5

Hole Type

RC

Scale

1:50

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Logged

Checked

CM

JM

PROJECT NO: C5128

CO-ORDS:

PROJECT NAME: ST MICHAELS, MANCHESTER

LEVEL:

CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS
CONSTRUCTION LTD

DATES: 17/11/2022 - 22/11/2022

Well	Water Strike	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description								
				TCR (%)	SCR (%)	RQD (%)												
		19.00 - 20.50	11								20.0							
		20.50 - 22.00	13	100	100	61					20.50-22.00m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	21.0						
				22.00 - 23.50	4	100					97	63	22.00-22.50m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	22.0				
		NI	22.50-22.58m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 22.58-22.69m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 22.69-22.80m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 22.80-23.50m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 23.50-23.85m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 23.85-23.94m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 24.02-24.09m bgl: Non-intact recovered as brownish red fine to coarse sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 24.09-24.75m bgl: Discontinunites are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 24.50-24.58m bgl: Vertical fracture (35 degrees). 23.60-24.62m bgl: Vertical fracture (36 degrees). 24.75-24.80m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 24.80-25.00m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 25.00-25.15m bgl: No recovery. 25.15-26.50m bgl: Discontinunites are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 26.12-26.15m bgl: Vertical fracture (30 degrees). 26.50-26.79m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 26.79-27.13m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 27.13-27.32m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).										23.0					
		2											23.50 - 25.00	3	100	63	40	24.0
		NI																
		1																
		25.00 - 26.50	15 7	90	87	73					25.0							
												2	26.0					
												NR						
												26.50 - 28.00		3 2 6 1 NI 3	100	83	47	27.0
		28.00 - 29.50	7	90	80	37					28.0							
												3						
												28.00-28.41m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 28.41-28.43m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 28.43-29.22m bgl: Discontinunites are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 29.22-29.50m bgl: Non-intact recovered as brownish red sandy gravel.	29.0					
												NI						

Remarks

1. Service clearance by BSL Engineer.
2. UXO clearance by Brimstone Engineer.
3. Inspection pit to 1.20m bgl.
4. Window Sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl.
5. No groundwater encountered.
6. Install: 5.00m plain, slotted to 15.00m bgl.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane



Rotary Borehole No.

Sheet 4 of 5

PROJECT NO: C5128

CO-ORDS:

PROJECT NAME: ST MICHAELS, MANCHESTER

LEVEL:

CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS
CONSTRUCTION LTD

DATES: 17/11/2022 - 22/11/2022

Logged

Checked

CM

JM

Remarks	1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. Window Sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl. 5. No groundwater encountered. 6. Install: 5.00m plain, slotted to 15.00m bgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane
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Rotary Borehole No.

Sheet 5 of 5

CO-ORDS:

LEVEL:

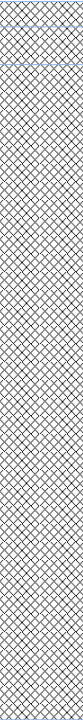
DATES: 17/11/2022 - 22/11/2022

Logged	Checked
CM	JM

[illegible]

1. Service clearance by BSL Engineer.
2. UXO clearance by Brimstone Engineer.
3. Inspection pit to 1.20m bgl.
4. Window Sampling to 5.00m bgl with Rotary Coring follow on to 45.00m bgl.
5. No groundwater encountered.
6. Install: 5.00m plain, slotted to 15.00m bgl.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

 BROWNFIELD SOLUTIONS LTD							Borehole Log		Window Sampler No.			
									WS01			
									Sheet 1 of 1			
PROJECT NO: C5128							CO-ORDS:					
							Hole Type					
							WS					
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:					
							Scale					
							1:30					
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 07/11/22				Logged	Checked
											JM	JM
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description				
		Depth (m)	Type	Results								
					0.10	-0.10		MADE GROUND: Reinforced concrete. 10mm rebar at 0.08m bgl.		1.0		
					0.25	-0.25		MADE GROUND: Grey sub-angular fine to coarse gravel of limestone.				
		0.50-0.70	D ES					MADE GROUND: Brown sandy gravel with high cobble content. Sand is fine to coarse. Gravel is sub-angular fine to coarse of brick, concrete and limestone. Cobbles are angular of brick up to 200mm in diameter. Rare glass.				
		1.20	SPT	N=5 (1,2/2,1,1,1)								
		1.50-1.70	D ES									
		2.00	SPT	N=6 (1,2/2,2,1,1)								
		3.00	D SPT	N=21 (3,4/5,5,5,6)	2.85	-2.85		Orange brown gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and mudstone.				
		3.50	D									
		4.00	SPT	N≥50 (5,7/50 for 105mm)	4.10	-4.10		Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.				
					4.25	-4.25		End of Borehole at 4.25m				
Remarks		1. Service clearance by BSL Engineer. 2. UXO clearance by Brimstone Engineer. 3. Inspection pit to 1.20m bgl. 4. No groundwater encountered. 5. Borehole backfilled with arisings upon completion.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			



**BROWNFIELD
SOLUTIONS LTD**

Borehole Log

Window Sampler No.

WS02

Sheet 1 of 1

PROJECT NO: C5128

CO-ORDS:

PROJECT NAME: ST MICHAELS, MANCHESTER

LEVEL:

CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS
CONSTRUCTION LTD

DATES: 07/11/22

Logged

JM

Checked

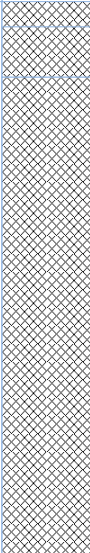
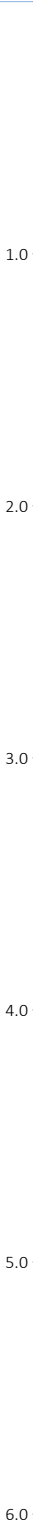
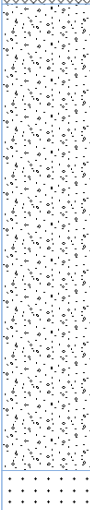
JM

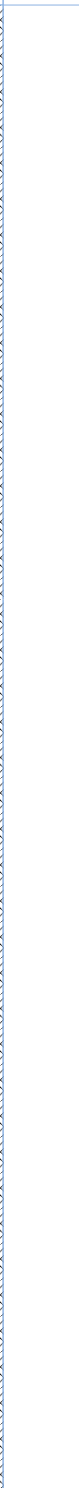
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.06			0.06	-0.06		MADE GROUND: Asphalt.	1.0
		0.30-0.50	D ES		0.30	-0.30		MADE GROUND: Greyish brown sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of limestone and sandstone.	
								MADE GROUND: Brownish grey gravelly fine to coarse sand. Gravel is sub-angular fine to coarse of brick, mudstone and sandstone.	
		1.00-1.20	D ES		0.95	-0.95		MADE GROUND: Greyish brown gravelly clay. Gravel is sub-angular fine to coarse of brick, sandstone and occasional coal fragments.	2.0
		1.20	SPT	N=7 (1,2/1,2,2,2)	1.35	-1.35			
		1.50	D					Orange brown slightly gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and mudstone.	
		2.00	SPT	N=26 (3,4/4,5,7,10)	2.25	-2.25		Reddish brown gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone, mudstone and quartz.	3.0
		2.50	D						
		3.00	SPT	N≥50 (7,9/50 for 265mm)					
		4.00	SPT	N≥50 (25 for 115mm/50 for 40mm)	4.00	-4.00		Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.	4.0
					4.15	-4.15		End of Borehole at 4.15m	
									5.0
									6.0

Remarks

1. Service clearance by BSL Engineer.
2. UXO clearance by Brimstone Engineer.
3. Inspection pit to 1.20m bgl.
4. No groundwater encountered.
5. Borehole backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD							Borehole Log		Window Sampler No.		
									WS03		
PROJECT NO: C5128							CO-ORDS:		Sheet 1 of 1		
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:		Hole Type		
									WS		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 17/11/22		Scale		
									1:30		
									Logged	Checked	
									JM	JM	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					0.10	-0.10		MADE GROUND: Asphalt.			
					0.30	-0.30		MADE GROUND: Grey sub-angular fine to coarse gravel of limestone.			
		0.50-0.70	D ES					MADE GROUND: Greyish brown sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of brick, coal, ash and sandstone.			
		1.20	SPT	N=2 (1,0/1,0,1,0)							
		1.50-1.70	D ES								
		2.00	D SPT	N=22 (5,5/6,6,5,5)	2.20	-2.20					
		3.00	D SPT	N≥50 (6,8/50 for 240mm)				Brown gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.			
		4.00	SPT	N≥50 (23 for 114mm/50 for 95mm)	4.05	-4.05					
					4.21	-4.21					
								Destructured SANDSTONE recovered as brownish red gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse of sandstone and quartz.			
							End of Borehole at 4.21m				

 BROWNFIELD SOLUTIONS LTD							Borehole Log		Cable Percussion with Rotary Core No.			
PROJECT NO: C5128							CO-ORDS: 383642E, 398046N		BH06			
									Sheet 1 of 4			
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:		Hole Type			
									CP+RC			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 30/10/23 - 31/10/23		Scale			
									1:51			
							Logged	Checked				
							CM	NS				
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		1.00-2.00	ES			3.00			MADE GROUND: Light grey slightly sand gravelly clay with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, slate, rebar. Cobbles are sub-angular of brick and concrete up to 200mm in diameter.			1.0
										2.0		
		3.00-3.50	ES							Yellowish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.		
		3.50-3.70	D			3.40			Weathered SANDSTONE recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.			4.0
		4.00 - 6.00		40	14	0	4.00		Moderately strong partially weathered brownish red fine to coarse SANDSTONE.			4.0
			NR						4.50- 5.40m bgl: No Recovery			5.0
			NI						5.40-5.75m bgl: Sub-angular mixed lithology.			6.0
		6.00 - 7.50	14	100	90	31			5.75-6.00m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.			6.0
			17						6.00- 6.58m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			7.0
			13						6.58- 6.61m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.			7.0
		7.50 - 9.00	17	100	73	53			6.61- 7.70m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			8.0
									7.15- 7.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			8.0
									7.50- 9.00: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			8.0
		9.00 - 10.50	22	88	88	21			7.71- 7.15m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.			9.0
									8.98- 9.00m bgl: Sub-vertical fracture (45 degrees).			9.0
									9.00- 10.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			10.0
									9.41- 9.47m bgl: Vertical fracture.			10.0
					TCR	SCR	RQD					
Remarks		1. Service clearance by BSL Engineer. 2. Groundwater encountered at 17.50m bgl. 3. Borehole backfilled with arisings upon completion.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			

 BROWNFIELD SOLUTIONS LTD									Borehole Log			Cable Percussion with Rotary Core No.	
PROJECT NO: C5128									CO-ORDS: 383642E, 398046N			BH06	
												Sheet 2 of 4	
PROJECT NAME: ST MICHAELS, MANCHESTER									LEVEL:			Hole Type	
												CP+RC	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									DATES: 30/10/2023 - 31/10/2023			Scale	
												1:51	
												Logged	Checked
												CM	NS
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description			
				TCR (%)	SCR (%)	RQD (%)							
		10.50 - 12.00		100	67	53				10.50- 12m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			11.0
			12										
			NI	100	93	50							
		12.00 - 13.50	9							11.80- 12.00m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 12.00- 12.46m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 12.17- 12.19m bgl: Sub-vertical fracture (40 degrees). 12.20- 12.27m bgl: Sub-vertical fracture (40 degrees). 12.30- 12.34m bgl: Sub-vertical fracture (41 degrees). 12.40- 12.44m bgl: Vertical fracture. 12.146-12.53m bgl: Non-intact recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 12.53- 13.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 12.58- 12.76m bgl: Sub-vertical fracture (80 degrees). 13.10- 13.20m bgl: Sub-vertical fracture (91 degrees). 13.30- 13.77m bgl: Vertical fracture. 13.50- 13.89m bgl: No recovery. 13.89- 15.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	13.0		
			NI										
			12										
		13.50 - 15.00	NR	79	79	37					14.0		
			15										
		15.00 - 16.50		80	80	23				14.67- 14.74m bgl: Vertical fracture. 15.00- 15.30m bgl: No recovery. 15.30- 16.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 15.65- 15.68m bgl: Sub-vertical fracture (30 degrees).	15.0		
			NR										
			16								16.0		
		16.50 - 17.50		100	100	64				16.50- 17.50m bgl: Discontinuities are closely to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	17.0		
			17										
				96	96	61							
17.50 - 19.00								17.50-17.61m bgl: Vertical fracture. 17.50- 19.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 18.18- 18.42m bgl: Sub-vertical fracture (45 degrees).	18.0				
	9												
19.00 - 19.50		100	100	44				19.00-19.10m bgl: Vertical fracture. 19.00-19.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 19.46-19.49m bgl: Sub-vertical fracture (45 degrees). 19.50-20.20m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	19.0				
	6												
		100	96	37					20.0				
Remarks		1. Service clearance by BSL Engineer. 2. Groundwater encountered at 17.50m bgl. 3. Borehole backfilled with arisings upon completion.								ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			

 BROWNFIELD SOLUTIONS LTD								Borehole Log			Cable Percussion with Rotary Core No.					
								BH06								
								Sheet 3 of 4								
PROJECT NO: C5128								CO-ORDS: 383642E, 398046N								
PROJECT NAME: ST MICHAELS, MANCHESTER								Hole Type CP+RC								
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD								Scale 1:51								
								Logged			Checked					
								CM			NS					
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description						
				TCR (%)	SCR (%)	RQD (%)										
		19.50 - 21.00	5							20.20-20.25m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.						
				100	100	63				20.25-21.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			21.0			
		21.00 - 22.50	13							20.91-20.95m bgl: Sub-vertical fracture (35 degrees).						
				100	100	73				21.00-22.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			22.0			
		22.50 - 24.00	12							22.50-24.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			23.0			
				100	100	70										
		24.00 - 25.50	9							24.00-25.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			24.0			
				100	100	67										
		25.50 - 27.00	18							25.50-27.00m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			26.0			
				100	93	67										
		27.00 - 28.50	4							26.89-27.00m bgl: Sub-vertical fracture (30 degrees).			27.0			
										27.00-27.64m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).						
										27.64-27.70m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.			28.0			
				13						27.70-27.81m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).						
					100	100	50			27.81-27.83m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.						
		28.50 - 30.00	10							27.83-28.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).			29.0			
									28.50-30.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).							
									29.26-29.32m bgl: Vertical fracture.			30.0				
Remarks											1. Service clearance by BSL Engineer. 2. Groundwater encountered at 17.50m bgl. 3. Borehole backfilled with arisings upon completion.			ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane		



Cable Percussion with Rotary Core No.

Sheet 4 of 4

CO-ORDS: 383642E, 398046N

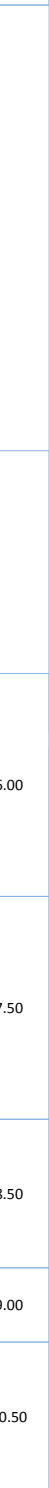
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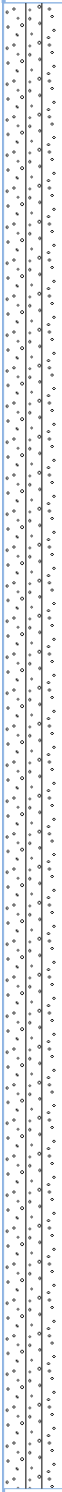
DATES: 30/10/2023 - 31/10/2023

Logged	Checked
CM	NS

31.0
32.0
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0

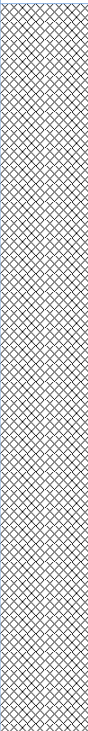
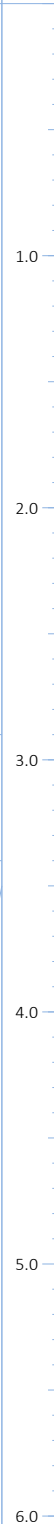
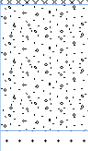
ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD						Borehole Log		Cable Percussion with Rotary Core No.	
PROJECT NO: C5128						CO-ORDS: 383643E, 398031N		BH07	
								Sheet 1 of 3	
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:		Hole Type	
								CP+RC	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 01/11/23 - 02/11/23		Scale	
								1:51	
								Logged	Checked
								CM	NS
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								MADE GROUND: Light grey slightly sand gravelly clay with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, slate, rebar. Cobbles are sub-angular of brick and concrete up to 200mm in diameter.	
								1.0	
								2.0	
								3.0	
								4.0	
								5.0	
								6.0	
								7.0	
								8.0	
								9.0	
								10.0	

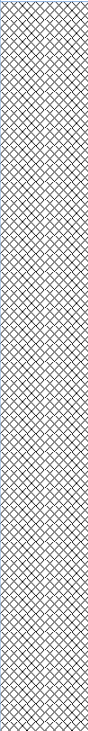
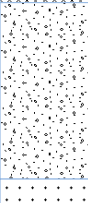
 BROWNFIELD SOLUTIONS LTD									Borehole Log				Cable Percussion with Rotary Core No.		
									BH07						
									Sheet 2 of 3						
PROJECT NO: C5128									CO-ORDS: 383643E, 398031N						
PROJECT NAME: ST MICHAELS, MANCHESTER									LEVEL:						
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									DATES: 01/11/2023 - 02/11/2023						
									Logged		Checked				
									CM		NS				
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description					
				TCR (%)	SCR (%)	RQD (%)									
				100	100	57				<i>planar and horizontal to sub-horizontal (0-5 degrees).</i>					
		10.50 - 12.00	11							<i>10.50-12.00m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).</i>			11.0		
		12.00 - 13.50	15	100	100	50				<i>12.00-13.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 12.14-12.22m bgl: Vertical fracture.</i>			12.0		
				100	93	40				<i>13.11-13.15m bgl: Sub-vertical fracture (41 degrees).</i>			13.0		
		13.50 - 15.00	14							<i>13.50-13.60m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 13.60-15.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 13.90-14.00m bgl: Vertical fracture.</i>			14.0		
		15.00 - 16.50	13	100	100	63				<i>14.70-14.77m bgl: Vertical fracture. 15.00-16.50m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 15.30-15.44m bgl: Vertical fracture (70 degrees).</i>			15.0		
		16.50 - 18.00	12	100	100	47				<i>16.50-18.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).</i>			17.0		
		18.00 - 19.50	10	100	99	50				<i>18.00-19.30m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).</i>			18.0		
			11	100	100	0				<i>19.30-19.31m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 19.31-19.50m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).</i>			19.0		
															20.0
Remarks										1. Service clearance by BSL Engineer. 2. Inspection pit to 1.20m bgl. 3. Groundwater encountered at 10.50m bgl. 4. Install: 8.00m plain, 12.00m slotted.				ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD									Borehole Log		Cable Percussion with Rotary Core No.	
PROJECT NO: C5128									CO-ORDS: 383643E, 398031N		BH07	
											Sheet 3 of 3	
PROJECT NAME: ST MICHAELS, MANCHESTER									LEVEL:		Hole Type	
											CP+RC	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD									DATES: 01/11/2023 - 02/11/2023		Scale	
											1:51	
									Logged	Checked		
									CM	NS		
Well	Water Strike	Depth (m)	Type / FI	Coring			Depth (m)	Level (m OD)	Legend	Stratum Description		
				TCR (%)	SCR (%)	RQD (%)						
		19.50 - 21.00	14							19.50-21.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).		
				100	100	40						
		21.00 - 21.50	5								21.00-21.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	21.0
				100	100	75						
		21.50 - 22.50	7								21.50-22.50m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	22.0
				100	100	50						
		22.50 - 23.50	8								22.50-23.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	23.0
				100	100	88					22.99-23.05m bgl: Sub-vertical fracture (40 degrees).	
		23.50 - 24.00	3								23.50-24.00m bgl: Discontinuities are moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	24.0
				100	97	57						
		24.00 - 25.50	6								24.00-24.16m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 24.16-24.18m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 24.18-25.09m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	25.0
				2							25.09-25.10m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone.	
				100	100	60					25.10-25.50m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 25.50-27.00m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 25.73-25.76m bgl: Sub-vertical fracture (30 degrees). 25.90-25.98m bgl: Sub-vertical fracture (45 degrees).	26.0
		25.50 - 27.00	10									
				100	100	60					27.00-28.50m bgl: Discontinuities are close to moderately spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees).	27.0
		27.00 - 28.50	13									28.0
				87	83	60						
		28.50 - 30.00	NR								28.50-28.69m bgl: No recovery.	29.0
			1								28.69-28.82m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 28.82-28.87m bgl: Non-intact recovered as brownish sandy gravel. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 28.87-30.00m bgl: Discontinuities are closely spaced, smooth, planar and horizontal to sub-horizontal (0-5 degrees). 29.33-29.35m bgl: Sub-vertical fracture (40 degrees).	
									30.00		End of Borehole at 30.00m	30.0
Remarks										1. Service clearance by BSL Engineer. 2. Inspection pit to 1.20m bgl. 3. Groundwater encountered at 10.50m bgl. 4. Install: 8.00m plain, 12.00m slotted.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD							Borehole Log		Window Sampler No.
									WS04
									Sheet 1 of 1
PROJECT NO: C5128							CO-ORDS: 383635E, 398049N		Hole Type
									WS
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:		Scale
									1:30
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 01/11/23		Logged
									Checked
									CM
									NS
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.00	SPT	N=10 (3,3/3,3,2,2)				MADE GROUND: Light grey slightly sand gravelly clay with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, slate, rebar. Cobbles are sub-angular of brick and concrete up to 200mm in diameter.	1.0
		2.00	SPT	N=9 (2,2/3,2,2,2)					2.0
		3.00	SPT	N=25 (6,6/6,7,7,5)	3.10				3.0
		3.10-3.60	ES					Yellowish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.	
		3.70	SPT	N≥50 (25 for 40mm/50 for 70mm)	3.60 3.70			Weathered SANDSTONE recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.	
								End of Borehole at 3.70m	4.0
									5.0
									6.0
Remarks		1. Service clearance by BSL Engineer. 2. No groundwater encountered. 3. Borehole backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD						Borehole Log		Window Sampler No.				
								WS05				
								Sheet 1 of 1				
PROJECT NO: C5128						CO-ORDS: 383633E, 398034N						
						Hole Type						
						WS						
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:						
						Scale						
						1:30						
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 01/11/23						
						Logged				Checked		
						OS				NS		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.10-1.00	ES					MADE GROUND: Light grey slightly sand gravelly clay with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, slate, rebar. Cobbles are sub-angular of brick and concrete up to 200mm in diameter.				
		1.00	SPT	N=11 (3,2/3,3,3,2)								
		2.00	SPT	N=8 (2,2/2,2,2,2)								
		2.90-3.90	ES		2.90							
		3.00	SPT	N=22 (6,6/6,5,5,6)								
		3.40-3.50	D		3.40			Yellowish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.		3.0		
		3.50	SPT	N≥50 (25 for 95mm/50 for 60mm)	3.50							
Weathered SANDSTONE recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.								End of Borehole at 3.50m	4.0			
									6.0			
Remarks		1. Service clearance by BSL Engineer. 2. No groundwater encountered. 3. Borehole backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane				

 BROWNFIELD SOLUTIONS LTD							Borehole Log		Window Sampler No. WS06 Sheet 1 of 1 Hole Type WS Scale 1:30 Logged OS Checked NS	
PROJECT NO: C5128							CO-ORDS: 383652E, 398045N			
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 01/11/23			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.10-1.00	ES					MADE GROUND: Light grey slightly sand gravelly clay with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, slate, rebar. Cobbles are sub-angular of brick and concrete up to 200mm in diameter.		
		1.00	SPT	N=15 (7,5/5,5,3,2)						1.0
		2.00	SPT	N=20 (5,5/5,4,5,6)						2.0
		2.50	SPT	N≥50 (25 for 60mm/50 for 70mm)	2.50			End of Borehole at 2.50m		3.0
										4.0
										5.0
										6.0
Remarks		1. Service clearance by BSL Engineer. 2. No groundwater encountered. 3. Borehole backfilled with arisings upon completion.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD							Borehole Log		Window Sampler No.	
									WS07	
									Sheet 1 of 1	
PROJECT NO: C5128							CO-ORDS: 383652E, 398045N		Hole Type	
									WS	
PROJECT NAME: ST MICHAELS, MANCHESTER							LEVEL:		Scale	
									1:30	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD							DATES: 01/11/23		Logged	Checked
									CM	NS
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		1.00	SPT	N=33 (5,6/7,9,9,8)				MADE GROUND: Light grey slightly sand gravelly clay with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, slate, rebar. Cobbles are sub-angular of brick and concrete up to 200mm in diameter.		
		2.00	SPT	N=19 (7,7/5,5,4,5)						
		2.90-3.60 3.00	ES SPT	N=30 (7,7/6,7,7,10)	2.90					
		3.60-3.70 3.70	D SPT	N≥50 (25 for 85mm/50 for 141mm)	3.60 3.70					
								Yellowish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.	3.0	
								Weathered SANDSTONE recovered as brownish red sandy gravel. Sand is fine to coarse. Gravel is sub-angular fine to coarse of sandstone.	4.0	
								End of Borehole at 3.70m		
									4.0	
									5.0	
									6.0	
Remarks		1. Service clearance by BSL Engineer. 2. No groundwater encountered. 3. Borehole backfilled with arisings upon completion.							ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	



No.

ASB01

Sheet 1 of 1

PROJECT NO: C5128

CO-ORDS: 383666E, 398038N

PROJECT NAME: ST MICHAELS, MANCHESTER

LEVEL:

Hole Type

Hole Type

TP

TP

Scale

Scale

1.25

1.25

CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS
CONSTRUCTION LTD

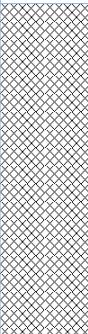
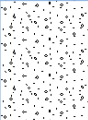
DATES: 23/08/23

Logged

Checked

JEM

NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	1.10-1.60	ES		1.10			MADE GROUND: Orangish brown slightly gravelly fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, concrete, plastic, metal and sandstone. Cobbles are subrounded of brick up to 200mm in diameter.	1.0
				1.60			MADE GROUND: Dark greyish brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, coal, concrete, plastic and mudstone. Cobbles are subrounded of brick up to 200mm in diameter.	
				2.00			Yellowish brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	2.0
							End of Trial Pit at 2.00m	3.0
								4.0
								5.0

Remarks

1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny.
2. No groundwater encountered.
3. Sides stable during excavation.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane



No.

ASB02

Sheet 1 of 1

PROJECT NO: C5128

CO-ORDS: 383662E, 398036N

PROJECT NAME: ST MICHAELS, MANCHESTER

LEVEL:

CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS
CONSTRUCTION LTD

DATES: 23/08/23

Logged

Checked

JEM

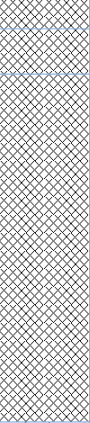
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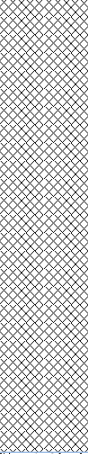
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.25-1.55	ES		0.10			MADE GROUND: Asphalt.	1.0
				0.25			MADE GROUND: Grey subangular fine to coarse gravel of limestone.	
							MADE GROUND: Dark greyish brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, coal, concrete, plastic and mudstone. Cobbles are subrounded of brick up to 200mm in diameter.	
								
								
				1.55			Yellowish brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	
				1.85			End of Trial Pit at 1.85m	2.0
								3.0
								4.0
								5.0

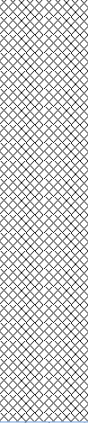
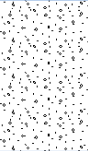
Remarks

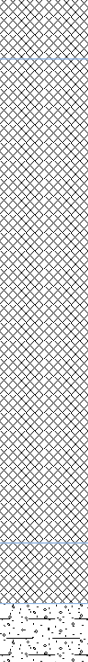
1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny.
2. No groundwater encountered.
3. Sides stable during excavation.
4. Trial pit backfilled with arisings upon completion.

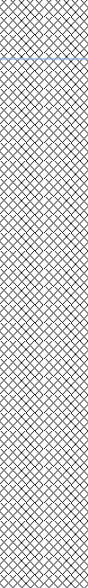
ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

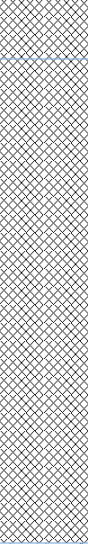
 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. ASB03 Sheet 1 of 1 Hole Type TP Scale 1:25 Logged JEM Checked NS		
PROJECT NO: C5128					CO-ORDS: 383662E, 398032N				
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:				
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 23/08/23				
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.25-1.40	ES		0.10			MADE GROUND: Asphalt.	1.0	
			0.25	MADE GROUND: Grey subangular fine to coarse gravel of limestone.					
			1.40	MADE GROUND: Dark greyish brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, coal, concrete, plastic and mudstone. Cobbles are subrounded of brick up to 200mm in diameter.					
			1.80	Yellowish brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.					
							End of Trial Pit at 1.80m	2.0	
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides stable during excavation. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

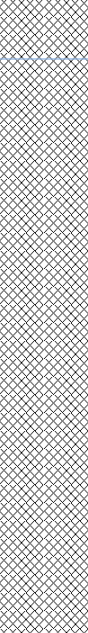
 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. ASB04 Sheet 1 of 1		
PROJECT NO: C5128					CO-ORDS: 383664E, 398029N		Hole Type TP		
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:		Scale 1:25		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 23/08/23		Logged JEM	Checked NS	
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.00-1.50	ES					MADE GROUND: Orangish brown slightly gravelly fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, concrete, plastic, metal and sandstone. Cobbles are subrounded of brick up to 200mm in diameter.	1.0	
				1.50			Yellowish brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.		
				1.80			End of Trial Pit at 1.80m	2.0	
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with constant collapsing of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

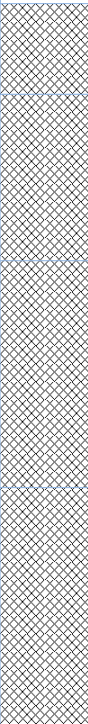
 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. ASB05 Sheet 1 of 1	
PROJECT NO: C5128					CO-ORDS: 383666E, 398033N		Hole Type TP	
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:		Scale 1:25	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 23/08/23		Logged JEM	Checked NS
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.00-1.40	ES					MADE GROUND: Orangish brown slightly gravelly fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, concrete, plastic, metal and sandstone. Cobbles are subrounded of brick up to 200mm in diameter.	1.0
				1.40			Yellowish brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	
				1.90			End of Trial Pit at 1.90m	2.0
								3.0
								4.0
								5.0
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with minor spalling of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane

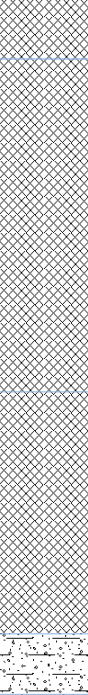
 BROWNFIELD SOLUTIONS LTD						Trial Pit Log		No. TP03 Sheet 1 of 1 Hole Type TP Scale 1:25 Logged JEM Checked NS	
PROJECT NO: C5128						CO-ORDS: 383622E, 398035N			
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 24/08/23			
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-1.80	ES		0.20			MADE GROUND: Grey subangular fine to coarse gravel of mixed lithologies including limestone and brick.		
							MADE GROUND: Dark greyish brown gravelly fine to coarse sand with high cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, glass, mudstone, sandstone and occasional clinker. Cobbles are subrounded of brick up to 200mm in diameter. <i>Brick wall present from 0.40 - 1.85m bgl running parallel to the pit.</i>		
	1.80-2.00	ES		1.80 2.00 2.20			MADE GROUND: Firm brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, coal, clinker, mudstone and sandstone.		
							Orangish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone. End of Trial Pit at 2.20m		
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with moderate spalling of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. TP04 Sheet 1 of 1		
PROJECT NO: C5128					CO-ORDS: 383627E, 398034N		Hole Type TP		
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:		Scale 1:25		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 23/08/23		Logged JEM	Checked NS	
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-1.95	ES		0.20			MADE GROUND: Grey subangular fine to coarse gravel of mixed lithologies including limestone and brick.		
							MADE GROUND: Dark greyish brown gravelly fine to coarse sand with medium cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, mudstone, sandstone, occasional clinker and a suspected ACM. Cobbles are subrounded of brick up to 200mm in diameter.	1.0	
				1.95			End of Trial Pit at 1.95m	2.0	
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with constant collapsing of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. TP05 Sheet 1 of 1 Hole Type TP Scale 1:25 Logged JEM Checked NS		
PROJECT NO: C5128					CO-ORDS: 383621E, 398027N				
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:				
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 24/08/23				
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-1.80	ES		0.20			MADE GROUND: Grey subangular fine to coarse gravel of mixed lithologies including limestone and brick. MADE GROUND: Dark greyish brown gravelly fine to coarse sand with high cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, glass, mudstone, sandstone and occasional clinker. Cobbles are subrounded of brick up to 200mm in diameter. <i>Brick wall present from 0.40 - 1.85m bgl running parallel to the pit.</i>	1.0	
				1.80			Orangish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	2.0	
				2.10			End of Trial Pit at 2.10m	3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with moderate spalling of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD					Trial Pit Log			No. TP06 Sheet 1 of 1 Hole Type TP Scale 1:25 Logged JEM Checked NS	
PROJECT NO: C5128					CO-ORDS: 383626E, 398027N				
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:				
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 23/08/23				
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-2.10	ES		0.20			MADE GROUND: Grey subangular fine to coarse gravel of mixed lithologies including limestone and brick.	1.0	
							MADE GROUND: Dark greyish brown gravelly fine to coarse sand with medium cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, mudstone, sandstone and occasional clinker. Cobbles are subrounded of brick up to 200mm in diameter. <i>Brick wall present from 0.30 - 1.90m bgl running perpendicular to the pit.</i>		
				2.10 2.20			Orangish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone. End of Trial Pit at 2.20m	2.0	
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with moderate spalling of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

BROWNFIELD SOLUTIONS LTD						Trial Pit Log		No. TP07	
PROJECT NO: C5128						CO-ORDS: 383620E, 398022N		Sheet 1 of 1	
								Hole Type TP	
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:		Scale 1:25	
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 24/08/23		Logged	Checked
								JEM	NS
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.30-0.85	ES		0.30			MADE GROUND: Grey subangular fine to coarse gravel of mixed lithologies including limestone and brick.		1.0
	0.85-1.60	ES		0.85			MADE GROUND: Dark brown slightly gravelly slightly clayey fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of asphalt, brick, concrete, sandstone, glass and rare slag and clinker. Cobbles are subangular to subrounded of brick up to 200mm in diameter.		
							MADE GROUND: Dark greyish brown gravelly fine to coarse sand with medium cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, mudstone, sandstone and occasional clinker. Cobbles are subrounded of brick up to 200mm in diameter.		
	1.60-2.40	ES		1.60			MADE GROUND: Firm brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, coal, clinker, mudstone and sandstone.		
					2.40			Orangish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	
				2.70		End of Trial Pit at 2.70m			
									3.0
									4.0
									5.0
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with moderate spalling of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD						Trial Pit Log		No. TP08 Sheet 1 of 1 Hole Type TP Scale 1:25 Logged JEM Checked NS	
PROJECT NO: C5128						CO-ORDS: 383626E, 398021N			
PROJECT NAME: ST MICHAELS, MANCHESTER						LEVEL:			
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD						DATES: 23/08/23			
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-1.30	ES		0.20			MADE GROUND: Grey subangular fine to coarse gravel of mixed lithologies including limestone and brick.	1.0	
							MADE GROUND: Dark greyish brown gravelly fine to coarse sand with medium cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, mudstone, sandstone and occasional clinker. Cobbles are subrounded of brick up to 200mm in diameter. <i>Brick wall present from 0.30 - 1.40m bgl running parallel to the pit.</i>		
	1.30-2.10	ES		1.30			MADE GROUND: Firm brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, coal, clinker, mudstone and sandstone.		
				2.10			Orangish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	2.0	
				2.30			End of Trial Pit at 2.30m		
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with moderate spalling of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	



No.

Sheet 1 of 1

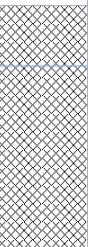
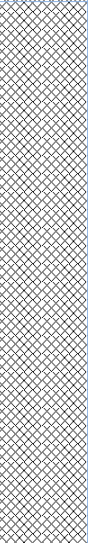
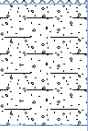
CO-ORDS: 383619E, 398014N

LEVEL:

DATES: 24/08/23

Checked

NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.20-0.80	ES		0.20			MADE GROUND: Dark grey subangular fine to coarse gravel of mixed lithologies including limestone, asphalt and brick.	1.0
	0.80-2.60	ES		0.80			MADE GROUND: Dark brown slightly gravelly slightly clayey fine to coarse sand with low cobble content. Gravel is subangular to subrounded fine to coarse of asphalt, brick, concrete, sandstone, glass and rare slag and clinker. Cobbles are subangular to subrounded of brick up to 200mm in diameter.	
							MADE GROUND: Dark greyish brown gravelly fine to coarse sand with high cobble content. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, glass, mudstone, sandstone and occasional clinker. Cobbles are subrounded of brick up to 200mm in diameter.	
				2.60				
				3.00			Orangish brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of quartz and sandstone.	3.0
						End of Trial Pit at 3.00m		4.0
								5.0

1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny.
2. No groundwater encountered.
3. Sides unstable during excavation with moderate spalling of granular made ground occurring.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane



No.

TP10

Sheet 1 of 1

Hole Type

TP

Scale

1:25

Logged

Checked

JEM

NS

CO-ORDS: 383624E, 398013N

LEVEL:

DATES: 24/08/23

1.0 —

2.0 —

3.0 —

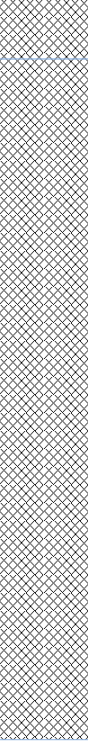
4.0 —

5.0 —

1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny.
2. No groundwater encountered.
3. Sides unstable during excavation with moderate spalling of granular made ground occurring.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. TP11 Sheet 1 of 1		
PROJECT NO: C5128					CO-ORDS: 383628E, 398018N		Hole Type TP		
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:		Scale 1:25		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 23/08/23		Logged JEM	Checked NS	
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-2.50	ES		0.20			MADE GROUND: Dark grey subangular fine to coarse gravel of mixed lithologies including limestone, asphalt and brick. MADE GROUND: slightly gravelly sandy subangular to subrounded cobbles of brick up to 200mm in diameter. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, mudstone, sandstone and occasional clinker. Brick wall present from 0.30 - 2.50m bgl running parallel to the pit.	1.0	
				2.50			Suspected basement floor present at 2.50m bgl, unable to proceed through. End of Trial Pit at 2.50m	2.0	
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with constant collapsing of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

 BROWNFIELD SOLUTIONS LTD					Trial Pit Log		No. TP12 Sheet 1 of 1		
PROJECT NO: C5128					CO-ORDS: 383636E, 398016N		Hole Type TP		
PROJECT NAME: ST MICHAELS, MANCHESTER					LEVEL:		Scale 1:25		
CLIENT: ST MICHAELS UK PROPCO 2 LTD / DOMIS CONSTRUCTION LTD					DATES: 24/08/23		Logged JEM	Checked NS	
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m)	Type	Results						
	0.20-2.45	ES		0.20			MADE GROUND: Dark grey subangular fine to coarse gravel of mixed lithologies including limestone, asphalt and brick. MADE GROUND: slightly gravelly sandy subangular to subrounded cobbles of brick and occasional asphalt up to 200mm in diameter. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, ceramic, concrete, metal, plastic, mudstone, sandstone and occasional clinker.	1.0	
				2.45			Suspected basement floor present at 2.45m bgl, unable to proceed through. End of Trial Pit at 2.45m	2.0	
								3.0	
								4.0	
								5.0	
Remarks		1. Trial pit service cleared by GeoUK using GPR and BSL Engineer using CAT & Genny. 2. No groundwater encountered. 3. Sides unstable during excavation with constant collapsing of granular made ground occurring. 4. Trial pit backfilled with arisings upon completion.						ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane	

APPENDIX C

Chemical Testing Results

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CW9 5LP

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e: j.mather@brownfield-solutions.co.uk

Analytical Report Number : 22-95726

Project / Site name:	St Michaels, Manchester	Samples received on:	09/11/2022
Your job number:	C5128	Samples instructed on/ Analysis started on:	09/11/2022
Your order number:	C5128-3694-JM	Analysis completed by:	16/11/2022
Report Issue Number:	1	Report issued on:	16/11/2022
Samples Analysed:	8 soil samples		



Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-95726

Project / Site name: St Michaels, Manchester

Your Order No: C5128-3694-JM

Lab Sample Number				2494190	2494191	2494192	2494193	2494194
Sample Reference				WS01	WS02	BH01	BH02	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	1.50	4.10	3.00	3.00
Date Sampled				07/11/2022	07/11/2022	07/11/2022	07/11/2022	07/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.4	5.7	9	9.2	15
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.2	0.5	0.5

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.1	8.1	8	8.1
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.13	0.029	0.021	0.015	0.15
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	-	-
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	-	-	-	-	-
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	-	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-	-	-

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-	-	-	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-95726

Project / Site name: St Michaels, Manchester

Your Order No: C5128-3694-JM

Lab Sample Number				2494195	2494196	2494197
Sample Reference				BH01	BH02	BH03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				3.00	2.00	4.00
Date Sampled				07/11/2022	07/11/2022	07/11/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.4	7.8	9.9
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	8.1	8.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.057	< 0.005	0.016
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.17	0.013	0.051
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	169	13.4	51
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3.3	1.9	5.7
Total Sulphur	%	0.005	MCERTS	0.025	< 0.005	0.012
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	2.8

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	19	21	40
Magnesium (leachate equivalent)	mg/l	2.5	NONE	9.6	10	20

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-95726

Project / Site name: St Michaels, Manchester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2494190	WS01	None Supplied	3	Brown sand with gravel.
2494191	WS02	None Supplied	1.5	Brown sand with gravel.
2494192	BH01	None Supplied	4.1	Brown clay and sand.
2494193	BH02	None Supplied	3	Brown sand.
2494194	BH03	None Supplied	3	Brown clay and sand.
2494195	BH01	None Supplied	3	Brown sand with gravel.
2494196	BH02	None Supplied	2	Brown sand.
2494197	BH03	None Supplied	4	Brown clay and sand.

Analytical Report Number : 22-95726

Project / Site name: St Michaels, Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture

correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by

the client. The instructed on date indicates the date on which this information was provided to the laboratory.

**Jack Mather**

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Analytical Report Number : 22-95731

Project / Site name:	St Michaels, Manchester	Samples received on:	09/11/2022
Your job number:	C5128	Samples instructed on/ Analysis started on:	09/11/2022
Your order number:	C5128 3693 JM	Analysis completed by:	29/11/2022
Report Issue Number:	1	Report issued on:	29/11/2022
Samples Analysed:	6 soil samples		

Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-95731
Project / Site name: St Michaels, Manchester
Your Order No: C5128 3693 JM

Lab Sample Number				2494204	2494205	2494206	2494207	2494208
Sample Reference				WS01	WS02	BH01	BH01	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50-0.70	0.30-0.50	0.30-0.50	2.00-2.20	1.30-1.50
Date Sampled				07/11/2022	07/11/2022	07/11/2022	07/11/2022	07/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	14	17	15	17
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	1	1

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	LFT	LFT	LFT	LFT	LFT

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	7.6	8.2	7.7	7.9
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	270	3100	530	5400	87
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.13	1.6	0.26	2.7	0.044
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	135	1550	263	2710	43.6
Organic Matter (automated)	%	0.1	MCERTS	3.4	2.4	4	3.2	3.6

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	0.18	0.14	0.21	0.27	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	0.07	< 0.05
Acenaphthene	mg/kg	0.05	NONE	0.08	0.13	< 0.05	0.19	< 0.05
Fluorene	mg/kg	0.05	NONE	0.14	0.14	0.05	0.31	< 0.05
Phenanthrene	mg/kg	0.05	NONE	1.4	1.4	0.5	4	0.83
Anthracene	mg/kg	0.05	NONE	0.31	0.23	0.11	1	0.17
Fluoranthene	mg/kg	0.05	NONE	2	1.3	0.7	5.4	1.4
Pyrene	mg/kg	0.05	NONE	2	1.2	0.7	5.3	1.4
Benzo(a)anthracene	mg/kg	0.05	NONE	1.2	0.54	0.41	2.8	0.79
Chrysene	mg/kg	0.05	NONE	0.98	0.58	0.36	2.4	0.62
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.84	0.39	0.32	2.1	0.67
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.56	0.35	0.26	1.8	0.47
Benzo(a)pyrene	mg/kg	0.05	NONE	0.89	0.4	0.27	2.1	0.77
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.35	0.2	0.14	0.82	0.4
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	0.19	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.53	0.29	0.19	1	0.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	11.4	7.23	4.22	29.9	8
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	24	29	69	48	41
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.4	< 0.2	< 0.2	< 0.2	3.8
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	22	19	25	25	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	19	25	25	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	200	770	4200	2200
Lead (aqua regia extractable)	mg/kg	1	MCERTS	5200	980	19000	8300	760
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	2.4	1.1	0.7	1.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	42	22	36	74
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	310	610	1600	1600	1300

Monoaromatics & Oxygenates

Total BTEX & MTBE	mg/kg	0.007	NONE	< 0.007	-	< 0.007	-	-
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Analytical Report Number: 22-95731
Project / Site name: St Michaels, Manchester
Your Order No: C5128 3693 JM

Lab Sample Number				2494204	2494205	2494206	2494207	2494208
Sample Reference				WS01	WS02	BH01	BH01	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50-0.70	0.30-0.50	0.30-0.50	2.00-2.20	1.30-1.50
Date Sampled				07/11/2022	07/11/2022	07/11/2022	07/11/2022	07/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics & Oxygenates

Benzene	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
Toluene	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
Ethylbenzene	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
p & m-xylene	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
o-xylene	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	NONE	< 1.0	-	< 1.0	-	-
TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	NONE	< 2.0	-	< 2.0	-	-
TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	NONE	< 8.0	-	19	-	-
TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	NONE	< 8.0	-	150	-	-
TPH-CWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	-	160	-	-
TPH-CWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	-	< 10	-	-
TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	-	160	-	-

TPH-CWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
TPH-CWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
TPH-CWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.001	NONE	< 0.001	-	< 0.001	-	-
TPH-CWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	NONE	< 1.0	-	< 1.0	-	-
TPH-CWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	NONE	< 2.0	-	< 2.0	-	-
TPH-CWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	-	11	-	-
TPH-CWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	NONE	12	-	58	-	-
TPH-CWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	-	< 10	-	-
TPH-CWG - Aromatic (EC5 - EC35) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	20	-	69	-	-
TPH Total C5 - C40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	12	-	230	-	-

TPH (C5 - C10) _{HS_1D_TOTAL}	mg/kg	1	NONE	< 1.0	-	< 1.0	-	-
TPH (C10 - C16) _{EH_CU_1D_TOTAL}	mg/kg	10	NONE	< 10	-	< 10	-	-
TPH (C16 - C40) _{EH_CU_1D_TOTAL}	mg/kg	10	NONE	20	-	240	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-95731
Project / Site name: St Michaels, Manchester
Your Order No: C5128 3693 JM

Lab Sample Number				2494209
Sample Reference				BH03
Sample Number				None Supplied
Depth (m)				1.50-1.70
Date Sampled				07/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	1

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	LFT

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	120
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.06
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	60.3
Organic Matter (automated)	%	0.1	MCERTS	1.4

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05
Acenaphthene	mg/kg	0.05	NONE	0.28
Fluorene	mg/kg	0.05	NONE	0.23
Phenanthrene	mg/kg	0.05	NONE	3.7
Anthracene	mg/kg	0.05	NONE	0.79
Fluoranthene	mg/kg	0.05	NONE	5.2
Pyrene	mg/kg	0.05	NONE	4.5
Benzo(a)anthracene	mg/kg	0.05	NONE	2.1
Chrysene	mg/kg	0.05	NONE	2
Benzo(b)fluoranthene	mg/kg	0.05	NONE	1.9
Benzo(k)fluoranthene	mg/kg	0.05	NONE	1.1
Benzo(a)pyrene	mg/kg	0.05	NONE	2.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	1
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.2
Benzo(ghi)perylene	mg/kg	0.05	NONE	1.2

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	26.2
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2
Chromium (III)	mg/kg	1	NONE	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180

Monoaromatics & Oxygenates

Total BTEX & MTBE	mg/kg	0.007	NONE	-
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Analytical Report Number: 22-95731
Project / Site name: St Michaels, Manchester
Your Order No: C5128 3693 JM

Lab Sample Number				2494209
Sample Reference				BH03
Sample Number				None Supplied
Depth (m)				1.50-1.70
Date Sampled				07/11/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Monoaromatics & Oxygenates				
Benzene	mg/kg	0.001	NONE	-
Toluene	mg/kg	0.001	NONE	-
Ethylbenzene	mg/kg	0.001	NONE	-
p & m-xylene	mg/kg	0.001	NONE	-
o-xylene	mg/kg	0.001	NONE	-
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	NONE	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.001	NONE	-
TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.001	NONE	-
TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.001	NONE	-
TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	NONE	-
TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	NONE	-
TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	NONE	-
TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	NONE	-
TPH-CWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	NONE	-
TPH-CWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	-
TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-

TPH-CWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.001	NONE	-
TPH-CWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.001	NONE	-
TPH-CWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.001	NONE	-
TPH-CWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	NONE	-
TPH-CWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	NONE	-
TPH-CWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	NONE	-
TPH-CWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	NONE	-
TPH-CWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	-
TPH-CWG - Aromatic (EC5 - EC35) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-
TPH Total C5 - C40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	-

TPH (C5 - C10) _{HS_1D_TOTAL}	mg/kg	1	NONE	-
TPH (C10 - C16) _{EH_CU_1D_TOTAL}	mg/kg	10	NONE	-
TPH (C16 - C40) _{EH_CU_1D_TOTAL}	mg/kg	10	NONE	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-95731

Project / Site name: St Michaels, Manchester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2494204	WS01	None Supplied	0.50-0.70	Grey clinker with rubble.**
2494205	WS02	None Supplied	0.30-0.50	Grey sand with rubble.
2494206	BH01	None Supplied	0.30-0.50	Grey sand with clinker
2494207	BH01	None Supplied	2.00-2.20	Grey sand with clinker
2494208	BH02	None Supplied	1.30-1.50	Brown clay and sand with gravel.
2494209	BH03	None Supplied	1.50-1.70	Brown sand with brick.

**NON MCERTS MATRIX

Analytical Report Number : 22-95731

Project / Site name: St Michaels, Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE

Analytical Report Number : 22-95731

Project / Site name: St Michaels, Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-98007

Project / Site name:	St Michaels, Manchester	Samples received on:	21/11/2022
Your job number:	C5128	Samples instructed on/ Analysis started on:	21/11/2022
Your order number:	C5128 3693 JM	Analysis completed by:	28/11/2022
Report Issue Number:	1	Report issued on:	28/11/2022
Samples Analysed:	4 soil samples		



Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-98007
Project / Site name: St Michaels, Manchester
Your Order No: C5128 3693 JM

Lab Sample Number				2507024	2507025	2507026	2507027
Sample Reference				BH04	BH05	WS03	BH05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20-1.40	0.30-0.50	1.50-1.70	1.20-1.40
Date Sampled				17/11/2022	17/11/2022	17/11/2022	17/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	20	11	< 0.1
Moisture Content	%	0.01	NONE	19	16	21	16
Total mass of sample received	kg	0.001	NONE	0.7	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	8.5	8	7.9
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	210	3500	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.11	1.7	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	106	1750	-	-
Organic Matter (automated)	%	0.1	MCERTS	2.4	2	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	0.61	0.27	-	-
Acenaphthylene	mg/kg	0.05	NONE	2.6	0.12	-	-
Acenaphthene	mg/kg	0.05	NONE	0.53	0.88	-	-
Fluorene	mg/kg	0.05	NONE	0.75	0.55	-	-
Phenanthrene	mg/kg	0.05	NONE	3.6	6.4	-	-
Anthracene	mg/kg	0.05	NONE	2.6	1.4	-	-
Fluoranthene	mg/kg	0.05	NONE	28	8.1	-	-
Pyrene	mg/kg	0.05	NONE	40	7.7	-	-
Benzo(a)anthracene	mg/kg	0.05	NONE	7.3	3.4	-	-
Chrysene	mg/kg	0.05	NONE	8.1	2.8	-	-
Benzo(b)fluoranthene	mg/kg	0.05	NONE	8.5	3.2	-	-
Benzo(k)fluoranthene	mg/kg	0.05	NONE	3.4	1.5	-	-
Benzo(a)pyrene	mg/kg	0.05	NONE	5	3	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	2.1	1.6	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.56	0.41	-	-
Benzo(ghi)perylene	mg/kg	0.05	NONE	2.1	1.8	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	116	43	-	-
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	22	24	9.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	1.4	1.9	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	10	34	15	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	34	15	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	120	200	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	95	350	800	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.8	1	1.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.5	31	27	7.9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	210	280	29

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 22-98007
Project / Site name: St Michaels, Manchester

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2507024	BH04	None Supplied	1.20-1.40	Brown gravelly clay with brick.
2507025	BH05	None Supplied	0.30-0.50	Brown gravelly clay with stones.
2507026	WS03	None Supplied	1.50-1.70	Brown gravelly clay with brick and stones.
2507027	BH05	None Supplied	1.20-1.40	Brown sandy clay with gravel.

Analytical Report Number : 22-98007
Project / Site name: St Michaels, Manchester

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Human Health Assessment Summary						Soil Type: Location: Depth:		MG WS01 0.50-0.70	MG WS02 0.30-0.50	MG BH01 0.30-0.50	MG BH01 2.00-2.20	MG BH02 1.30-1.50	MG BH03 1.50-1.70	MG BH04 1.20-1.40	MG BH05 0.30-0.50	MG WS03 1.50-1.70	NS BH05 1.20-1.40
Contaminant	GAC (mg/kg)	No. Samples	Min. Value	Max. Value	No. Samples ≥GAC												
Moisture Content	-	10	13.00	21.00	-	20	14	17	15	17	13	19	16	21	16		
Soil Organic Matter	-	8	1.40	4.00	-	3.4	2.4	4.0	3.2	3.6	1.4	2.4	2.0				
pH	-	10	7.60	8.60	-	8.5	7.6	8.2	7.7	7.9	8.6	7.8	8.5	8.0	7.9		
Water Soluble Sulphate (2:1 Leachate Equivalent)	-	0	0.00	<LOD	-												
Arsenic	640	10	9.70	69.00	0	24.0	29	69	48	41	12	16	22	24	10		
Cadmium	190	10	< LOD	3.80	0	1.4	< 0.2	< 0.2	< 0.2	3.80	0.70	< 0.2	1.40	1.90	< 0.2		
Chromium (III)	8600	10	10.00	34.00	0	22.0	19	25	25	22	15	10	34	15	13		
Hexavalent Chromium (VI)	33	10	< LOD	<LOD	0	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2		
Copper	68000	10	15.00	4200.00	0	100.0	200	770	4200	2200	29	33	120	200	15		
Lead	2300	10	20.00	19000.00	3	5200.0	980	19000	8300	760	120	95	350	800	20		
Mercury	58.0	10	< LOD	2.40	0	0.4	2.4	1.1	0.7	1.4	< 0.3	0.8	1.0	1.3	< 0.3		
Nickel	980	10	7.90	74.00	0	18.0	42	22	36	74	11	10	31	27	8		
Selenium	12000	10	< LOD	<LOD	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Zinc	730000	10	29.00	1600.00	0	310.0	610	1600	1600	1300	180	38	210	280	29		
Naphthalene	460.0	8	< LOD	0.61	0	0.18	0.14	0.21	0.27	< 0.05	< 0.05	0.61	0.27				
Acenaphthylene	97000	8	< LOD	2.60	0	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	2.60	0.12				
Acenaphthene	97000	8	< LOD	0.88	0	0.08	0.13	< 0.05	0.19	< 0.05	0.28	0.53	0.88				
Fluorene	68000	8	< LOD	0.75	0	0.14	0.14	0.05	0.31	< 0.05	0.23	0.75	0.55				
Phenanthrene	22000	8	0.50	6.40	0	1.40	1.4	0.5	4.0	0.8	3.7	3.6	6.4				
Anthracene	540000	8	0.11	2.60	0	0.31	0.23	0.11	1.00	0.17	0.79	2.60	1.40				
Fluoranthene	23000	8	0.70	28.00	0	2.00	1.3	0.7	5.4	1.4	5.2	28.0	8.1				
Pyrene	54000	8	0.70	40.00	0	2.00	1.2	0.7	5.3	1.4	4.5	40.0	7.7				
Benzo(a)anthracene	170.0	8	0.41	7.30	0	1.20	0.5	0.4	2.8	0.8	2.1	7.3	3.4				
Chrysene	350	8	0.36	8.10	0	0.98	0.6	0.4	2.4	0.6	2.0	8.1	2.8				
Benzo(b)fluoranthene	44.0	8	0.32	8.50	0	0.84	0.4	0.3	2.1	0.7	1.9	8.5	3.2				
Benzo(k)fluoranthene	1200	8	0.26	3.40	0	0.56	0.35	0.26	1.80	0.47	1.10	3.40	1.50				
Benzo(a)pyrene	35.0	8	0.27	5.00	0	0.89	0.4	0.3	2.1	0.8	2.1	5.0	3.0				
Indeno(1,2,3-cd)pyrene	510	8	0.14	2.10	0	0.35	0.20	0.14	0.82	0.40	1.00	2.10	1.60				
Dibenz(a,h)anthracene	3.60	8	< LOD	0.56	0	< 0.05	< 0.05	< 0.05	0.19	< 0.05	0.20	0.56	0.41				
Benzo(ghi)perylene	4000	8	0.19	2.10	0	0.53	0.29	0.19	1.00	0.50	1.20	2.10	1.80				
Asbestos Detected (Detected or Not-Detected)	Y	8	-	0.00	0	N	N	N	N	N	N	N	N				
Asbestos Quantification (% w/w)	0	0	0.19	<LOD	0												
Petroleum Hydrocarbons Aliphatic >EC5-EC6	5900	2	0.00	<LOD	0	< 0.001		< 0.001									
Petroleum Hydrocarbons Aliphatic >EC6-EC8	17000	2	0.00	<LOD	0	< 0.001		< 0.001									
Petroleum Hydrocarbons Aliphatic >EC8-EC10	4800	2	< LOD	<LOD	0	< 0.001		< 0.001									
Petroleum Hydrocarbons Aliphatic >EC10-EC12	23000	2	< LOD	<LOD	0	< 1.0		< 1.0									
Petroleum Hydrocarbons Aliphatic >EC12-EC16	82000	2	< LOD	<LOD	0	< 2.0		< 2.0									
Petroleum Hydrocarbons Aliphatic >EC16-EC35	1700000	2	< LOD	160.00	0	< 1.0		160.00									
Petroleum Hydrocarbons Aromatic >EC5-EC7	46000	2	< LOD	<LOD	0	< 0.001		< 0.001									
Petroleum Hydrocarbons Aromatic >EC7-EC8	110000	2	< LOD	<LOD	0	< 0.001		< 0.001									
Petroleum Hydrocarbons Aromatic >EC8-EC10	8100	2	< LOD	<LOD	0	< 0.001		< 0.001									
Petroleum Hydrocarbons Aromatic >EC10-EC12	28000	2	< LOD	<LOD	0	< 1.0		< 1.0									
Petroleum Hydrocarbons Aromatic >EC12-EC16	37000	2	< LOD	<LOD	0	< 2.0		< 2.0									
Petroleum Hydrocarbons Aromatic >EC16-EC21	28000	2	< LOD	11.00	0	< 1.0		11.00									
Petroleum Hydrocarbons Aromatic >EC21-EC35	28200	2	< LOD	58.00	0	12.00		58.00									
Benzene	47.000	2	< LOD	<LOD	0	< 0.001		< 0.001									
Toluene	110000	2	12.00	<LOD	0	< 0.001		< 0.001									
Ethyl benzene	13000	2	< LOD	<LOD	0	< 0.001		< 0.001									
o-Xylene	150000	2	< LOD	<LOD	0	< 0.001		< 0.001									
m- & p-Xylene	28000	2	< LOD	<LOD	0	< 0.001		< 0.001									
MTBE	13000	2	< LOD	<LOD	0	< 0.001		< 0.001									
Mean Average SOM 2.8																	
Mean Average pH 8.1																	
Commercial 2.5% SOM						Values in RED are > the relevant GAC (Generic Assessment Criteria).											
Job Number: C5128																	
Client: Domis Construction Ltd																	
Site: St Michaels																	
Soil Group Type Combined Results																	



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Analytical Report Number : 23-53821

Project / Site name:	St Michaels	Samples received on:	30/08/2023
Your job number:	C5128	Samples instructed on/ Analysis started on:	30/08/2023
Your order number:	4540	Analysis completed by:	06/09/2023
Report Issue Number:	1	Report issued on:	06/09/2023
Samples Analysed:	1 bulk sample - 15 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-53821

Project / Site name: St Michaels

Your Order No: 4540

Lab Sample Number				2796272	2796273	2796274	2796275	2796276
Sample Reference				ASB01	ASB02	ASB03	ASB04	ASB05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.10-1.60	0.25-1.55	0.25-1.40	0.00-1.50	0.00-1.40
Date Sampled				23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	-	-
Moisture Content				%	0.01	NONE	-	-
Total mass of sample received				kg	0.001	NONE	-	-

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	< 0.001
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN	MJN	MJN

Heavy Metals / Metalloids

Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-53821

Project / Site name: St Michaels

Your Order No: 4540

Lab Sample Number				2796277	2796278	2796280	2796281	2796282
Sample Reference				TP03	TP03	TP04	TP05	TP06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-1.80	1.80-2.00	0.20-1.95	0.20-1.80	0.20-2.10
Date Sampled				24/08/2023	24/08/2023	23/08/2023	24/08/2023	23/08/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	30	< 0.1	37	38	39
Moisture Content	%	0.01	NONE	17	16	11	17	18
Total mass of sample received	kg	0.001	NONE	0.7	0.8	0.9	0.8	0.8

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	-	Detected	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	MJN	N/A	N/A

Heavy Metals / Metalloids

Copper (aqua regia extractable)	mg/kg	1	MCERTS	150	34	120	3000	1700
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1100	85	1900	610	540
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	42	420	1900	1100

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-53821

Project / Site name: St Michaels

Your Order No: 4540

Lab Sample Number				2796283	2796284	2796285	2796286	2796287
Sample Reference				TP07	TP07	TP07	TP08	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30-0.85	0.85-1.60	1.60-2.40	0.20-1.30	1.30-2.10
Date Sampled				24/08/2023	24/08/2023	24/08/2023	23/08/2023	23/08/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	55	46	< 0.1	35	< 0.1
Moisture Content	%	0.01	NONE	18	14	16	14	20
Total mass of sample received	kg	0.001	NONE	0.7	0.9	0.9	0.8	0.8

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Heavy Metals / Metalloids

Copper (aqua regia extractable)	mg/kg	1	MCERTS	250	290	40	210	56
Lead (aqua regia extractable)	mg/kg	1	MCERTS	580	220	50	180	62
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	200	120	77	170	72

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 23-53821
Project / Site name: St Michaels
Your Order No: 4540

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2796276	ASB05	0.00-1.40	164	Loose Fibres	Chrysotile	< 0.001	< 0.001
2796280	TP04	0.20-1.95	142	Loose Fibres	Chrysotile	< 0.001	< 0.001

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



4041



Analytical Report Number: 23-53821

Project / Site name: St Michaels

Your Order No: 4540

Lab Sample Number				2796279
Sample Reference				TP04
Sample Number				None Supplied
Depth (m)				0.20-1.95
Date Sampled				23/08/2023
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)	Units	Limit of detection	Accreditation Status	

Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Asbestos Cement
Asbestos Analyst ID	N/A	N/A	N/A	MJN

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-53821
Project / Site name: St Michaels

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2796277	TP03	None Supplied	0.20-1.80	Brown sand with gravel and stones.
2796278	TP03	None Supplied	1.80-2.00	Brown clay and sand.
2796280	TP04	None Supplied	0.20-1.95	Brown sand with gravel and stones.
2796281	TP05	None Supplied	0.20-1.80	Brown sand with gravel and stones.
2796282	TP06	None Supplied	0.20-2.10	Brown sand with gravel and stones.
2796283	TP07	None Supplied	0.30-0.85	Brown sand with gravel and stones.
2796284	TP07	None Supplied	0.85-1.60	Brown sand with gravel and stones.
2796285	TP07	None Supplied	1.60-2.40	Brown clay and sand with gravel.
2796286	TP08	None Supplied	0.20-1.30	Brown sand with gravel and stones.
2796287	TP08	None Supplied	1.30-2.10	Brown clay with gravel.

Analytical Report Number : 23-53821

Project / Site name: St Michaels

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 23-68892

Project / Site name:	St. Michaels, Manchester	Samples received on:	14/11/2023
Your job number:	C5128	Samples instructed on/ Analysis started on:	14/11/2023
Your order number:		Analysis completed by:	22/11/2023
Report Issue Number:	1	Report issued on:	22/11/2023
Samples Analysed:	6 soil samples		


Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-68892
Project / Site name: St. Michaels, Manchester

Lab Sample Number				2879001	2879002	2879003	2879004	2879005
Sample Reference				WS04	WS07	WS08	WS05	WS09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.10-3.60	2.90-3.60	3.00-3.50	2.90-3.90	3.00-3.40
Date Sampled				01/11/2023	01/11/2023	01/11/2023	01/11/2023	01/11/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	56	< 0.1
Moisture Content	%	0.01	NONE	14	6.1	8.8	6.7	7.2
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.4	0.2	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	N/A	WEM	WEM	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.3	8.6	8.4	8.2	9.5
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	220	-	370	130	1100
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.109	-	0.187	0.0653	0.54
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	109	-	187	65.3	540
Organic Matter (automated)	%	0.1	MCERTS	0.3	-	0.6	0.6	0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.05	-	< 0.05	0.12	0.07
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.08	-	< 0.05	0.25	0.1
Pyrene	mg/kg	0.05	MCERTS	0.08	-	< 0.05	0.21	0.09
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	0.09	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	0.11	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	-	< 0.05	0.09	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	0.07	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	0.06	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	0.06	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	-	< 0.80	1.06	< 0.80
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Analytical Report Number: 23-68892
Project / Site name: St. Michaels, Manchester

Lab Sample Number	2879001	2879002	2879003	2879004	2879005
Sample Reference	WS04	WS07	WS08	WS05	WS09
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	3.10-3.60	2.90-3.60	3.00-3.50	2.90-3.90	3.00-3.40
Date Sampled	01/11/2023	01/11/2023	01/11/2023	01/11/2023	01/11/2023
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.6	4.5	6.8	4.9	5.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	11	27	18	14	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	27	18	14	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.4	13	13	12	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	10	8.5	13	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	26	17	18	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	27	60	36	30	47

Monoaromatics & Oxygenates

Total BTEX & MTBE	mg/kg	0.007	NONE	< 0.007	-	-	< 0.007	-
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Monoaromatics & Oxygenates

Benzene	mg/kg	0.005	MCERTS	< 0.005	-	-	< 0.005	-
Toluene	mg/kg	0.005	MCERTS	< 0.005	-	-	< 0.005	-
Ethylbenzene	mg/kg	0.005	MCERTS	< 0.005	-	-	< 0.005	-
p & m-xylene	mg/kg	0.005	MCERTS	< 0.005	-	-	< 0.005	-
o-xylene	mg/kg	0.005	MCERTS	< 0.005	-	-	< 0.005	-
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	< 0.005	-	-	< 0.005	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	-	-	< 0.020	-
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	-	-	< 0.020	-
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	-	-	< 0.050	-
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC16 - EC35 EH_CU_ID_AL	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_ID_AL	mg/kg	10	NONE	< 10	-	-	< 10	-
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	-	-	< 10	-

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	-	-	< 0.010	-
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	-	-	< 0.010	-
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	-	-	< 0.050	-
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_ID_AR	mg/kg	10	NONE	< 10	-	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_ID_AR	mg/kg	10	NONE	< 10	-	-	< 10	-
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	< 10	-	-	< 10	-

TPH (C5 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	-	-	< 1.0	-
TPH (C10 - C16) EH_CU_ID_TOTAL	mg/kg	10	NONE	< 10	-	-	< 10	-
TPH (C16 - C40) EH_CU_ID_TOTAL	mg/kg	10	NONE	< 10	-	-	< 10	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-68892
Project / Site name: St. Michaels, Manchester

Lab Sample Number				2879006
Sample Reference				WS09
Sample Number				None Supplied
Depth (m)				3.40-3.50
Date Sampled				01/11/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	12
Total mass of sample received	kg	0.001	NONE	0.5

Asbestos in Soil	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-
Organic Matter (automated)	%	0.1	MCERTS	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-
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Analytical Report Number: 23-68892
Project / Site name: St. Michaels, Manchester

Lab Sample Number				2879006
Sample Reference				WS09
Sample Number				None Supplied
Depth (m)				3.40-3.50
Date Sampled				01/11/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2
Chromium (III)	mg/kg	1	NONE	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5.9
Lead (aqua regia extractable)	mg/kg	1	MCERTS	5.2
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32

Monoaromatics & Oxygenates

Total BTEX & MTBE	mg/kg	0.007	NONE	-
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Monoaromatics & Oxygenates

Benzene	mg/kg	0.005	MCERTS	-
Toluene	mg/kg	0.005	MCERTS	-
Ethylbenzene	mg/kg	0.005	MCERTS	-
p & m-xylene	mg/kg	0.005	MCERTS	-
o-xylene	mg/kg	0.005	MCERTS	-
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.02	NONE	-
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.02	NONE	-
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.05	NONE	-
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	-
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	-
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	-
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	-
TPH-CWG - Aliphatic >EC16 - EC35 EH_CU_ID_AL	mg/kg	10	MCERTS	-
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_ID_AL	mg/kg	10	NONE	-
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_ID_AL	mg/kg	10	NONE	-

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	-
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	-
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	-
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	-
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	-
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_ID_AR	mg/kg	10	NONE	-
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_ID_AR	mg/kg	10	NONE	-
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	-

TPH (C5 - C10) HS_ID_TOTAL	mg/kg	1	NONE	-
TPH (C10 - C16) EH_CU_ID_TOTAL	mg/kg	10	NONE	-
TPH (C16 - C40) EH_CU_ID_TOTAL	mg/kg	10	NONE	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-68892

Project / Site name: St. Michaels, Manchester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2879001	WS04	None Supplied	3.10-3.60	Brown sand.
2879002	WS07	None Supplied	2.90-3.60	Brown sand with gravel.
2879003	WS08	None Supplied	3.00-3.50	Brown sand with gravel.
2879004	WS05	None Supplied	2.90-3.90	Brown sand with stones.
2879005	WS09	None Supplied	3.00-3.40	Brown sand with gravel.
2879006	WS09	None Supplied	3.40-3.50	Brown sand with gravel.

Analytical Report Number : 23-68892
Project / Site name: St. Michaels, Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser.	L080-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS

Analytical Report Number : 23-68892
Project / Site name: St. Michaels, Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

APPENDIX D

Geotechnical Testing Results

Jack Mather
Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

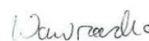
t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: j.mather@brownfield-solutions.co.uk

Analytical Report Number : 22-98006

Project / Site name:	St Michaels Manchester	Samples received on:	21/11/2022
Your job number:	C5128	Samples instructed on/ Analysis started on:	21/11/2022
Your order number:	C5128 3694 JM	Analysis completed by:	25/11/2022
Report Issue Number:	1	Report issued on:	26/11/2022
Samples Analysed:	5 soil samples		

Signed:



Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-98006
Project / Site name: St Michaels Manchester
Your Order No: C5128 3694 JM

Lab Sample Number				2507016	2507017	2507018	2507019	2507020
Sample Reference				WS03	BH04	BH05	BH04	BH05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	4.00	3.00	3.00	4.00
Date Sampled				17/11/2022	17/11/2022	17/11/2022	17/11/2022	17/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	28
Moisture Content	%	0.01	NONE	12	9.5	14	13	10
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	8.1	7.9	7.7	7.4
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	-	0.019	0.042
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.05	0.035	0.057	0.076	0.11
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	75.9	107
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	1.7	2.6
Total Sulphur	%	0.005	MCERTS	-	-	-	0.022	0.034
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	-	-	-	< 0.5	< 0.5
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-	-	5.9	18
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	3	9.2

U/S = Unsuitable Sample I/S = Insufficient Sample