Maher
W.Maher & Sons Ltd.
Civil Engineering Contractors

W. MAHER & SONS LTD.
Rixton Old Hall, Manchester Road, Rixton, Warrington WA3 6EW
T : 0161 776 2200
E : enquiries@wmaherandsons.com
W : www.wmaherandsons.com

Waste Transfer Note - 04

SECTION A - DESCRIPTION OF WASTE (To be completed by Holder/Producer of the waste)

EWC Code (*Tick one box only*)

	17:01:01	Concrete		17:05:04	Naturally occurring sub-soil and crushed stone
	17:01:02	Bricks	✓	17:09:04	Mixed construction and demolition waste
	17:01:07	Concrete, brick and tile			Other: Insert EWC and describe below

How is the waste Contained

8 Wheel Tipper / ~~Articulated Tipper~~

SECTION B - HOLDER / PRODUCER OF THE WASTE

SIC 4 3 1 2 0

Holder / Producer: MORGAN SINDALL CONSTRUCTION

Location/address of the Collection Point: NORTH MANCHESTER GENERAL HOSPITAL, M8 5RB.

Declaration (by Holder)
I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England & Wales) Regulations 2011.

Name: M. ALLAN Signature:

SECTION C - PERSON COLLECTING THE WASTE (CARRIER)

SIC 4 9 4 1 0

Carrier: W Maher & Sons Ltd

Carrier Address: Rixton Old Hall, Manchester Road, Rixton, Warrington WA3 6EW

Carrier Registration No.: CBDU90617 Expiry Date: 25/03/ Issued by: Environment Agency

Date of Transfer: 11-7-22 TO 10-7-23 (for multiple consignments state duration, max 12 months)

Name: M. FOULDS Signature:

SECTION D - DISPOSAL / RECOVERY FACILITY (Indicate facility used)

Facility Operator: W Maher & Sons Ltd

Facility Address:	☐ Daniel Adamson Road, Weaste, M50 1GU	☑ Rondin Close, Ashton Old Road, M12 6BF
Facility Permit No.:	EPR/GB3930DG	EPR/GB 3930AM

Date of Transfer: 11-7-22 TO 10-7-23 (for multiple consignments, state duration, max 12 months)

Name: M. MALONE Signature:

IF WASTE IS SENT DIRECTLY TO LANDFILL SITE IN ENGLAND OR WALES THE FOLLOWING DECLARATION MUST BE SIGNED (BY CARRIER).

I/We confirm that the waste delivered by the above named company has been treated as highlighted below.

The material has gone through a physical, thermal, chemical or biological process including: sorting characteristics of the waste have been changed/volume has been reduced/ hazardous nature has been reduced/handling has been facilitated/recovery has been enhanced. (Delete as required)

Name: Signature:

DISTRIBUTION:	WHITE-HOLDER	YELLOW-OFFICE	BLUE-FACILITY OPERATOR

THIS DOCUMENT MUST BE RETAINED UNTIL 2 YEARS AFTER LAST TRANSFER DATE SHOWN IN SECTION D :

Matthew Holroyd

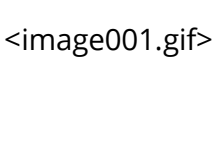
From: Park, Ian (MS) <Ian.Park@morgansindall.com>
Sent: 15 August 2023 13:44
To: Matthew Holroyd
Cc: Allan, Mark (MS); Rob Allen
Subject: Re: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Hi Matthew,

We confirm no further was found

Regards
Ian Park (BSc Hons)
07814 992955

> On 15 Aug 2023, at 13:38, Matthew Holroyd <Matthew.Holroyd@curtins.com> wrote:
>
> Hi Mark,
>
> Please can you confirm that no further contamination was identified, beyond the asbestos containing soils described in the reports you have issued?
>
> Kind regards,
>
> **Matthew Holroyd**
> Senior Geo-Environmental Engineer
> Tel: 0161 236 2394
> matthew.holroyd@curtins.com
> **curtins.com**
>
> ---
>
> **From:** Allan, Mark (MS) <Mark.Allan@morgansindall.com>
> **Sent:** Saturday, August 12, 2023 12:43 PM
> **To:** Matthew Holroyd <Matthew.Holroyd@curtins.com>
> **Cc:** Rob Allen <Rob.Allen@curtins.com>; Park, Ian (MS) <Ian.Park@morgansindall.com>
> **Subject:** RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report
>
> Hi Matt,
>
> The asbestos removed from the beneath the basement of the Limbert building (MSCP) was removed as noted in the attached Tier Asbestos management plan.
>
> Following completion of the works and satisfied works had been completed in accordance with their asbestos management plan they issued a removal verification report attached.
>
> Regards,
>
> **Mark Allan**
> Senior Site Engineer
> North West / Morgan Sindall Construction
> **M** 07890591831
> **Connect with me on LinkedIn**



Morgan Sindall Construction
6th Floor, Anchorage 2, Manchester
M50 3YW
T 0161 874 1000
Stay in touch: LinkedIn / Instagram / TikTok / Twitter / YouTube

Please consider the environment before printing this email

From: Matthew Holroyd <Matthew.Holroyd@curtins.com>
Sent: 10 August 2023 11:11
To: Allan, Mark (MS) <Mark.Allan@morgansindall.com>
Cc: Rob Allen <Rob.Allen@curtins.com>; Park, Ian (MS) <Ian.Park@morgansindall.com>
Subject: RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Hi Mark,

A letter for each site would be ideal, however if urgent an email for each should suffice, along with the requested documents.

Kind regards,

Matthew Holroyd
Senior Geo-Environmental Engineer

Tel: 0161 236 2394
matthew.holroyd@curtins.com
curtins.com

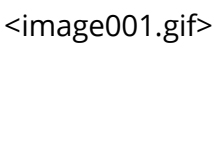
From: Allan, Mark (MS) <Mark.Allan@morgansindall.com>
Sent: Wednesday, August 9, 2023 5:18 PM
To: Matthew Holroyd <Matthew.Holroyd@curtins.com>
Cc: Rob Allen <Rob.Allen@curtins.com>; Park, Ian (MS) <Ian.Park@morgansindall.com>
Subject: RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

HI Matthew,

Do you want an official letter or will a statement on email surfice?.

Regards,

Mark Allan
Senior Site Engineer
North West / Morgan Sindall Construction
M 07890591831
Connect with me on LinkedIn



Morgan Sindall Construction
6th Floor, Anchorage 2, Manchester
M50 3YW
T 0161 874 1000
Stay in touch: LinkedIn / Instagram / TikTok / Twitter / YouTube

Please consider the environment before printing this email

From: Matthew Holroyd <Matthew.Holroyd@curtins.com>
Sent: 09 August 2023 15:09

To: Allan, Mark (MS) <Mark.Allan@morgansindall.com>
Cc: Rob Allen <Rob.Allen@curtins.com>
Subject: RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Apologies Mark,

Please can you also provide the Waste Transfer Notes for the 37,700 T of materials removed by Maher for the reduced level dig?

Thanks,

Matthew Holroyd
Senior Geo-Environmental Engineer

Tel: 0161 236 2394
matthew.holroyd@curtins.com
curtins.com

From: Matthew Holroyd
Sent: Wednesday, August 9, 2023 2:19 PM
To: Mark.Allan@morgansindall.com
Cc: Rob Allen <Rob.Allen@curtins.com>
Subject: RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

HI Mark,

Further to Rob's previous e-mails, please can you provide a letter confirming that no unexpected contamination was identified during the works for TCP01.

I note that a couple of loads of asbestos were removed from the beneath the basement of the Limbert building (MSCP), and AIB removed during reduced level digs for TCP05. Please can you provide any location plans, photo records, asbestos management measures etc. which confirm this material was fully removed, and include this in your letter?

Kind regards,

Matthew Holroyd
Senior Geo-Environmental Engineer

Tel: 0161 236 2394
matthew.holroyd@curtins.com
curtins.com

From: Matthew Holroyd
Sent: Friday, August 4, 2023 11:00 AM
To: Rebecca Steven <Rebecca.Steven@curtins.com>
Cc: Rob Allen <Rob.Allen@curtins.com>
Subject: FW: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Matthew Holroyd
Senior Geo-Environmental Engineer

Tel: 0161 236 2394
matthew.holroyd@curtins.com
curtins.com

From: Rob Allen <Rob.Allen@curtins.com>
Sent: Thursday, August 3, 2023 12:04 PM
To: Matthew Holroyd <Matthew.Holroyd@curtins.com>

Cc: Jonathan Lord <Jonathan.Lord@curtins.com>; Niall Farnworth <Niall.Farnworth@curtins.com>
Subject: FW: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Hi Matt,

See below information for the completion reports for the MSCP and temporary car parks which Dan can look to complete the verification reports.

Regards

Rob

Rob Allen (He/him)
Associate

Tel: 0161 236 2394
rob.allen@curtins.com
curtins.com

From: Allan, Mark (MS) <Mark.Allan@morgansindall.com>
Sent: Thursday, August 3, 2023 11:42 AM
To: Hodder, James (MSC) <James.Hodder@morgansindall.com>; Rob Allen <Rob.Allen@curtins.com>; Gaskell, Jon (MS) <Jon.Gaskell@morgansindall.com>; David Sandbrook <David.Sandbrook@curtins.com>; Niall Farnworth <Niall.Farnworth@curtins.com>; Park, Ian (MS) <Ian.Park@morgansindall.com>
Cc: Spencer, Tim (MSC) <Tim.Spencer@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>
Subject: RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Hi Rob,

Please find attached information as follows;

TCP01 –

1. Material removed by PP O'Connor – (see attached waste transfer note No: 005973) 1500 tonnes

MSCP –

1. As part of the initial site clearance Japanese knot weed was removed by Beechwood.
    1. Waste transfer note: PPOC 005471. 20 Tonnes
    2. Waste transfer note: Salford Grabs – Waste transfer to follow today.

2. Demolition material of Limbert House removed by PP O'Connor -
    1. Waste transfer note: PPOC 005472 500 Tonnes
    2. Waste transfer note: PPOC 005473 400 Tonnes

1. Asbestos located under Limbert basement was removed off site by PPOC.
    3. Waste transfer notes: PPOC Asbestos removal 40 Tonnes

3. Material removed by Maher's as part of the reduced level dig.
    1. See attached Waste transfer notes Ref: Maher MSCP waste transfer notes approx. 37,700 Tonnes

TCP05 –

1. All material excavated used as fill for the MSCP landscaping.
2. During reduce level works a small piece of AIB was found. (see attached TCP05 Bulk certificate – B-41251).
3. The soil was tested and no further asbestos was detected. (see attached Soil Analysis Report – S32162).
4. The confirmed sample (AIB) was removed by LAR (See attached waste consignment note: LARLTD-02466 Waste Note 230503)

Please do not hesitate to contact me if you require any further information?.

Regards,

Mark Allan
Senior Site Engineer
North West / Morgan Sindall Construction
M 07890591831
Connect with me on LinkedIn

<image001.gif>
Morgan Sindall Construction
6th Floor, Anchorage 2, Manchester
M50 3YW
T 0161 874 1000
Stay in touch: LinkedIn / Instagram / TikTok / Twitter / YouTube

Please consider the environment before printing this email

From: Hodder, James (MSC) <James.Hodder@morgansindall.com>
Sent: 07 July 2023 09:51
To: Rob Allen <Rob.Allen@curtins.com>; Gaskell, Jon (MS) <Jon.Gaskell@morgansindall.com>; David Sandbrook <David.Sandbrook@curtins.com>; Niall Farnworth <Niall.Farnworth@curtins.com>; Park, Ian (MS) <Ian.Park@morgansindall.com>; Allan, Mark (MS) <Mark.Allan@morgansindall.com>
Cc: Spencer, Tim (MSC) <Tim.Spencer@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>; North Manchester General Hospital <13.nmgh@morgansindall.com>
Subject: RE: 13Z001-NMGH: SI Report MSCP - Condition 14b Ground Contamination Verification Report

Hi Rob,

This will be treated as a variation to your original appointment.

@Allan, Mark (MS) – can you please provide the information to Rob as requested below.

Regards,

James Hodder
Senior Quantity Surveyor
North West / Morgan Sindall Construction
M 07974 605 659

<image001.gif>
Morgan Sindall Construction
6th Floor, Anchorage 2, Manchester
M50 3YW
T 0161 874 1000
Stay in touch: LinkedIn / Instagram / TikTok / Twitter / YouTube

ASBESTOS MANAGEMENT PLAN – MSCP, NORTH MANCHESTER GENERAL HOSPITAL

ISSUE 1.0

TE1650-TE-00-XX-AMP-GE-001-V02

16 MAY 2022

FINAL

Prepared for:

Morgan Sindall Construction & Infrastructure Ltd

Prepared by: Sean Lee

Tier Environmental Ltd

Chadwick House,
Birchwood Park, Warrington, WA3 6AE

DOCUMENT CONTROL

Project No. :	TE1650-TE-00-XX-AMP-GE-001-V02
Report Status:	FINAL
Issue No.:	1.0
Project Engineer:	Sean Lee
Date of Issue:	16/05/2022
Signature:	

This report has been prepared by Tier with all reasonable skill, care and diligence, within the best practice and guidance current at the time of issue within the scope of works which have been agreed with the client. This report is confidential to the client and Tier accepts no responsibility whatsoever to third parties to whom this report, or any part thereof is made presented, unless this is formally agreed in writing by a Director of Tier Environmental Ltd before any reliance is made. Any such party relies upon the report at their own risk. Tier disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Issue No.	Description of Issue / Revision	Date of Issue	Reviewed By	Author
1.0	Final	17/03/2022	Adrian Read	Sean Lee
2.0	Minor revisions	16/05/2022	Adrian Read	Sean Lee

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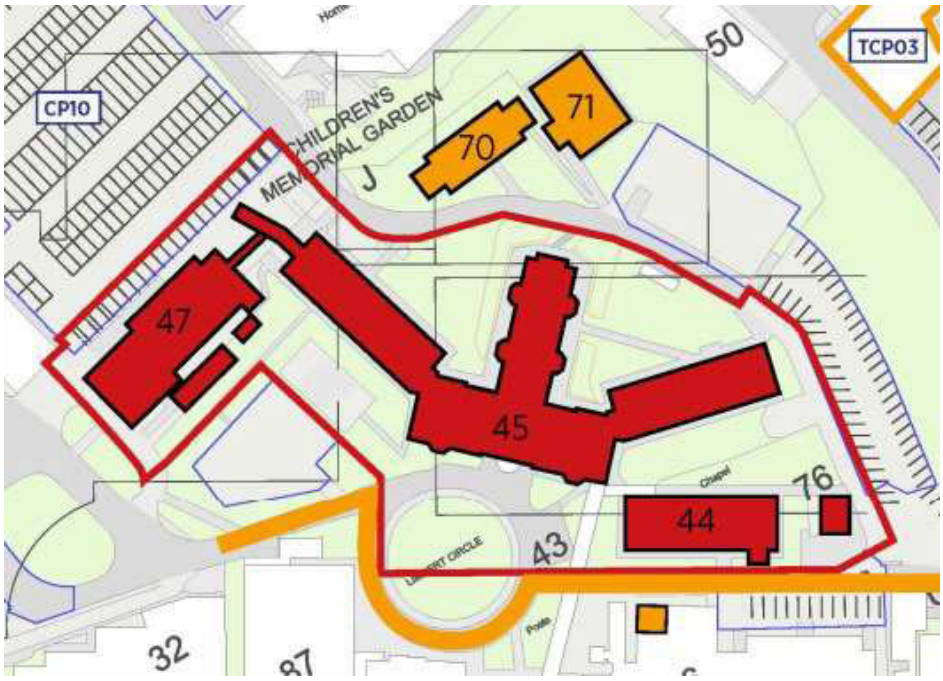
1. INTRODUCTION

Tier Environmental has been commissioned by Morgan Sindall Construction and Infrastructure Ltd to produce an Asbestos Management Plan for an area of land for a proposed multi-storey car park (MSCP) at North Manchester General Hospital, Crumpsall, M8 5RB (the 'Site").

It is understood that the current development proposals include the demolition of the following buildings (see plan below from the Curtins Demolition Specification) and construction of a multi-storey car park:

- Building 44 (Security/Consultants Offices);
- Building 45 (Limbert House);
- Building 47 (Infectious Diseases Offices); and,
- Building 76 (HV Sub 5).

Figure 1.1: Plan of buildings to be demolished (reproduced from the Demolition Specification)



Minor regrading works will be required to provide a suitable development platform, including the infilling of the basement to Limbert House (FFL of existing basement understood to be approx. 70.30m AOD). It is understood that the FFL for the proposed MSCP will be 72.34m AOD.

This report aims to determine the current status of the site with respect to CARsoil and to determine what the site status should be (e.g. Licensed Works (LW), Notifiable Non-Licensed Works, (NNLW) or Non-Licensed Works (NLW)) and to determine the necessary protection measures to be employed to ensure the health and safety of future and/or end users.

The report aims are summarised as follows:

- A review of the previous site investigation findings with respect to risks associated with asbestos in the ground; and,
- Prepare an Asbestos Management Plan which will include a preliminary risk assessment based on the Joint Industry Working Groups Decision Tool to assess the licensable status of the site and what measures can be employed to mitigate the existing and anticipated risks associated with asbestos in the ground to existing and end users.

The preparation of this report was compiled referring to the following regulatory documentation:

- CAR-SOIL. Control of Asbestos Regulations 2012, Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials;
- Managing and Working with Asbestos Control of Asbestos Regulations 2012;
- Asbestos: The analysts' guide for sampling, analysis and clearance procedure 2005;
- Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3 2018; and,
- Decision Support Tool for the Categorisation of Work Activities Involving Asbestos in Soil and Construction & Demolition Materials in accordance with the Control of Asbestos Regulations 2012: v2.1 March 2017.

It has been assumed in the production of this report that the Site is to be redeveloped as a multi-storey car park (MSCP). In addition, it is assumed that the majority of ground levels will not change significantly (with the exception of infilling the basement to Limbert House) from those described in this report. If this is not the case, then amendments to the recommendations made in this report may be required.

The comments and opinions presented in this report are based on the findings of the ground conditions encountered during intrusive investigation works performed by third parties and the results of tests carried out within one or more laboratories. There may be other conditions prevailing on the Site which have not been revealed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for any conditions not revealed by these investigations. Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of intermediate ground conditions should be undertaken if deemed necessary.

This report has been prepared for the sole use of Morgan Sindall Construction and Infrastructure Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of Tier Environmental. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.

2. SITE DETAILS AND DESCRIPTION

Table 2.1. Current Site Overview.

Site name	Proposed multi-storey car park (MSCP) North Manchester General Hospital
Site address	Limbert House, Limbert Circle (off Crumpsall Way) North Manchester General Hospital, Crumpsall, M8 5RB
National Grid Reference	385049, 402427
Location description	The Site is located in the north-eastern area of North Manchester General Hospital, Crumpsall, Manchester Salford, approximately 5km NNE of Manchester city centre. The immediate surrounds are that of the wider grounds of North Manchester General Hospital, with commercial properties to the north and east and residential areas to the south and west.
Site shape	The site is irregular but elongate in shape and surrounded by hospital buildings, car parks and open space.
General topography	The site comprises an area of land lying at around 72m AOD in the northwest to 73.9m AOD in the southeast.
Site ground surfaces and general description	The external areas of the site are largely laid to grass with hardstanding footpaths/access roads.
Existing Structures	The Site is currently occupied by 4 No. buildings that are to be demolished: • Building 44 (Security/Consultants Offices); • Building 45 (Limbert House); • Building 47 (Infectious Diseases Offices); and, • Building 76 (HV Sub 5). Building 45 is known as Limbert House and is multi-storey and the most prominent of the buildings to be demolished, comprising load bearing masonry and some local mild steel framing. This building contains an extensive basement. The basement floor level is believed to be approximately 70.30m AOD albeit this will need to be verified. It is understood that the basement comprises a central corridor beneath each wing with 'crawler spaces' off the central corridors.
Sub-surface structures	A series of known services, including drains and power supply, traverse the site. Additional unknown services are also anticipated.
Invasive plant species	None recorded in previous investigations; however, the identification of invasive species is a specialist task and, as such, the confirmation of the presence or absence of any invasive species across the Site should be confirmed by suitably qualified experts.

The main Site features are shown on an existing and proposed combined plan within Appendix A.

3. ASBESTOS HAZARD ASSESSMENT

3.1. Previous Ground Investigations

The following pertinent reports have been produced by third parties and the information therein has been used in the production of this AMP, with a summary presented in Table 3.1 below:

- Interim Letter Report for Multi-Storey Car Park, North Manchester General Hospital, produced by Curtins (Ref. 20200-CUR-MSCP-XX-RP-G-0002 P01 dated 18th June 2021);
- NMGH Phase 1C Demolition Specification produced by Curtins (Ref: NMGH-CUR-XX-XX-SP-S-26001, Revision: P01, Issue Date: 15th October 2020) – reproduced in Appendix A;
- Drawing No. 20200-CUR-MSCP-EX-DR-D-7501, Rev. P4 dated 21.12.2021 produced by Curtins – reproduced in Appendix A;
- Drawing No. 20200-CUR-MSCP-FN-DR-S-1601, Rev P3 dated 19.11.2021 produced by Curtins – reproduced in Appendix A;
- Basement Soil Sample Plan for Building 45 produced by Acorn Analytical Services – reproduced in Appendix A; and,
- IOM Certificate of Analysis for the Acorn Analytical Services basement soil samples for Limbert House - reproduced in Appendix A.

Opportunities for the re-use of the materials in line with the CL:AIRE Definition of Waste CoP have been identified as part of the development scheme as, under current proposals, significant quantities of materials would need to be excavated and removed from site and/or imported to site in order to achieve the required finished levels and provide a suitable development platform.

Table 3.1 Summary of Previous Investigations

Ground conditions	**Curtins** The previous Curtins ground investigations encountered the following: • Made Ground encountered to depths of between 0.5m (SA101) and 3m bgl (BH101). The Made Ground in the vicinity of Limbert House was encountered to levels of between 73.3m AOD (BH105) and 72.9m AOD. The majority of the Made Ground encountered during the Curtins ground investigation included fragments of demolition/building materials, such as brick, concrete, slate, tiles, etc; • Glaciofluvial and Till deposits comprising firm to very stiff clays and loose to very dense sands encountered to a maximum depth of 42.50m bgl (31.59m AOD) within BH105; and, • Bedrock of the Chester Formation comprising weak to medium strong sandstone encountered to a maximum depth of 50m AOD (BH105) – base not proven. **Acorn** It is understood that ground conditions were not recorded during the Acorn ground investigation (cores through the mortar/concrete blinding within the 'crawler spaces' within the basement of Limbert House and sampling of the underlying materials).

General Contamination	A total of 8 No. soil results obtained by Curtins were assessed against human health GACs for a commercial land use which was considered by Curtins to be the most appropriate scenario for the proposed development; no exceedances were identified.

3.2. Asbestos Identified

Curtins

No asbestos containing materials (ACMs) were identified during the Curtins ground investigation.

Asbestos was not identified within any of the 8 No. samples scheduled for asbestos screening during the Curtins investigation.

Acorn

ACMs were recorded within all four buildings during the Acorn Analytical Services asbestos surveys. These ACMs will be removed from the buildings prior to the commencement of the demolition works and are therefore outwith the scope of this Asbestos Management Plan.

A total of 22 No. soil samples (S01-S08 and S10-S23) that were obtained from beneath the mortar/concrete blinding within the 'crawler spaces' within the basement of Limbert House were submitted to IOM for asbestos analysis (result certificate presented in Appendix A). Asbestos was identified within the following 6 No. samples:

- S01 – 0.022% w/w chrysotile in sample from ACM (thermal insulation).
- S08 – 1.688% w/w amosite and chrysotile in sample from ACM (thermal insulation).
- S011 – 0.050% w/w chrysotile and crocidolite in sample from ACM (thermal insulation).
- S14 – 0.013% w/w chrysotile in sample from ACM (thermal insulation).
- S16 – 0.003% w/w chrysotile in sample from unbound fibres (free fibres).
- S21 – 0.020% w/w amosite, chrysotile and crocidolite in sample as unbound fibres (loose insulation).

It should be noted that the Acorn sample location plan (Appendix A) identifies 'thermal insulation' at location S09, adjacent to S08. A test result for sample S09 is not included on the IOM test certificate and it is understood that a fragment of ACM insulation was visually identified by Acorn during the site works.

Samples S01, S08, S09, and S11 were obtained from beneath or in the immediate vicinity of the piling works for the proposed MSCP.

Where concentrations are 0.001% w/w or below, they are considered trace and fall below the scope of current regulations. A total of 6 No. samples recorded concentrations between 0.003% w/w and 1.688% w/w, with only sample S08 (and S09 of thermal insulation) recording 'large quantities' (greater than 0.1% w/w in accordance with CAR-soil). There is therefore potential for ACMs and hazardous

fibre concentrations in soils to be present within the Made Ground and the base and sides of excavations, therefore the management of exposed surfaces should be considered in order to protect site workers.

It is also considered that ACMs could be adhered to the underside of the mortar/concrete blinding therefore the lifting of this will need to be undertaken in a controlled manner and appropriate mitigation measures. Consideration will also need to be given to the demolition of the superstructure to minimise the risk of damaging the blinding and possible fibre release.

3.3. Proposed Preparatory/Remediation Works

Current proposals for the earthworks phase are to undertake a site-wide strip of the site and removal of buried structures/relict foundations/basement floor which may obstruct piling in addition to any currently undisclosed buried obstructions. Given the thickness of Made Ground across the site (generally less than 1m), the intention is not for widespread removal of soils, rather minor regrading as required plus the infilling of the basement beneath Limbert House to provide the proposed development platform for a FFL of 72.34m AOD. Where excavations are deepened, appropriate temporary support/batter slopes to the limits of the excavation will be provided.

The proposed cut/fill model for the proposed development (Drawing No. 20200-CUR-MSCP-EX-DR-D-9550 Rev P02 dated 18th February 2021 presented in Appendix A) indicates that only 30m^3 of site won materials will be reused.

It is understood that 90% of the ground floor of the proposed MSCP will be asphalt on a stone build up. There will be an amenity block at one side which will have a suspended slab.

The basement to Limbert House is to be filled with site-won crushed brick from the demolition and grubbing up of foundations. The external areas of the proposed development will be filled with imported 6F5 (or similar) and topped with Limestone MOT. The pile mat will be 730mm thick.It is understood that the FFL of the basement beneath Limbert House is approximately 70.3m. As the base of the Made Ground in the vicinity of Limbert House was between 73.3m AOD and 72.9m AOD, it is assumed that the Made Ground and associated ACMs are unlikely to be thick (possibly less than 0.5m thick) beneath the basement floor slab. Trial pits should be excavated following the removal of the basement floor slab to confirm the thickness of the Made Ground.

It is recommended that the Made Ground materials in the vicinity of Acorn sample locations S08 and S09 are considered as 'hotspots' and removed and the base and sides of the excavation verified. This would result in the removal of 'hazardous soils' with regard to waste disposal classification due to asbestos contamination.

It is considered that ACMs are likely to be adhered to the underside of the mortar/concrete blinding, therefore it is considered prudent at this stage to assume that all blinding will require removal and off-site disposal as 'hazardous waste'.

Due to the likely presence of 'hotspots' of 'hazardous soils' within the shallow soils beneath the blinding, it is considered prudent at this stage to assume that the upper 200mm of these soils will also require removal and off-site disposal as 'hazardous waste'.

Trial pits will also be excavated into the underlying soils to determine whether Made Ground and ACMs/ACSs are still present that may also require either removal and off-site disposal or can be retained within the basement area (away from the proposed pile locations).

4. RISK ASSESSMENT

4.1. General

The current site setting with respect to asbestos is therefore for 'low quantities' of asbestos fibres within the Made Ground, with localised 'large quantities'. Based on the results it is not unreasonable to assume that localised ACMs, such as thermal insulation, may also be locally present beneath the basement floor slab/blinding.

The anticipated risks have been assessed in the context of the proposed development and the risk to construction workers during soil disturbance activities. The risks to end users have also been considered given that the full depth of Made Ground is not anticipated to be excavated and there is the likelihood that asbestos in soils will remain present on completion of the development.

The following risks have been considered:

- Fibre release from undisturbed conditions;
- Excavation to achieve reduced level;
- Excavation sides and base;
- Materials movements;
- Piling works; and,
- End user exposure.

Each risk is considered in more detail below.

4.2. Undisturbed Conditions

The majority of the site currently presents a low risk from asbestos given the depth of positive encounters of asbestos and low likelihood of significant disturbance whilst beneath the basement floor slab/blinding.

4.3. Reduced Level Excavations

Made Ground which will be disturbed during the development may contain 'low' up to 'large' quantities of asbestos. To determine the risks associated with the asbestos encountered, a risk assessment utilising the Joint Industry Working Groups Decision Tool has been used to identify the likely working conditions. This risk assessment applies to all samples where asbestos was encountered though assumes a worst case scenario of >0.1% w/w loose fibrous asbestos debris. Localised ACMs, such as thermal insulation, may also be locally present within the shallow soils beneath the basement floor slab/blinding. The JIWG Decision Tool outputs can be viewed in Appendix C.

4.4. Excavation Sides and Base

It is anticipated that any excavation surfaces to remain exposed for the duration of the development may contain asbestos. Inspections of these surfaces will be required to determine if any risks may be present associated with asbestos. Measures such as covering the excavation walls during the construction works would further reduce the risk of fibre release.

The base of excavations should be covered by a protective membrane before placement of the backfill within the basement and the piling mat. This will act as both a warning layer to inform future users of the presence of asbestos and prevent dusts being generated from surfaces comprised of Made Ground.

4.5. Mortar/Concrete Blinding

It is considered that ACMs could be adhered to the underside of the mortar/concrete blinding within the basement of Limbert House. The lifting of the blinding will therefore need to be undertaken in a controlled manner and appropriate mitigation measures undertaken (damping down, exclusion zones, etc).

Consideration will also need to be given to the demolition of the superstructure to minimise the risk of damaging the blinding and possible fibre release.

All rubble from the demolition of the superstructure should be carefully removed from the basement area prior to the breaking and lifting of the blinding to ensure the works can be undertaken in a safe controlled manner to minimise the risk of fibre release and cross contamination of the superstructure rubble.

At this stage it should be assumed that the blinding will not be suitable for crushing/reuse and will likely require removal as possible 'hazardous waste' (subject to site inspection and confirmatory testing).

4.6. Materials Movements

It is anticipated that any materials to be moved may have the potential to release asbestos fibres. Wagons with retractable covers should be employed to transport the materials.

Minimising drop heights from excavator buckets and/or screeners and dust suppression measures using water should be used before and during such movements.

4.7. Piling Works

Piling works often generate dust as the piles are installed into the ground, including the handling of pile arisings. It is anticipated that during the installation of the piles, there is the potential for Made Ground deposits containing ACMs to be disturbed, sufficiently enough to potentially release airborne fibres in dusts impacting workers.

The preferred mitigation measure would be to remove all the asbestos containing Made Ground and ACMs from the proposed pile locations when the basement floor slab and foundations are removed during the site preparatory works. This would ensure that asbestos would not be present within the pile arisings and also reduce the risk of asbestos becoming incorporated into the arisings from the grubbing up of the existing foundations.

Other mitigation measures such as dust suppression techniques should be employed during the piling works along with asbestos air monitoring conducted by an asbestos specialist to control dust release potentially harbouring asbestos fibres and monitor fibre release within the air during such works to confirm that the workforce is not being exposed to asbestos fibres from dusts generated during the piling activity. The introduction of a membrane beneath a piling mat will also aid dust suppression.

4.8. End User Exposure

It is understood that the current development proposals include the removal of existing site features and construction of a multi-storey car park. It is understood that areas of proposed soft landscaping will be minimal therefore, the risks from asbestos to end users is likely to be mitigated by the presence of hardstanding and floor slab that will effectively form a physical barrier (from dust inhalation) between the end-users and any residual asbestos impacted soil.

As asbestos was only identified beneath the basement floor slab of Limbert House and the basement will be backfilled during the preparatory work, it is considered that the risk to end users will be minimal / tolerable.

Asbestos was not identified in the general Made Ground during the Curtins ground investigation. If, however, any asbestos containing soils are encountered during the site preparatory or construction works, Tier Environmental should be informed immediately. There may also be a planning condition associated with 'unexpected contamination' and the Local Planning Authority may also need to be informed.

If asbestos containing soils are to be retained/reused within the site (and are located within soft landscaped areas), a minimum 300mm deep clean cover system (150mm Topsoil layer underlain by 150mm subsoil and a hi-visibility Terram (or similar) geotextile membrane) should be installed within any proposed areas of soft landscaping; these mitigation measures are subject to approval from the Contaminated Land Officer.

The details of the clean cover system (if installed) and the Made Ground soils will be included within the Health and Safety File for the development so that future maintenance workers can be made aware of the potential for asbestos impacted soils. Should there be a need for the ground below the hi-visibility membrane to be disturbed in future, such works would be subject to a risk assessment specific to the proposed activities and the appropriate measures employed to protect workers.

5. SITE WORKS PROTOCOL

5.1. Summary of Site Works

The review of the investigation data has identified localised 'low' quantities of asbestos (>0.01% to <0.05% w/w), potentially 'moderate' quantities (0.05% w/w) within the Made Ground soils beneath the basement floor slab of Limbert House, with localised large quantities (>0.1% w/w) of asbestos fibres locally present (1.688% w/w within sample S08). 'Thermal insulation' was potentially identified at location S09, adjacent to S08.

The risk assessment has identified that any works to disturb the majority of the Made Ground within the site would be regarded as Non-Licensed Works with asbestos and that certain mitigation measures would be required to ensure the protection of the workforce.

The types of work that may be undertaken involving asbestos impacted soils are:

- The lifting and removal of the mortar/concrete blinding within the basement;
- Excavation and movement of Made Ground soils during the regrading works;
- Excavation/disturbance of soils during the removal of relict shallow foundations/obstructions;
- Localised hand picking to remove visible ACMs (where encountered);
- Installation of foundations (including piling), drainage and other below ground infrastructure/services; and,
- Vehicular movement over exposed Made Ground.

The above works shall be undertaken by the Contractor or where applicable, by a suitably licensed subcontractor. Before the works commence, the following activities should be undertaken:

- Induction of all personnel including details of the asbestos management plan;
- Establish a means to record wind direction;
- Prepare and implement a traffic management plan; and,
- Site specific method statements will be produced for each operation being undertaken on the site and must be agreed by all parties involved with any activities that will disturb the blinding and Made Ground soils.

5.2. Controls, Monitoring and Reporting

All operations involving the disturbance of Made Ground soils will be regularly damped down with water to control the generation of dust to suppress airborne fibre release. If excavation surfaces are intended to be left open for any period of time, then consideration should be made to covering these surfaces temporarily to prevent dust generation potentially impacting on the workforce.

Should gross contamination be realised during ground disturbance works, the method of mitigating dust emissions that may contain asbestos fibres may be required (e.g. use of a PVA based solution).

5.3. General Control of Dust

Control measures should be used to ensure that dust levels are kept to a minimum at all times. Where possible, vehicle transit routes and work areas will be damped down. This operation shall utilise an appropriate method which will dampen down soil surfaces effectively. (e.g. a mobile water bowser with a dispersion spray attachment).

5.4. Handpicking of ACMs

Asbestos is usually encountered in two forms:

- Asbestos as loose or clumps of fibres usually not visible to the naked eye
- Cement bonded materials visible to the naked eye (e.g. roof tile fragments)

Isolated occurrences of bulk ACMs (thermal insulation) were recorded beneath the basement blinding/floor slabs and there is a risk that further asbestos contamination may be encountered.

The risk assessment has identified that the majority of the works are likely to be Non-Licensed works. However, any encounters with gross contamination, such as fragments of insulation/non-bonded asbestos, may require further investigation, sampling and interpretation to determine the anticipated working conditions with respect to CARsoil.

If any additional ACMs are identified during ground disturbance works (following the removal of any ACMs previously identified at location S09) and they prove to be isolated occurrences, then removing the asbestos, placing into appropriate bags and appropriate disposal would be an acceptable course of action. The person removing the asbestos would be required to have the appropriate license, risk assessments and method statements.

5.5. Excavation of Blinding and Made Ground

It will be necessary to develop and document all proposed working methodologies to be adopted by all people involved with the proposed handling of Made Ground soils which may contain asbestos at low to high quantities. The standard procedures should contain the following minimum activities:

- Tool box talks on procedures for excavations and handling ACMs making all workers aware of the risks.
- Any movements of Made Ground must be preceded by dampening down. Materials should be loaded directly into vehicles (utilising minimum drop heights) dedicated to moving material potentially containing asbestos.
- Full time operative for dampening down soils during excavations.
- Weather conditions should be assessed continuously by the Site Manager to determine the potential for airborne dust to impact receptors (e.g. workforce, adjacent properties).

- Exposed surface should be inspected and photographed to determine the presence of any visible ACMs.

5.6. Personal Protective Equipment (PPE)

Site operatives, such as surveyors, labourers, etc, should not be permitted to enter the immediate vicinity where potential asbestos impacted soils are being disturbed. In general accordance with the HSE Guidance Note EM6 (non-licensed asbestos works) if these site operatives are required to enter excavations where potential asbestos impacted soils are being disturbed, they should be supplied with the following PPE and guidance:

- Disposable overalls - Type 5 (BS EN ISO 13982-1).
- Disposable respirator to standards EN149 (Type FFP3) or EN1827 (Type FMP3).
- Half mask respirator to standard EN140 with P3 filter.
- Single use protective gloves.
- Semi-disposable respirator (to EN405) with P3 filter (only if visible ACMs are exposed).

It is considered that the need for a decontamination unit will not be necessary at this stage. Should gross contamination/insulation/non-bonded asbestos be encountered, works in that localised area should cease and an assessment undertaken in consultation with a suitably licenced contractor to determine whether a decontamination unit should be mobilised.

6. ASBESTOS AIR MONITORING

It is not anticipated that gross contamination that could potentially give rise to significant airborne fibres will be present. However, reassurance monitoring can be used to monitor effectiveness of site management practices and to indicate any potential issues.

6.1. Legislative Requirement

Asbestos monitoring works should be conducted in accordance with, but not limited to, the following HSE legislation and guidance:

- Health & Safety at Work Act 1974.
- The Control of Asbestos Regulation 2012.
- Approved Code of Practice L143 'Work with materials containing asbestos'.
- Management of Health and Safety at Work Regulations 1999.
- HSE Guidance Note HSG 248 'Asbestos, the analysts guide to sampling and analysis'.
- HSE Guidance Note HSG 247 'Asbestos, the licensed contractors guide'.

6.2. Air Monitoring Procedures

Air monitoring for asbestos fibres shall be undertaken as follows:

- Working Area Monitoring.
- Personal Monitoring of selected personnel.

Working Area Monitoring

Operations involving the disturbance of potential asbestos impacted materials that are likely to give rise to airborne dust will be subject to occasional air monitoring using static pumps. Monitoring will be undertaken within the immediate vicinity and downwind of the works (e.g. adjacent to excavations).

The frequency of the working area monitoring will be daily (based on a two week programme). If increased quantities of airborne fibres are identified, then the operations will cease immediately and the working procedure amended.

Personal Monitoring

Personnel involved in operations during the disturbance of the blinding, ACMs, ACSs and Made Ground Soils (e.g. excavations, vehicle movements etc) will be subject to personal monitoring. Personal monitoring pumps will be worn by selected workers or machine operators. If wearing a personal monitor is impractical, a static location close to the operations being monitored will be acceptable.

The frequency of the personal monitoring will be daily. If increased quantities of airborne fibres are identified, then the operations will cease immediately and the working procedure amended.

7. RECORD KEEPING AND VERIFICATION

7.1. Record Keeping

During the course of any ground disturbance works, the site manager will ensure the following records are kept:

- Detailed site diary including weather conditions and wind direction.
- A sampling register, testing results, photographs, details of locations where ACMS have been identified, consignment notes relating to any ACMs discovered during excavation works and certificates of any air monitoring undertaken.

7.2. Verification

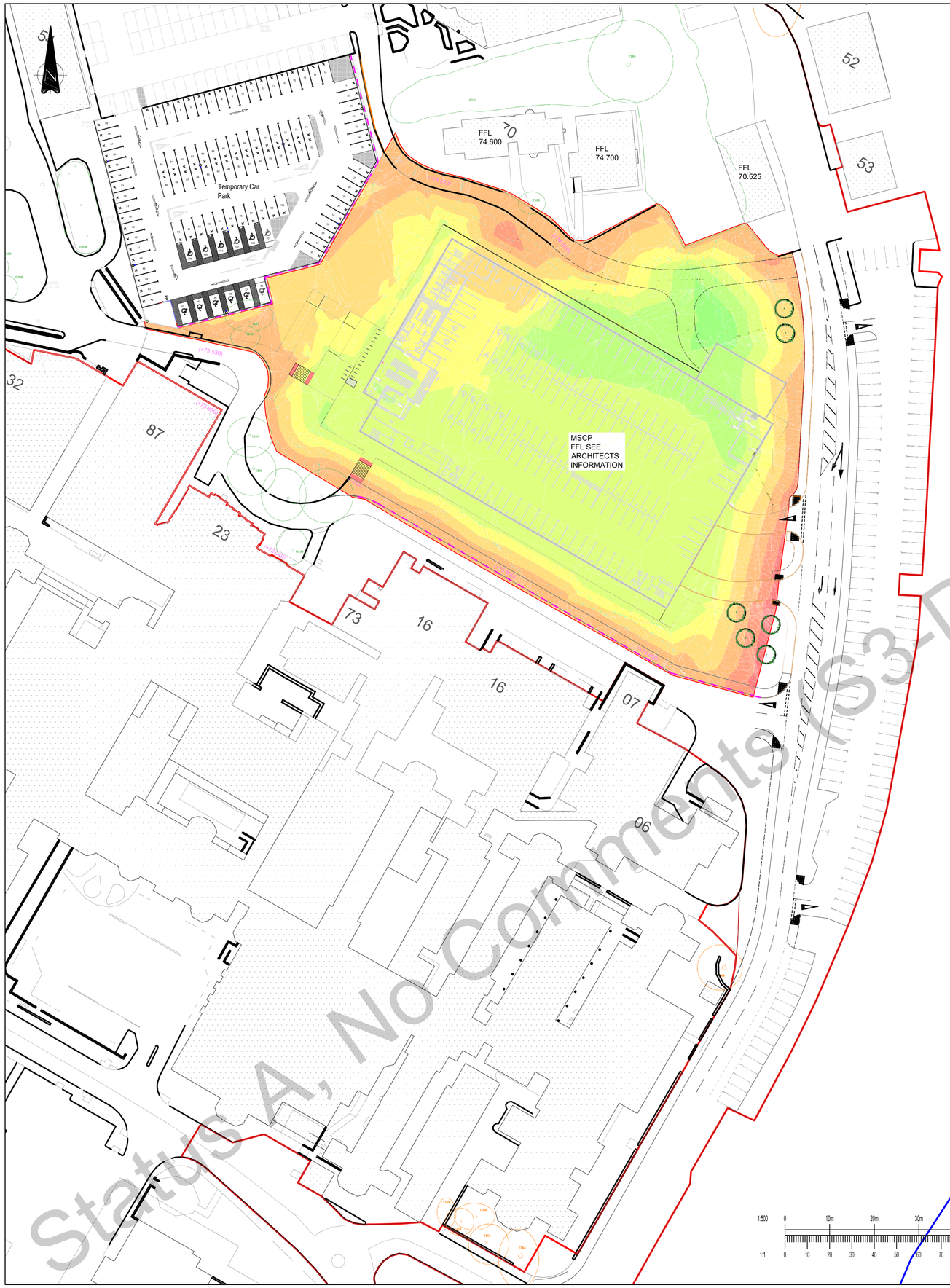
Upon completion of all works involving the disturbance of the blinding, ACMs, ACSs and Made Ground Soils, a Completion Report, which will include all the asbestos monitoring results, any analysis carried out and description of any amendments to method statements that were necessary to ensure no fibres were released, will be prepared by Tier to confirm that the site works were carried out in accordance with CARsoil.

It is prudent to ensure that a long-term management strategy is implemented on any of the areas where asbestos impacted soils are retained and/or re-used. This shall include a record of the location of where such material is emplaced so that that there are adequate provisions to ensure that such information is carried forward within deeds, via an asbestos management plan/register, or included as part of the development's health and safety file.

In addition to the above, long-term risks such as asset value, developer liability, community concern and potential changes in legislative and regulatory guidance should be considered and communicated to the Client.



APPENDIX A – FIGURES AND DRAWINGS



Status A, No Comments (S3-DO NOT CONSTRUCT TO)

A1

SURFACE LEVEL DATA

NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-2.78	-2.29	
2	-2.29	-1.80	
3	-1.80	-1.30	
4	-1.30	-0.81	
5	-0.81	-0.32	
6	-0.32	0.17	
7	0.17	0.66	
8	0.66	1.16	

CUT & FILL SUMMARY			
2D AREA	CUT	FILL	BALANCE
9939.17 sq.m	10874 Cu. m.	130 Cu. m.	10744 Cu. m. (CUT)

CUT & FILL ANALYSIS

1. ALL AMBIGUITIES, ERRORS OR OMISSIONS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.
2. NO ALLOWANCE HAS BEEN MADE FOR
   - ARISINGS FROM DRAINAGE EXCAVATIONS
   - SERVICES
   - TREE PITS ETC.
   - LIGHTING COLUMNS
5. THE CUT/FILL VOLUMES HAVE BEEN CALCULATED USING A COMPARISON BETWEEN THE EXISTING SITE LEVELS AND THE PROPOSED **FINISH** LEVELS.
6. EXTENTS OF EARTHWORKS SHOWN TO TIE-IN TO EXISTING LEVELS.
7. THE TOPO HAS BEEN ASSUMED TO BE REPRESENTATIVE OF THE SITE UPON WORKS COMMENCEMENT OF EARTHWORKS OPERATIONS. CURTINS ACCEPT NO LIABILITY FOR VARIATION FROM THE PROVIDED TOPOGRAPHICAL SURVEY.
8. NO BULKING FACTORS HAVE BEEN APPLIED.
9. BULK EARTHWORKS DRAWING IS TO BE USED FOR COST PLAN USE ONLY. FURTHER DEVELOPMENT BY THE BULK EARTHWORKS CONTRACTOR IS REQUIRED.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION UNUSUAL SIGNIFICANT HAZARDS

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION
1. CONTRACTOR TO ENSURE SITE IS SCANNED FOR EXISTING SERVICES THAT MAY BE ON SITE.
2. CONTRACTOR TO ASSESS FOR GROUND CONTAMINATION.
3.CONTRACTOR TO ENSURE SUITABLE MEASURES ARE TAKEN DURING ANY EXCAVATIONS/TEMPORARY WORKS.
4. A SUITABLE TRAFFIC MANAGEMENT PLAN SHOULD BE IN PLACE FOR DURATION OF WORKS.
NOTE: CURTIN'S ARE NOT LIABLE FOR ANY OF THE ABOVE.

MAINTENANCE / CLEANING
1.WHERE PROPRIETARY PRODUCTS ARE SPECIFIED, THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS SHOULD BE FOLLOWED.
2.THE RECOMMENDED INSPECTIONS OF OPERATIONS AND FREQUENCIES ARE TYPICAL ONLY AND SHOULD BE MORE FREQUENT INITIALLY TO ENSURE THAT THERE ARE NO UNFORESEEN ISSUES WITH THE OPERATION AND THEN ADJUSTED TO SUIT THE SITE REQUIREMENTS.

DECOMMISSIONING / DEMOLITION
1. N/A
2.
3.

Notes:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.
5. BASE LANDSCAPE DRAWING USED FOR LEVEL STRATEGY: 20200-GIL-INZ-EX-DR-L-0103 - P04, UPLOADED TO 4P ON THE 15TH DECEMBER, 2021

KEY

PROPOSED WORKS BOUNDARY

REV.	DESCRIPTION	DATE	DRW.	CHK.
P02	MSCP CUT AND FILL	18.02..21	DE	HS
P01	MSCP CUT AND FILL	11.11.21	DE	HS

NHS Manchester University NHS Foundation Trust

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com

PROJECT
MSCP

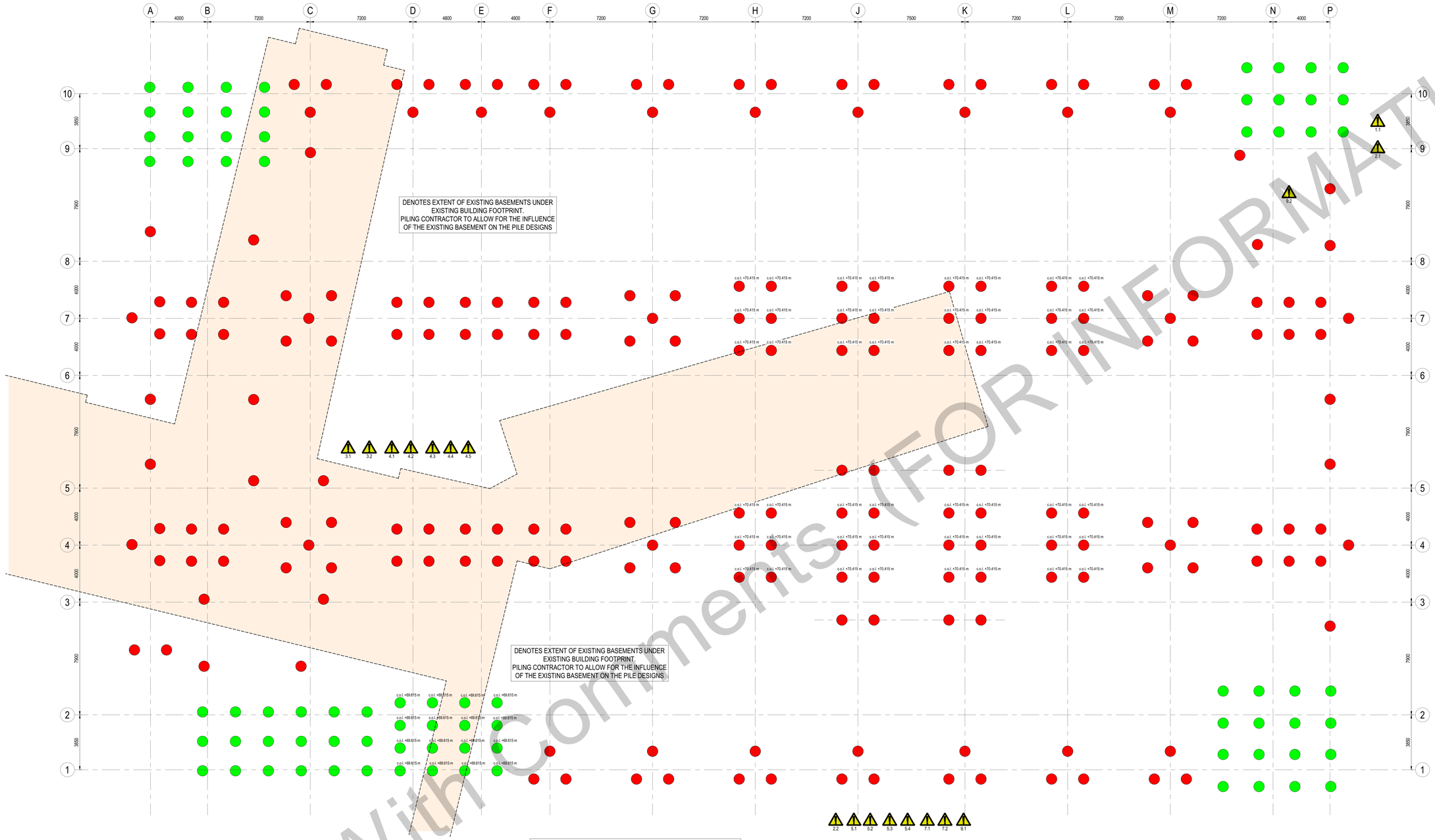
TITLE
PROPOSED CUT & FILL

STATUS	PURPOSE OF ISSUE
S3	FOR REVIEW/COMMENT

DRAWN BY	CHECKED BY	DATE
DE	HS	11/11/21

SCALE (@A1)	PROJECT NUMBER
1:500	077416

FILE DRAWING NUMBER	REV.
20200-CUR-MSCP-EX-DR-D-9550	P02



DENOTES EXTENT OF EXISTING BASEMENTS UNDER EXISTING BUILDING FOOTPRINT.
PILING CONTRACTOR TO ALLOW FOR THE INFLUENCE OF THE EXISTING BASEMENT ON THE PILE DESIGNS

ALL PILE CIUT OFF LEVELS TO BE +70.615 m UNLESS NOTED OTHERWISE

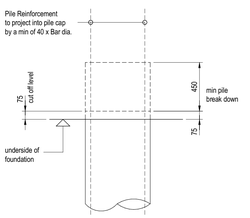
PILE SCHEDULE										
PILE REF	VERTICAL LOADING					HORIZONTAL LOADING				
	MAX DEAD Gk max (kN)	IMPOSED Qk max (kN)	WIND Wk max (kN)	EHF DEAD EHF Gk (kN)	EHF IMPOSED EHF Qk (kN)	DEAD Gk (kN)	IMPOSED Qk (kN)	WIND Wk (kN)	EHF DEAD EHF Gk (kN)	EHF IMPOSED EHF Qk (kN)
	1000	300	-50 / +50	-20 / +20	-10 / +10	20	75	50	20	20
	850	225	-200 / +200	-100 / +100	-30 / +30	50	50	100	45	20
ALL STABILITY PILES TO BE DESIGNED FOR AN ULTIMATE TENSION CAPACITY OF 250kN IN ADDITION TO THE LOADS PROVIDED IN THE PILE SCHEDULE										

PILES TO BE DESIGNED IN LINE WITH EC7 WITH EXPLICIT VERIFICATION, TEST VERIFICATION TO BE IN LINE WITH CURTINS PILING SPECIFICATION AND EC7

CONTRACTOR TO MAKE ALLOWANCE FOR THE DESIGN OF THE PILING MAT TO SPECIALIST SUB-CONTRACTORS DESIGN AS OUTSIDE CURTINS SCOPE & DESIGN RESPOSIBLITY

PILES DENOTED THUS ARE TO BE 750mm DIAMETER PILING TO BE TO SPECIALIST PILING CONTRACTOR DESIGN AND DETAILS

PILING SUB-CONTRACTOR TO TAKE NOTE OF CUT AND FILL WORKS TO BE UNDERTAKEN AND TO LIASE WITH MAIN CONTRACTOR TO ENSURE ANY CUT AND FILL OR LEVEL CHANGES ON SITE ARE INCORPOURATED INTO THE PILING DESIGN



TYPICAL PILE CUT OFF DETAIL

*RESIDUAL HAZARD REGISTER (RELATES TO CIVIL/STRUCTURAL MATTERS ONLY)
MUST BE READ IN CONJUNCTION WITH CURTINS RESIDUAL HAZARD REGISTER XXXXX-CUR-ZZ-XX-HA/X-10001.
HAZARDS THAT SHOULD BE OBVIOUS TO A COMPETENT CONTRACTOR HAVE NOT BEEN INDICATED ON THIS DRAWING. SHOULD ANY ADDITIONAL HAZARDS BE IDENTIFIED, THE CONTRACTOR SHOULD NOTIFY ALL RELEVANT PROJECT TEAM MEMBERS.*

HAZARD REGISTER

HAZARD REF:	ITEM (FEATURE, ELEMENT OR ACTIVITY)	POTENTIAL HAZARD IDENTIFIED	ACTION
1.0 ENABLING / HIGHWAYS WORKS			
1.1	Works adjacent to highways	Collapse of substructure basement walls adjacent to highway during demolition works.	Demo contractor to ensure method of demolition and foundation removal doesn't jeopardise highway stability.
2.0 SITE WIDE ISSUES			
2.1	Proximity to pedestrian routes	Risk to public from construction activities in close proximity to the live existing hospital building.	Contractor to have in place appropriate site logistics plan in place
2.2	Buried services	Potential unknown buried services. Health and safety of operatives during excavation works, electrocution, gas explosion, damage to services during works.	CCTV survey to locate buried drainage infrastructure. Utilities sub-scan for electric, gas, data.
3.0 EXISTING BURIED & OVERHEAD SERVICES			
3.1	Buried tanks/subterranian tunnels	Buried structure with potentially hazardous and volatile contents/asbestos and risk of collapse	Identified on Constraints Plan and seek record information from NMGH. Contractor to undertake any other investigations considered necessary
3.2	Relic Buried Structures	Proposed foundations clash with relic buried structures	Accurately locate all buried services and divert where necessary. Divert and disconnect services in accordance with the SiSealy design intent. Contractor to undertake any other investigations considered necessary
4.0 DEMOLITION OF EXISTING STRUCTURES/ SITE CLEARANCE			
4.1	Existing above ground features such as lighting columns and street furniture	Structures and surface features clash with the proposed works	Ensure all exsiting features have been identified and plan the removal and relocation as appropriate
4.2	Relic foundations/obstructions from historic buildings	Clash with proposed foundations	Below ground survey required for coordination. Following survey, pile layout may need to be changed to suite
4.3	Existing Buildings and basement retaining walls	Collapse of buildings	Choose appropriate method of demolition suitable for the site constraints
4.4	Asbestos materials in building	Exposure of site operatives and nearby public to asbestos containing material	Contractor to make reference to all existing reports and to liaise with the Local Authority to ensure safe removal and disposal of remaining asbestos on site. As demolition material is likely to be processed and reused on site; it is critical that all asbestos is removed before demolition commences or cross contamination of demolition material may occur and render it unusiole for backfilling purposes.
4.5	Vibration and noise generated during construction	Damage to nearby buildings due to ground borne vibration from construction activities. Nuisance/ disturbance of neighbours from noise.	NMGH and Contractor to agree monitoring regime and permitted maximum vibration and noise levels.
5.0 EXCAVATIONS AND FOUNDATIONS			
5.1	Earthworks and excavations.	Contaminants in the ground	Undertake a Phase 1 and Phase 2 GeoEnvironmental Site Investigation
5.2	Earthworks and excavations.	Unknown ground conditions	Undertake a Phase 1 and Phase 2 GeoEnvironmental Site Investigation
5.3	Unexploded ordinance	Explosion due to striking buried UXO	Undertake a Phase 1 and Phase 2 GeoEnvironmental Site Investigation
5.4	Site flooding	Collapse of excavations due to flooding.	Contractor and their temporary works designer ensure that all excavations are adequate supported against collapse and provide temporary drainage if necessary
7.0 ERECTING STRUCTURES AND PLACING COMPONENTS			
7.1	Instability of structure	Instability of structure prior to stability elements being in place.	Curtins to put a hazard note on drawing stating the design assumptions and highlighting the anticipated construction squence. Contractor and their temporary works designer ensure that the stability requirements of the structure in the temporary case are satisfied and temporary bracing is provided if necessary.
7.2	Load sharing of piles	Stability design assumes pile caps are tied together to distribute lateral shear loads	Contractor to be aware of design assumption
9.0 CLIENT OPERATIONAL ISSUES AND RULES			
9.1	Surrounding Environment	Work is located within an existing Acute Hospital Site. Interactions with public and staff health and safety in adjacent spaces and COVID19 safe working practices apply.	Method statement required by contractors for material management.
9.2	Substation located within the building	Risk of substation explosion	Substation enclosure to be constructed in line with Electricity North West's recommdation

THE PILING DESIGN IS BASED UPON FPMcCANN LOADING DOCUMENT ENTITLED:-
NMGH - Precast Car Park Frame - Loading from Precast Framed supplied from FPMcCANN
Issued 01.11.21
Revised 03.11.21 & 12.11.21

WORK IN PROGRESS (COSTING)

THE INFORMATION ON THIS DRAWING IS AN OPTIMISED COST SOLUTION BASED UPON EXTERNAL INFORMATION AS OF THE 19.11.21. IT MAY BE SUBJECT TO CHANGE BASED UPON EXTERNAL INFLUENCES THROUGH DESIGN DEVELOPMENT SUCH AS CLIENT BRIEF & SCOPE CHANGES, SERVICES / B.W.I.C., SUB-CONTRACTOR REQUIREMENTS ETC. THE INFORMATION MUST THEREFORE BE USED WITH A SUITABLE CONTINGENT APPROACH WITH RESPECT TO STRATEGIC DECISION MAKING. COST MANAGEMENT, N.I.A MEASUREMENT ETC.

GENERAL NOTES:

A0

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING, ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRG No. 20200-CUR-MSCP-XX-DR-S-2000
5. PROPOSED PILE ARANGEMENT HAS NOT BEEN CO-ORDINATED WITH ANY BELOW GROUND OBSTRUCTIONS OR RELIC FOUNDATIONS. BELOW GROUND OBSTRUCTION AND RELIC FOUNDATION SURVEY REQUIRED FOR CO-ORDINATION
6. IF THERE ARE EXISTING PILES OR BELOW GROUND OBSTRUTIONS PRESENT IN THE GROUND WHICH CLASH WITH THE PROPOSED PILE LOCATIONS THEN THE CURRENT PILE LAYOUT WILL NEED TO BE CHANGED AND AN ALLOWANCE FOR ADDITIONAL PILES SHOULD BE MADE TO BRIDGE OVER EXISTING OBSTRUCTIONS
7. THE PILING LAYOUT INDICATED IS A PRELIMINARY DESIGN BY CURTINS CONSULTING AND IS GIVEN FOR GUIDANCE ONLY. THE RESPONSIBILITY FOR PILE DESIGN RESTS WITH THE CONTRACTOR.
8. THE PILING CONTRACTOR SHALL SUPPLY A FULL METHOD STATEMENT FOR THE WORKS TO CURTINS CONSULTING FOR APPROVAL PRIOR TO COMMENCEMENT.
9. ALL PILE CAPS ARE TO BE CENTRED BELOW COLUMNS UNO.
10. REFER TO CURTINS PILING SPECIFICATION.
11. REFER TO THE SITE INVESTIGATION FACTUAL REPORT.
12. PILES SHALL BE UNIFORMLY REINFORCED AROUND CIRCUMFERENCE.
13. LATERAL RESTRAINT TO THE SINGLE PILE PILE CAPS REQUIRED IN EITHER ONE DIRECTION OR IN TWO ORTHOGONAL DIRECTIONS SUCH LATERAL RESTRAINT CAN BE PROVIDED USING ONE OF THE FOLLOWING ALTERNATIVE METHODS:
14. BY PROVIDING R.C GROUND BEAMS.
15. BY PROVIDING ADDITIONAL PILES AS FOLLOWS: A TWO PILE PILE CAP SOLUTION RATHER THAN ONE SINGLE PILE PILE CAP SOLUTION IN LOCATIONS REQUIRING A SINGLE DIRECTION RESTRAINT. A THREE PILE PILE CAP SOLUTION RATHER THAN ONE PILE PILE CAP SOLUTION IN LOCATIONS REQUIRING DUAL RESTRAINT.
16. THE MOMENTS AND HORIZONTAL FORCES CAUSED BY POSSIBLE ECCENTRICITIES INDUCED BY THE VARIATION OF PILE LOCATIONS WITHIN TOLERANCE BEING INCORPORATED INTO THE SINGLE PILE DESIGN BY THE SPECIALIST SUB-CONTRACTOR.
17. THE MOST APPROPRIATE METHOD IS TO BE SELECTED BY THE MAIN CONTRACTOR ON THE BASIS OF COST, CONSTRUCTABILITY AND PROGRAMME IMPLICATIONS.

KEYPLAN

REV.	DESCRIPTION	DATE	DRW.	CHK.
P03	STAGE 4 VE ISSUE	19.11.21	PM	DS
P02	STAGE 4 ISSUE	30.07.21	PM	DS
P01	PRILIMINARY ISSUE	18.06.21	PM	DS

NHS Manchester University NHS Foundation Trust

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
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Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool
• London • Manchester • Nottingham

PROJECT: NMGH MSCP

TITLE: Piling Layout

STATUS	PURPOSE OF ISSUE
S2	FOR INFORMATION

DRAWN BY	CHECKED BY	DATE
PMline	DS	17.06.21

SCALE (@A0)	PROJECT NUMBER
1:100	075805

FILE DRAWING NUMBER	REV.
20200-CUR-MSCP-FN-DR-S-1601	P03

19/11/2021 12:28:43

B Status - With Comments (FOR INFORMATION)

Status A - Not Compliant (S3-DO NOT CONSTRUCT TO)

A1

Notes:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

SW MH12
CL: 71.026 D400
IL: 63.902
1,500 dia PCC
Manhole PCC 3m+
BACKDROP

1,500 dia TYPE 1
Manhole PCC 3m+
BACK DROP

CL: 70.274 D400
IL: 67.800
1,200 dia PCC
Manhole PCC -3m

IL: 67.700mAOD
POLYSTORM R WITH POLYSTORM
INSPECT CHANNEL

375mm STUB FOR
FUTURE DEVELOPMENT

LAND REQUIRED FOR ATTENUATION
IN FUTURE DEVELOPMENT WHEN
BUILDING IS DEMOLISHED

375mm1:150
600mm1:150
600mm1:150
375mm1:150

RAISING MAIN DIVERSION - OTHERS
TO DESIGN - MANHOLE SILT
REMOVAL REQUIRED -IL UNKNOWN

SW MH11
CL: 70.400 D400
IL: 67.533
1,500 dia PCC
Manhole PCC 3m+
500mm SUMP
HYDROBRAKE CHAMBER
FLOW RATE: 10.5l/s
HEAD:2.5m
MD-SHE-0127-1050-2500-1050

FW MH08
CL: 70.451 D400
IL: 67.400
1,500 dia TYPE 1
Manhole PCC 3m+

450mm STUB FOR
FUTURE DEVELOPMENT

SW MH09
CL: 70.407 D400
IL: 67.779
1,500 dia PCC
Manhole PCC -3m

FW MH07
CL: 70.035 D400
IL: 68.[illegible]
1,500 dia TYPE 2
Manhole PCC -3m

NMGH ND11 (DATA CTR) 168490

225mm STUB FOR
FUTURE DEVELOPMENT

AUXILIARY CABLE JOINT

SW MH08
CL: 70.297 D400
IL: 67.984
1,500 dia PCC
Manhole PCC -3m

HV STRAIGHT JOINT

600mm1:150
375mm1:150

ONSITE MSCP DRAINAGE OUTLET

FW MH06
CL: 70.382 D400
IL: 68.380
1,500 dia TYPE 2
Manhole PCC -3m

HV STRAIGHT JOINT

F BLOCK 166581

450mm1:150
375mm1:150

SW MH07
CL: 71.652 D400
IL: 68.446
1,500 dia PCC
Manhole PCC -3m

FW MH05
CL: 71.647 D400
IL: 68.668
1,500 dia TYPE 2
Manhole PCC -3m

450mm STUB FOR
FUTURE DEVELOPMENT

NMGH ND5 TELE SWITCH 166580

SW MH06
CL: 71.457 D400
IL: 68.636
1,500 dia PCC
Manhole PCC 3m+

450mm1:150
375mm1:150

FW MH04
CL: 72.010 D400
IL: 68.837
1,500 dia TYPE 2
Manhole PCC -3m

450mm1:46

SW MH05
CL: 73.562 D400
IL: 69.562
1,500 dia PCC
Manhole PCC -3m

AUXILIARY CABLE JOINT

HV STRAIGHT JOINT

450mm1:150
375mm1:150

225mm STUB FOR
FUTURE DEVELOPMENT

HV STRAIGHT JOINT

SW MH03
CL: 71.595 D400
IL: 69.091
1,500 dia PCC
Manhole PCC -3m

FW MH03
CL: 71.541 D400
IL: 69.298
1,500 dia TYPE 2
Manhole PCC -3m

225mm STUB FOR
FUTURE DEVELOPMENT

NMGH ND3 (B BLOCK 166579

450mm1:150
375mm1:150

SW MH02
CL: 71.267 D400
IL: 69.273
1,500 dia PCC
Manhole PCC -3m

FW MH02
CL: 71.197 D400
IL: 69.487
1,500 dia TYPE 2
Manhole PCC -3m

450mm STUB FOR
FUTURE DEVELOPMENT

375mm STUB FOR
FUTURE DEVELOPMENT

NMGH ND1 HT SWITCHROOM 165195

7/15 4c TELE

7/15 4c TELE

HV NETWORK TO BE COORDINATED WITH THE DRAINAGE
ONCE THE ROUTE AND DEPTH IS CONFIRMED

KEY

- PROPOSED WORKS BOUNDARY
- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- HV NETWORK
- FOUL DIVERSION
- FOUL RAISING MAIN DVERISION

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION UNUSUAL SIGNIFICANT HAZARDS

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION
1. CONTRACTOR TO ENSURE SITE IS SCANNED FOR EXISTING SERVICES THAT MAY BE ON SITE.
2. CONTRACTOR TO ASSESS FOR GROUND CONTAMINATION.
3.CONTRACTOR TO ENSURE SUITABLE MEASURES ARE TAKEN DURING ANY EXCAVATIONS/TEMPORARY WORKS.
4. A SUITABLE TRAFFIC MANAGEMENT PLAN SHOULD BE IN PLACE FOR DURATION OF WORKS.
NOTE: CURTIN'S ARE NOT LIABLE FOR ANY OF THE ABOVE.

MAINTENANCE / CLEANING
1.WHERE PROPRIETARY PRODUCTS ARE SPECIFIED, THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS SHOULD BE FOLLOWED.
2.THE RECOMMENDED INSPECTIONS OF OPERATIONS AND FREQUENCIES ARE TYPICAL ONLY AND SHOULD BE MORE FREQUENT INITIALLY TO ENSURE THAT THERE ARE NO UNFORESEEN ISSUES WITH THE OPERATION AND THEN ADJUSTED TO SUIT THE SITE REQUIREMENTS.

DECOMMISSIONING / DEMOLITION
1. N/A
2.
3.

REV.	DESCRIPTION	DATE	DRW.	CHK.
P04	DRAINAGE LAYOUT UPDATED	21.12.21	TH	DE
P03	DRAINAGE LAYOUT UPDATED	06.12.21	TH	HS
P02	TITLE BOX UPDATED	30.07.21	TH	HS
P01	FIRST ISSUE	26.05.21	HS	AR

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Merchant Exchange, 17-19 Whitworth Street West, Manchester M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com

PROJECT
MSCP ENABLING WORKS

TITLE
CARRIER DRAINAGE
SHEET 1 0F 2

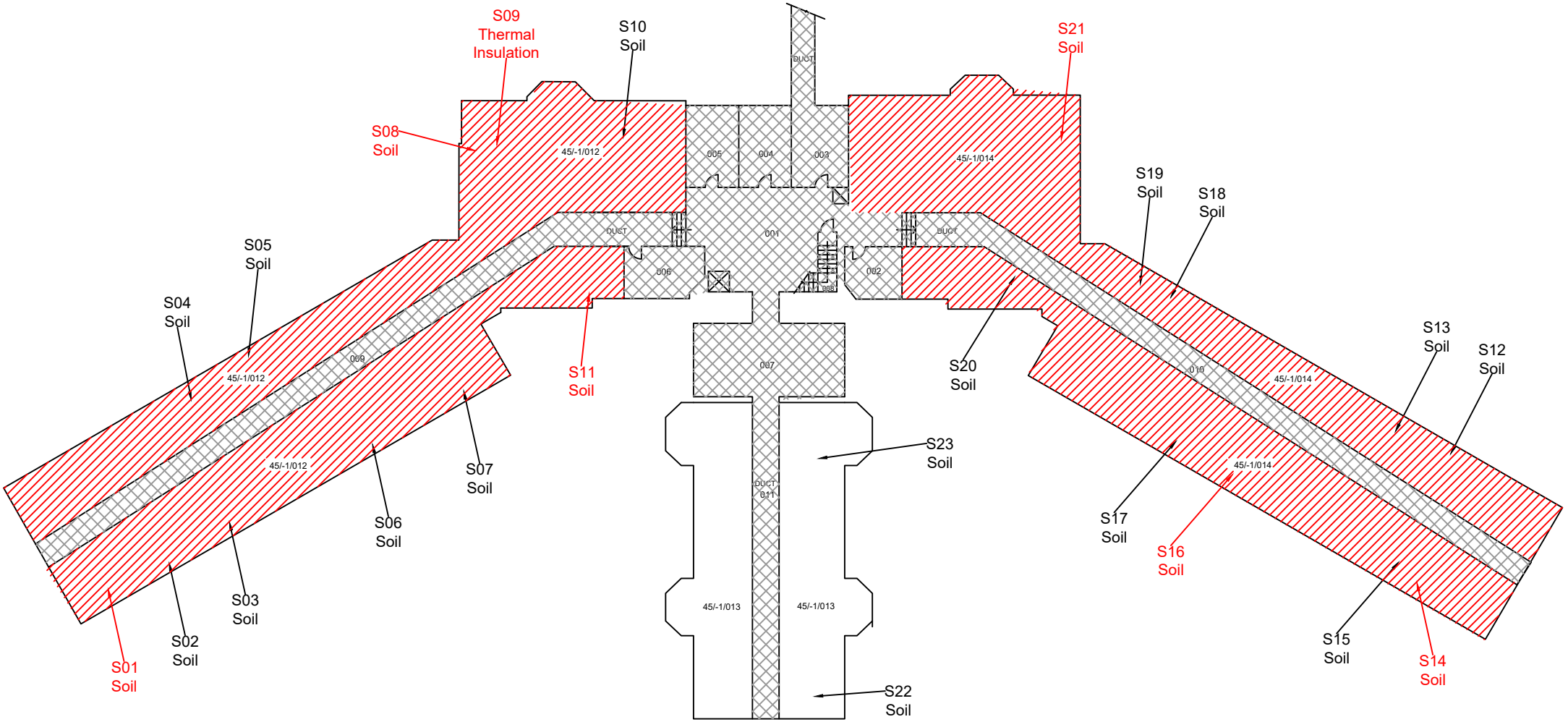
STATUS	PURPOSE OF ISSUE
S3	FOR REVIEW/COMMENT

DRAWN BY	CHECKED BY	DATE
DE	HS	28/05/2021

SCALE (@A1)	PROJECT NUMBER
1:250	077416

FILE DRAWING NUMBER	REV.
20200-CUR-MSCP-EX-DR-D-7501	P04

Block 45 - Basement



acorn analytical services

Client:
Hive Projects Limited

Site:
North Manchester General Hospital
Delaunays Road
Crumpsall
Manchester
M8 5RB

Project Number:
B-31255 - Plan 1 of 1

Additional Information:
- Plans not to scale
- For more information please see the relevant section within the main report

Contains Asbestos

Limitation/No access Within Room

Outside Scope of Survey

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Acorn Analytical Services Ltd
The Old Print Works
Carr Street
Cleckheaton
West Yorkshire
BD19 5HG

CONTRACT NO: S18436

DATE OF ISSUE: 17.05.21

DATE SAMPLES RECEIVED: 10.05.21

DATE ANALYSIS COMPLETED: 17.05.21

SAMPLE DESCRIPTION: Twenty-two soil/loose aggregate samples each weighing approximately 0.3-0.5kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

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

Quantitative - The analysis was carried out using our documented in-house method 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 sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

Asbestos was detected in six of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the qualitative and quantitative results are given in Tables 1 & 2 respectively.

www.iom-world.org
Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org
IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

RESULTS: (cont.)

Table 1: Qualitative Results

Client Ref.: B-31255; Block 55 Limbert House NMGH

IOM sample number	Client sample number	ACM type detected	PLM result
S81821	S01	Thermal Insulation[2]	Chrysotile
S81822	S02	-	No Asbestos Detected
S81823	S03	-	No Asbestos Detected
S81824	S04	-	No Asbestos Detected
S81825	S05	-	No Asbestos Detected
S81826	S06	-	No Asbestos Detected
S81827	S07	-	No Asbestos Detected
S81828	S08	Thermal Insulation[1&2]	Amosite & Chrysotile
S81829	S10	-	No Asbestos Detected
S81830	S11	Thermal Insulation[2]	Chrysotile & Crocidolite
S81831	S12	-	No Asbestos Detected
S81832	S13	-	No Asbestos Detected
S81833	S14	Thermal Insulation[2]	Chrysotile
S81834	S15	-	No Asbestos Detected
S81835	S16	Free Fibres	Chrysotile
S81836	S17	-	No Asbestos Detected
S81837	S18	-	No Asbestos Detected
S81838	S19	-	No Asbestos Detected
S81839	S20	-	No Asbestos Detected
S81840	S21	Loose Insulation[2]	Amosite, Chrysotile & Crocidolite
S81841	S22	-	No Asbestos Detected
S81842	S23	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

Table 2: Quantitative Analysis Results

Client Sample Number	Sample Weight (g)	% Asbestos in Sample from ACM's	% Asbestos in Sample as Unbound Fibres	Total % Asbestos in Sample
S01	305	0.022	-	0.022
S08	322	1.688	-	1.688
S11	419	0.050	-	0.050
S14	402	0.013	-	0.013
S16	364	-	0.003	0.003
S21	332	-	0.020	0.020

Our limit of quantification for gravimetric analysis of soil samples is 0.001%.

CONTRACT NO: S18436
DATE OF ISSUE: 17.05.21

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
D Third
Scientific Technician

17-19 Whitworth Street West
Manchester
M1 5WG

t: 0161 236 2394
e: manchester@curtins.com
w: www.curtins.com

Our reference: 20200-CUR-MSCP-XX-RP-G-0002 P01

18th June 2021

Jon Gaskell
Morgan Sindall via email

Dear Jon,

Re: Interim Letter Report for Multi-Storey Car Park, North Manchester General Hospital

Letter Status: S2 – Issued for Information

1. Introduction

Curtins were instructed by Hive Projects Ltd & Morgan Sindall for and on behalf of Manchester University NHS Foundation Trust to undertake a Phase 2 Ground Investigation for the proposed Multi—Storey Car Park, located north of Limbert Circle, North Manchester General Hospital, Crumpsall, M8 5RB.

The investigation was undertaken to assess the ground conditions to support preliminary design and provide in-situ geotechnical testing. It was to also assist with the support of an associated planning application and support discharge of relevant contaminant land planning conditions.

This interim letter report presents a summary of the ground investigation and interim results. A full Phase 2 Ground Investigation report will be issued on completion of the ground gas monitoring programme. It should be noted that recommendations herein are considered preliminary and may be subject to change in the final report.

An exploratory hole plan (Ref. 20200-CUR-MSCP-00-DR-G-2001) is included in *Appendix A1* to show the extent of the intrusive investigation.

2. Intrusive Investigation

2.1. Scope of Works

The site investigation works were undertaken between 4th March and 21st April 2021. The ground investigation was undertaken generally in accordance with the ICE UK Specification for Ground Investigation (2012) and with techniques outline in Eurocode 7 BS EN 1997-1:2004 and BS5930:2015 Code of Practice for Site Investigations. The scope and rationale are summarised in *Table 1*.

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

Table 1 *– Scope and Rationale of Fieldwork Undertaken*

Exploratory Hole Type	Exploratory Hole Ref.	Ground level (m AOD)	Exploratory Hole Depth (m bgl)	Rationale
Cable Percussive Boreholes with Rotary GeocoreS	BH101 BH102 BH103 BH104 BH105	74.16 73.84 73.90 74.09 74.09	35.00 35.00 35.00 35.00 50.00	Advance drilling to between 25m to enable Rotary Geocore S to continue the exploratory hole to depths between 35m to 50m bgl. Confirm ground conditions and groundwater conditions Collect soil samples for chemical analysis; Collect samples for geotechnical soil testing; Collect rock core samples for geotechnical testing; and Gas and groundwater level monitoring.
Window Sample Boreholes	WS101 WS102	71.65 71.57	3.00 2.00	Confirm ground conditions Collect soils samples for chemical analysis.
Machine Excavated Trial Pits	SA101 SA102 SA103	72.47 74.09 74.01	2.10 2.00 2.20	Confirm shallow ground conditions; Determine suitability of soils for drainage design Collect samples to determine suitability of shallow soils for re-use in earthworks.
CBRs	CBR101	74.03	0.70	Confirm shallow ground conditions

Exploratory hole locations were surveyed upon completion of the works, with surveyed ground levels and co-ordinates added to the log. The logs can be referred to in *Appendix B*.

Representative soil samples were selected for laboratory chemical analysis, based on field observations and to provide information about the encountered ground conditions. The following soil samples were obtained during the intrusive investigation to allow for chemical testing:

- 8 No. soils scheduled for Soil Suite A, detailed in *Table 2* ;

Table 2 *– Environmental Testing Suite (Soils)*

Suite Ref.	Analyte	LOD
Soils Suite A	Asbestos Screen,	-
	pH Value,	0.01 pH
	2;1 Water Soluble Sulphate	0.01 g/l
	Soil Organic Matter (SOM)	0.1% w/w
	Arsenic, Chromium, Chromium VI, Copper, Lead, Nickel, Selenium	1 mg/kg
	Zinc	5 mg/kg
	Boron (water soluble)	1 mg/kg
	Cadmium	0.5 mg/kg

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

Suite Ref.	Analyte	LOD
	Mercury	0.17 mg/kg
	Cyanide (total)	1 mg/kg
	Phenols (screen)	0.2 mg/kg
	PAHs (USEPA 16)	0.01 to 0.08 mg/kg
	TPH (Aro/Ali Split)	0.01 to 1 mg/kg

3. Ground Contamination Assessment

8 No. soil samples were obtained and chemically analysed according to the testing Suite A, outlined in *Table 2*. Considering the sites proposed end-use as a multi-storey car park, the results were compared against adopted '*Commercial'* Generic Assessment Criteria (GACSs)
Soil organic matter (SOM) content has an influence of the con on the volatilisation of organic contaminants (i.e. the higher the SOM, the lower the volatilisation rate and therefore inhalation exposure risk). Soil organic matter (SOM) values for the made ground soil ranged from 0.3% and 10.7% by weight. With consideration for a calculated geometric average, made ground determine a SOM of 3.15%. As such, a comparison against Generic Assessment Criteria (GAC) thresholds for a conservative SOM of 2.5% for the identified end-use thresholds have been adopted for made ground.

With respect to the *Commercial* end-use thresholds, no exceedances were recorded in made ground or natural soil samples.

All soil samples were screened for asbestos. No asbestos containing materials (ACMs) were identified within any of the exploratory hole logs or during laboratory screening.

The full chemical testing results and adopted GACs are in *Appendix A3* and *Appendix A4* respectively.

4. Preliminary Waste Classification

Where any sites soils are to be moved, disposed of or recovered, guidance on the movement of contaminated soils is provided within the following document published by the Environment Agency, the Guidance on the classification and Assessment of Waste Technical Guidance WM3 (1st Edition 2015) (Environment Agency, 2015) (Ref. 17).

Guidance states that the principal contractor (or any other sub-contractor undertaking excavations) should, in conjunction with the proposed disposal facility, use where possible the relevant environmental chemistry analyses results to classify any surplus material identified for off-site disposal. However, it should be noted that this information is for guidance only and material identified for disposal should be tested and assessed in accordance with WM3 to enable classification during the works.

An initial assessment for waste classification of the made ground soils encountered on site has been carried out through a comparison of the soil testing results against the Tier 1 Thresholds and using the Waste Soil Characterisation Assessment Tool, Cat-WasteSoil developed by McArdle and Atkins. This online tool gives a rapid assessment of contaminated soils and their classification as either hazardous and non-hazardous (stable non-reactive hazardous waste) waste, it should be noted that this tool does not classify inert waste. Persistent Organic Pollutants (POPs) were not tested as part of the investigation however, based on the Conceptual Site Model the risk is these being present on the site is considered Low.

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

At the request of Morgan Sindall, five made ground samples were also subjected to full solid and leachate Waste Acceptance Criteria analysis.

The initial classification of the five made ground samples collected and analysed during the investigation indicates that four of the samples may be classed as non-hazardous waste with respect to Environment Agency waste classes, using the guidance given within WM3. One sample, obtained from BH102, was classed as hazardous due to recorded concentrations of hydrocarbons/oils.

A 2 stage solid and leachate hazardous WAC suite was undertaken to assess acceptability of material for acceptance in a Hazardous or Stable Non-Reactive Hazardous Waste in Non-Hazardous Waste Landfill. The results are summarised in *Table 3* below.

Table 3 *– Summary of WAC Testing Results*

Exploratory Hole ID	Elevation (mAOD)	Sample Depth (m bgl)	CATWaste Classification	WAC Testing Classification	Final Landfill Classification
WS101	71.65	0.2	Non-Hazardous	Inert Waste Landfill	Inert Waste Landfill
WS101	71.65	1.45	Non-Hazardous	Inert Waste Landfill	Inert Waste Landfill
WS102	71.57	0.35	Non-Hazardous	Inert Waste Landfill	Inert Waste Landfill
BH102	73.84	0.5	Hazardous	Hazardous Waste Landfill	Hazardous for off-site disposal
BH104	74.08	0.45	Non Hazardous	Hazardous Waste Landfill	Non-Hazardous for off-disposal

Where soils are being considered for offsite disposal as inert waste, additional Waste Acceptance Criteria (WAC) testing will be required with confirmation of acceptability from the receiving landfill.

It should be noted that landfill operators are not obliged to accept waste and, if they do so, may have specific requirements beyond those outlines above prior to acceptance. Landfill operators should be contacted to confirm to above classification or otherwise.

5. Closure

If you have any queries with regard to this letter report, please do not hesitate to contact us.

Yours sincerely,

Philippa Neesham
Geo-Environmental Engineer

For and on behalf of **Curtins Consulting Ltd**

Curtins Consulting Limited
17-19 Whitworth Street West, Manchester, M1 5WG
t: 0161 236 2394 e: manchester@curtins.com w: www.curtins.com

A Status - No Comments (FOR INFORMATION)

Appendices

Appendix A1 – Drawings

Appendix A2 – Exploratory Hole Logs

Appendix A3 – Geo-Environmental Laboratory Testing Results

Appendix A4 – Generic Assessment Criteria (GACs)

A Status - No Comments (FOR INFORMATION)

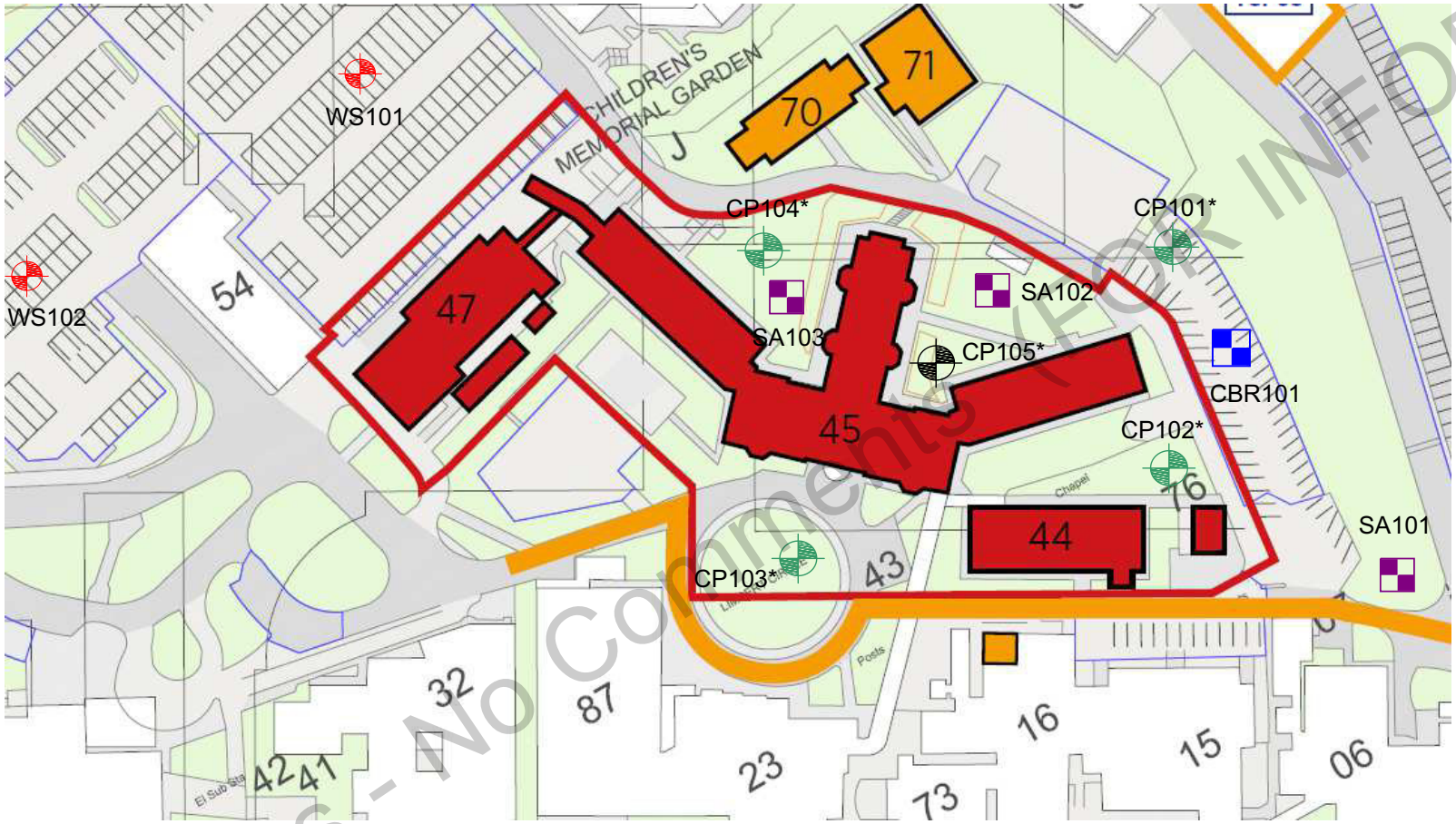
A Status - No Comments (FOR INFORMATION)

Appendix A1 – Drawings

A Status - No Comments (FOR INFORMATION)

Curtins Consulting Limited
17-19 Whitworth Street West, Manchester, M1 5WG
t: 0161 236 2394 e: manchester@curtins.com w: www.curtins.com

A Status - No Comments (FOR INFORMATION)



CABLE PERCUSSIVE BOREHOLE TO 25M FOLLOWED ON WITH OPEN HOLE ROTARY TO 35M

CABLE PERCUSSIVE BOREHOLE TO 25M FOLLOWED ON WITH OPEN HOLE ROTARY TO 50M

WINDOW SAMPLE BOREHOLE LOCATION UP TO 5M

CBR TEST

SOAKAWAY TESTS TO 2M

* MONITORING INSTALLATION

Rev:	Description:	Date:	By:	Chkd:

curtins

Curtins Consulting Ltd,
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
t: 0161 236 2394
e: manchester@curtins.com
www.curtins.com

Structures - Civils - Environmental - Infrastructure - Transport Planning - Sustainability - Expert Advisory Services
Birmingham - Bristol - Cardiff - Douglas - Edinburgh - Kendal - Leeds - Liverpool - London - Manchester - Nottingham

Status:
INFORMATION

Project:
NORTH MANCHESTER GENERAL HOSPITAL

Drg Title:
MSCP EXPLORATORY HOLE LOCATION PLAN

Scale:	Size:	First Issue:	Drawn:	Checked:
NTS	A3	01/06/2021	PN	RA

Drg No: **20200-CUR-MSCP-00-DR-G-2001**

Rev: **P01**

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A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

Appendix A2 – Exploratory Hole Logs

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH101**

Sheet 1 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385116.59 - 402416.88	Hole Type CP
Location: North Manchester General Hospital		Level: 74.16	Scale 1:50
Client: Bruntwood		Dates: 08/04/2021 - 20/04/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	74.06		ASPHALT
		0.35	ES		0.35	73.81		MADE GROUND: Light brown/grey sandy angular to subrounded fine to medium gravel of aggregate, limestone and brick. Sand is medium to coarse.
		1.20		N=8 (1,2/2,3,1,2)				MADE GROUND: Light brown gravelly medium to coarse sand with moderate ash content. Gravel is angular to subrounded fine to coarse including brick, slate and concrete.
		2.00		N=8 (2,2/3,2,1,2)				
		3.00		N=17 (2,2/4,4,4,5)	3.00	71.16		Stiff brown slightly gravelly CLAY with frequent sand bands. Sand is fine to medium. Gravel is subangular to rounded fine to coarse including mudstone and sandstone.
		4.00	B		4.00	70.16		Medium dense light brown fine SAND.
		4.00		N=10 (1,2/2,3,2,3)				
		5.00		N=14 (2,2/3,3,4,4)				
		6.50		N=26 (3,4/5,6,7,8)				
		6.50 - 6.95	B					
					7.80	66.36		Stiff brown slightly silty CLAY.
		8.00 - 8.45	U	Ublow=100				
		9.50		N=50 (6,6/11,11,14,14)	9.50	64.66		Very stiff brown very sandy CLAY with frequent sand bands. Sand is fine to medium.

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH101**

Sheet 2 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385116.59 - 402416.88
Location:	North Manchester General Hospital		Level: 74.16
Client:	Bruntwood		Dates: 08/04/2021 - 20/04/2021

Hole Type CP

Scale 1:50

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		11.00 - 11.45	B					
	▼							
		12.50		N=45 (5,8/10,11,12,12)	12.50	61.66		Very dense light brown fine to medium SAND.
		14.00 - 14.45	U	Ublow=125	13.70	60.46		Very stiff brown slightly gravelly CLAY with frequent sand bands. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse including sandstone and mudstone.
		15.50		N=42 (6,7/7,10,11,14)				
		17.00 - 17.45	U	Ublow=130				
		18.50		N=36 (5,8/36 for 230mm)				
		20.00 - 20.45	U	Ublow=125				

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH101**

Sheet 3 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385116.59 - 402416.88	Hole Type CP
Location:	North Manchester General Hospital		Level:	74.16	Scale 1:50
Client:	Bruntwood		Dates:	08/04/2021 - 20/04/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		21.50		N=50 (7,9/10,12,14,14)				
		22.00 - 22.45	B		22.10	52.06		Very dense light brown fine SAND.
		23.00		50 (10,15/50 for 185mm)				
		23.00 - 23.45	D		23.50	50.66		Very stiff brown very sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse including sandstone and mudstone.
		26.00		50 (7,12/50 for 220mm)				
		27.50		51 (8,10/51 for 210mm)	27.50	46.66		Very stiff brown/grey silty CLAY with frequent sand bands. Sand is coarse.
		29.00		50 (8,13/50 for 155mm)				

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH101**
Sheet 4 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385116.59 - 402416.88	Hole Type CP
Location:	North Manchester General Hospital		Level:	74.16	Scale 1:50
Client:	Bruntwood		Dates:	08/04/2021 - 20/04/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.50		N=50 (4,7/50 for 240mm)				
		32.00		N=50 (7,9/11,12,12,15)				
		33.50		N=47 (7,11/47 for 255mm)				
					35.00	39.16		End of borehole at 35.00 m

31 32 33 34 35 36 37 38 39 40

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH102**

Sheet 1 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385093.30 - 402388.76	Hole Type CP
Location: North Manchester General Hospital		Level: 73.84	Scale 1:50
Client: Bruntwood		Dates: 12/03/2021 - 17/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.45	73.39		GRASS over MADE GROUND: Dark brown slightly sandy slighly gravelly clay with low cobble content and frequent rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse including brick, ceramic, concrete and glass. Cobbles are angular of brick.
					0.70	73.14		MADE GROUND: Dark brown/black slightly clayey angular to subangular fine to coarse gravel of brick, slate and ceramic with high ash content. Sand is medium to coarse.
		1.20		N=8 (1,1/2,2,2,2)				Loose light brown fine SAND.
		2.00 2.00 - 2.45	B	N=7 (1,1/1,2,2,2)				
		3.00		N=23 (3,4/5,6,6,6)	3.00	70.84		Medium dense brown slighty silty fine SAND.
		4.00 4.00 - 4.45	B	N=17 (2,3/3,4,5,5)				
		5.00		N=15 (2,3/3,4,4,4)	4.80	69.04		Firm brown slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse including sandstone and mudstone.
		6.50 - 6.95	U	Ublow=125				
		8.00		N=42 (6,10/9,9,10,14)	8.00	65.84		Dense light brown fine SAND.
		9.50		N=43 (6,9/10,11,10,12)				

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH102**

Sheet 2 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385093.30 - 402388.76
Location:	North Manchester General Hospital		Level: 73.84
Client:	Bruntwood		Dates: 12/03/2021 - 17/03/2021

Hole Type CP

Scale 1:50

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		11.00		N=28 (4,5/6,7,7,8)					11
					12.00	61.84		Very stiff brown slightly silty CLAY with sand lenses. Sand is medium to coarse.	12
		12.50 - 12.95	U	Ublow=110					13
		14.00		N=35 (5,7/8,8,10,9)					14
		15.50 - 15.95	U	Ublow=130					15
									16
		17.00		N=33 (6,6/7,8,8,10)					17
									18
		18.50 - 18.95	U	Ublow=128					19
		20.00		N=34 (6,7/7,8,9,10)					20

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH102**

Sheet 3 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385093.30 - 402388.76	Hole Type CP
Location: North Manchester General Hospital		Level: 73.84	Scale 1:50
Client: Bruntwood		Dates: 12/03/2021 - 17/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					21.00	52.84		Dense light brown fine SAND.	21
		21.50		N=38 (6,8/8,9,10,11)					
		22.00 - 22.45	D		22.00	51.84		Very stiff brown sandy CLAY. Sand is fine to medium.	22
		23.00 - 23.45	U	Ublow=130					23
									24
		24.50		50 (25 for 135mm/50 for 125mm)					
		24.50 - 24.95	U						25
		26.00 - 26.45	U	Ublow=130					26
									27
									28
		29.00		N=50 (6,8/9,13,20,8)					29
		29.00 - 29.45	U	Ublow=125					
					29.50	44.34		Very stiff brown slightly silty CLAY with sand lenses. Sand is medium to coarse.	30
								Continued on next sheet	

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH102**

Sheet 4 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385093.30 - 402388.76
Location:	North Manchester General Hospital		Level: 73.84
Client:	Bruntwood		Dates: 12/03/2021 - 17/03/2021

Hole Type CP

Scale 1:50

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		31.00		N=50 (5,8/50 for 285mm)	31.00	42.84		Very stiff brown very sandy CLAY. Sand is fine to medium.
		32.50 - 32.95	U	Ublow=130				
					33.00	40.84		Very stiff brown slightly silty CLAY with sand lenses. Sand is fine to medium.
		34.50		N=50 (6,8/50 for 270mm)				
		34.50 - 34.95	D					
					35.00	38.84		End of borehole at 35.00 m

31 32 33 34 35 36 37 38 39 40

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH103**

Sheet 1 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385029.94 - 402405.88	Hole Type CP
Location: North Manchester General Hospital		Level: 73.93	Scale 1:50
Client: Bruntwood		Dates: 31/03/2021 - 15/04/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	73.53		GRASS over TOPSOIL: Black slightly clayey gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse gravel of mudstone and sandstone.
		0.60	ES		0.70	73.23		MADE GROUND: Dark grey silty slightly gravelly fine to medium sand. Gravel is angular to subangular fine of sandstone.
		1.20 1.20 - 1.65	B	N=8 (1,2/1,2,2,3)				Loose light brown fine SAND.
		2.00		N=7 (1,2/1,2,2,2)				
		3.00		N=20 (2,3/4,5,5,6)				
					3.60	70.33		Stiff brown slightly silty gravelly CLAY. Gravel is subangular to rounded fine to coarse including sandstone and mudstone.
		4.00 - 4.45	U	Ublow=100				
		5.00		N=17 (2,2/3,4,5,5)				
		6.50 - 6.95	U	Ublow=130				
		8.00		N=28 (4,5/6,7,7,8)				
		9.50 - 9.95	U	Ublow=130				
		10.00 - 10.50	B					

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH103**

Sheet 2 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385029.94 - 402405.88	Hole Type CP
Location: North Manchester General Hospital		Level: 73.93	Scale 1:50
Client: Bruntwood		Dates: 31/03/2021 - 15/04/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					10.10	63.83		Dense brown medium SAND.
		11.00		N=30 (3,5/6,7,8,9)				
		12.50 - 12.95	U	Ublow=125	12.40	61.53		Stiff brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse including sandstone and mudstone.
		14.00		50 (8,17/50 for 190mm)	14.00	59.93		Very stiff brown sandy CLAY. Sand is fine to medium.
		15.50 - 15.95	U	Ublow=130				
		17.00		N=40 (7,9/10,11,10,9)				
		18.50 - 18.95	U	Ublow=130				
					20.00	53.93		Continued on next sheet

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH103**

Sheet 3 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385029.94 - 402405.88
Location:	North Manchester General Hospital		Level: 73.93
Client:	Bruntwood		Dates: 31/03/2021 - 15/04/2021

Hole Type CP

Scale 1:50

Logged By

Well	Water Strikes	Samples and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		20.00		50 (25 for 145mm/50 for 225mm)				Very dense light brown fine SAND.
		21.50		50 (25 for 135mm/50 for 150mm)				
		23.00		50 (25 for 145mm/50 for 185mm)				
		23.50 - 23.95	B		23.50	50.43		Very stiff brown CLAY with frequent sand bands. Sand is fine to medium.
		24.50		50 (9,12/50 for 225mm)				
		26.00		N=49 (7,9/10,11,13,15)				
		27.50		N=50 (7,7/50 for 290mm)				
		29.00		N=50 (10,11/12,13,15,10)	29.00	44.93		Very dense reddish brown slightly clayey SAND.

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH103**

Sheet 4 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385029.94 - 402405.88	Hole Type CP
Location:	North Manchester General Hospital		Level:	73.93	Scale 1:50
Client:	Bruntwood		Dates:	31/03/2021 - 15/04/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.50		50 (25 for 75mm/50 for 180mm)				
		32.00		50 (25 for 65mm/50 for 180mm)	32.00	41.93		Very dense reddish brown fine to medium SAND.
		33.50		50 (25 for 115mm/50 for 165mm)				
		35.00		N=50 (25 for 110mm/14,14,15,7)	35.00	38.93		End of borehole at 35.00 m

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH104**

Sheet 1 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385054.63 - 402456.12	Hole Type CP
Location: North Manchester General Hospital		Level: 74.09	Scale 1:50
Client: Bruntwood		Dates: 09/03/2021 - 23/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.10	73.99		GRASS over TOPSOIL: Brown slightly sandy clay with frequent rootlets. Sand is fine to medium.
		0.50	ES					MADE GROUND: Dark brown/black slightly sandy angular to subrounded fine to coarse gravel of brick, glass, slate with a high ash content. Sand is medium to coarse.
		1.20		N=9 (1,2/2,2,3,2)	1.20	72.89		Firm brown slightly sandy CLAY with rare gravel. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium of mixed lithologies.
		2.00		N=15 (2,3/3,4,4,4)				
		2.50	B		2.50	71.59		Medium dense light brown slightly silty fine SAND.
		3.00		N=20 (2,2/5,5,5,5)	3.00	71.09		Stiff brown silty CLAY with frequent sand lenses. Sand is medium to coarse.
		4.00 4.00 - 4.45	D	N=26 (4,6/8,8,5,5)	4.00	70.09		Stiff brown very sandy CLAY. Sand is medium to coarse. Becoming silty at 5.70m.
		5.00		N=26 (5,6/8,7,6,5)				
		6.50 - 6.95	B		6.50	67.59		Medium dense brown slightly silty fine SAND.
		8.00		N=13 (1,2/3,3,3,4)				
		9.50		N=20 (3,4/4,5,6,5)				

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH104**

Sheet 2 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385054.63 - 402456.12	Hole Type CP
Location:	North Manchester General Hospital		Level:	74.09	Scale 1:50
Client:	Bruntwood		Dates:	09/03/2021 - 23/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		11.00		N=19 (1,2/4,5,5,5)				
		12.50 12.50 - 12.95	B	N=20 (2,3/4,5,6,5)				
					13.10	60.99		Stiff brown silty CLAY.
		14.00 - 14.45	U	Ublow=130				
		15.50		50 (7,7/50 for 200mm)	15.50	58.59		Very stiff brown slightly silty sandy CLAY. Sand is fine to medium.
		17.00 - 17.45	U	Ublow=130				
		18.50		N=42 (7,7/8,10,10,14)				
		20.00 - 20.45	U	Ublow=127				

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH104**

Sheet 3 of 4

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385054.63 - 402456.12	Hole Type CP
Location: North Manchester General Hospital		Level: 74.09	Scale 1:50
Client: Bruntwood		Dates: 09/03/2021 - 23/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		20.60 - 21.00	B		20.60	53.49		Very dense light brown fine SAND.
		21.50		N=50 (7,9/50 for 245mm)				
		23.00 - 23.45	U	Ublow=126	22.50	51.59		Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse including sandstone and mudstone.
		24.50		N=43 (8,7/10,11,10,12)				
		24.50 - 24.95	D		25.00	49.09		Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse including sandstone and mudstone.
		26.00		50 (25 for 75mm/50 for 70mm)				
		27.50		50 (15,10/50 for 30mm)				
		29.00		50 (25 for 75mm/50 for 75mm)				

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH104**

Sheet 4 of 4

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385054.63 - 402456.12	Hole Type CP
Location:	North Manchester General Hospital		Level:	74.09	Scale 1:50
Client:	Bruntwood		Dates:	09/03/2021 - 23/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.50		50 (25 for 75mm/50 for 150mm)				
		32.00		50 (25 for 75mm/50 for 75mm)				
		33.50		50 (25 for 75mm/50 for 75mm)				
		35.00		50 (25 for 75mm/50 for 75mm)	35.00	39.09		End of borehole at 35.00 m

31 32 33 34 35 36 37 38 39 40

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH105**

Sheet 1 of 5

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46
Location:	North Manchester General Hospital		Level: 74.09
Client:	Bruntwood		Dates: 04/03/2021 - 19/03/2021

Hole Type CP

Scale 1:50

Logged By

Well	Water Strikes	Samples and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	ES		0.05	74.04		GRASS over TOPSOIL: Brown slightly sandy clay with frequent rootlets. Sand is medium to coarse.
					0.45	73.64		MADE GROUND: Red/brown slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse incuding brick and ceramic.
					0.70	73.39		MADE GROUND: Red/brown angular to subangular gravel of brick, slate and moderate ash content. Frequent intact bricks.
					0.90	73.19		Loose brown slightly clayey medium to coarse SAND.
		1.20		N=4 (1,1/1,1,1,1)				Firm light brown mottled grey very sandy CLAY. Sand is medium to coarse. Medium to coarse sand band recorded between 1.20m and 1.40m.
		2.00		N=19 (1,1/5,5,5,4)				Stiff dark brown slightly sandy slightly gravelly CLAY. Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse including sandstone and mudstone. Becoming very stiff at 6.50m and sand band between 3.35 and 3.45m.
		2.00 - 2.45	D		2.20	71.89		
		3.00		N=23 (2,4/5,5,6,7)				
		3.00 - 3.45	D					
		4.00		N=30 (3,2/6,7,8,9)				
		4.00 - 4.45	D					
		5.00		N=22 (3,/5,6,5,6)				
		6.50		N=32 (5,6/7,7,8,10)				
		6.50 - 695.00	D					
		8.00 - 8.45	U	Ublow=120				
		9.50		N=23 (4,4/5,6,6,6)				
		9.50 - 9.95	D					

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH105**

Sheet 2 of 5

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46	Hole Type CP
Location: North Manchester General Hospital		Level: 74.09	Scale 1:50
Client: Bruntwood		Dates: 04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		11.00 11.00 - 11.45	B	N=31 (5,6/7,7,8,9)	11.00	63.09		Dense light brown silty fine SAND.	11
		12.50		N=33 (6,7/7,8,9,9)					12
					13.00	61.09		Very stiff brown sandy CLAY. Sand is fine to medium.	13
		14.00 - 14.45	D						14
					15.00	59.09		Very stiff dark brown very sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse of sandstone, coal and mudstone.	15
		15.50 15.50 - 15.95	D	N=26 (6,5/5,6,7,8)					16
		17.00 - 17.45	U	Ublow=130					17
		18.50		N=36 (5,5/6,9,9,12)					18
									19
		20.00 - 20.45	U	Ublow=128					20

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH105**

Sheet 3 of 5

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46
Location:	North Manchester General Hospital		Level: 74.09
Client:	Bruntwood		Dates: 04/03/2021 - 19/03/2021

Hole Type CP

Scale 1:50

Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		21.50		N=36 (5,6/7,8,9,12)				
		22.50	B		22.50	51.59		Dense light brown fine SAND.
		23.00 - 23.45	U	Ublow=130	22.90	51.19		Very stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to well rounded fine to medium including sandstone and mudstone.
		24.50		N=41 (6,7/8,10,11,12)				
		26.00		50 (9,11/50 for 210mm)				
		27.50		50 (18,17/50 for 150mm)				
		29.00		75 (25 for 75mm/75 for 225mm)				

21 22 23 24 25 26 27 28 29 30

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH105**

Sheet 4 of 5

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385071.48 - 402425.46	Hole Type CP
Location:	North Manchester General Hospital		Level:	74.09	Scale 1:50
Client:	Bruntwood		Dates:	04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.50		75 (25 for 75mm/75 for 225mm)				
		32.00		50 (25 for 75mm/50 for 20mm)	32.00	42.09		Very stiff reddish brown CLAY with frequent sand lenses. Sand is medium to coarse.
		33.50		50 (25 for 75mm/50 for 130mm)				
		35.00		50 (25 for 75mm/50 for 75mm)				
		36.50		42 (25 for 75mm/42 for 8mm)				
		38.00		50 (25 for 75mm/50 for 40mm)				
		39.50		50 (25 for 75mm/50 for 75mm)				

31 32 33 34 35 36 37 38 39 40

Continued on next sheet

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **BH105**

Sheet 5 of 5

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385071.48 - 402425.46	Hole Type CP
Location:	North Manchester General Hospital		Level:	74.09	Scale 1:50
Client:	Bruntwood		Dates:	04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		41.00		50 (25 for 75mm/50 for 145mm)					41
		42.50		50 (25 for 75mm/50 for 10mm)	42.50	31.59		Weak reddish brown medium to coarse SANDSTONE.	42
								From 42.50m to 42.66 recovered as non-intact core of sandy gravel.	
								42.66m to 43.70m 0-10 degrees closely spaced locally very closely spaced, planar rough	43
								From 43.70m to 44.00m no recovery.	
								44.00m to 44.27m 0 -10 degrees very closely spaced, planar rough	44
								From 44.27m to 44.38m recovered as non-intact core of sandy cobbles.	
					44.38	29.71		Medium strong reddish brown fine to medium SANDSTONE.	
								44.38m to 45.50m 0 - 10 degrees very closely spaced locally closely spaced, planar rough	45
					45.50	28.59		Medium strong reddish brown medium to coarse SANDSTONE.	
								45.50m to 46.9m 0 - 10 degrees closely spaced to medium spaced, planar rough	46
								From 46.90m to 47.00m no recovery.	
								47.00m to 48.25m 0 - 10 degrees closely spaced to medium spaced, planar rough	47
								From 48.25m to 48.30m recovered as non-intact core of sandy cobbles.	48
								48.30m to 50.00m 0 - 10 degrees closely spaced to medium spaced, planar rough	
									49
					50.00	24.09		End of borehole at 50.00 m	50

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Rotary Core Log

Borehole No. **BH105**

Sheet 1 of 5

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46	Hole Type RC
Location: North Manchester General Hospital		Level: 74.09	Scale 1:50
Client: Bruntwood		Dates: 04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	ES				0.05	74.04		GRASS over TOPSOIL: Brown slightly sandy clay with frequent rootlets. Sand is medium to coarse.
							0.45	73.64		MADE GROUND: Red/brown slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse incuding brick and ceramic.
							0.70	73.39		MADE GROUND: Red/brown angular to subangular gravel of brick, slate and moderate ash content. Frequent intact bricks.
							0.90	73.19		Loose brown slightly clayey medium to coarse SAND.
		2.00 - 2.45	D							Firm light brown mottled grey very sandy CLAY. Sand is medium to coarse. Medium to coarse sand band recorded between 1.20m and 1.40m.
							2.20	71.89		Stiff dark brown slightly sandy slightly gravelly CLAY. Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse including sandstone and mudstone. Becoming very stiff at 6.50m and sand band between 3.35 and 3.45m.
		3.00 - 3.45	D							
		4.00 - 4.45	D							
		6.50 - 695.00	D							
		8.00 - 8.45	U							
		9.50 - 9.95	D							

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Rotary Core Log

Borehole No. **BH105**

Sheet 2 of 5

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46	Hole Type RC
Location: North Manchester General Hospital		Level: 74.09	Scale 1:50
Client: Bruntwood		Dates: 04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description	
		11.00 - 11.45	B				11.00	63.09		Dense light brown silty fine SAND.	11
											12
							13.00	61.09		Very stiff brown sandy CLAY. Sand is fine to medium.	13
		14.00 - 14.45	D								14
							15.00	59.09		Very stiff dark brown very sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse of sandstone, coal and mudstone.	15
		15.50 - 15.95	D								16
		17.00 - 17.45	U								17
											18
											19
		20.00 - 20.45	U								20

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Rotary Core Log

Borehole No. **BH105**

Sheet 3 of 5

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46	Hole Type RC
Location: North Manchester General Hospital		Level: 74.09	Scale 1:50
Client: Bruntwood		Dates: 04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		22.50	B				22.50	51.59		Dense light brown fine SAND.
		23.00 - 23.45	U				22.90	51.19		Very stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to well rounded fine to medium including sandstone and mudstone.

21 22 23 24 25 26 27 28 29 30

Continued on next sheet

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Rotary Core Log

Borehole No. **BH105**

Sheet 4 of 5

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	385071.48 - 402425.46	Hole Type RC
Location:	North Manchester General Hospital		Level:	74.09	Scale 1:50
Client:	Bruntwood		Dates:	04/03/2021 - 19/03/2021	Logged By

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							32.00	42.09		Very stiff reddish brown CLAY with frequent sand lenses. Sand is medium to coarse.

31 32 33 34 35 36 37 38 39 40

Continued on next sheet

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Rotary Core Log

Borehole No. **BH105** Sheet 5 of 5

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385071.48 - 402425.46
Location:	North Manchester General Hospital		Level: 74.09
Client:	Bruntwood		Dates: 04/03/2021 - 19/03/2021

Hole Type: RC | Scale: 1:50 | Logged By:

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
			NI				42.50	31.59		
		42.50 - 44.00	13	80	70	30				Weak reddish brown medium to coarse SANDSTONE. *From 42.50m to 42.66 recovered as non-intact core of sandy gravel.* *42.66m to 43.70m 0-10 degrees closely spaced locally very closely spaced, planar rough*
			NR							*From 43.70m to 44.00m no recovery.*
		44.00 - 45.50	11	93	97	33				*44.00m to 44.27m 0 -10 degrees very closely spaced, planar rough*
			NI				44.38	29.71		*From 44.27m to 44.38m recovered as non-intact core of sandy cobbles.*
			12.5							Medium strong reddish brown fine to medium SANDSTONE. *44.38m to 45.50m 0 - 10 degrees very closely spaced locally closely spaced, planar rough*
		45.50 - 47.00	8	93	93	60	45.50	28.59		Medium strong reddish brown medium to coarse SANDSTONE. *45.50m to 46.9m 0 - 10 degrees closely spaced to medium spaced, planar rough*
			NR							*From 46.90m to 47.00m no recovery.*
		47.00 - 48.50	6	100	97	76				*47.00m to 48.25m 0 - 10 degrees closely spaced to medium spaced, planar rough*
			NI							*From 48.25m to 48.30m recovered as non-intact core of sandy cobbles.*
		48.50 - 50.00	8	100	100	84				*48.30m to 50.00m 0 - 10 degrees closely spaced to medium spaced, planar rough*
							50.00	24.09		End of borehole at 50.00 m

41 42 43 44 45 46 47 48 49 50

Remarks
Service inspection pit hand excavated from GL to 1.20m.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **WS101**

Sheet 1 of 1

Project Name: NMGH Masterplanning	Project No. 076686.300	Co-ords: 385008.14 - 402522.57	Hole Type WS
Location: North Manchester General Hospital		Level: 71.65	Scale 1:50
Client: Bruntwood		Dates: 09/03/2021 - 09/03/2021	Logged By PN

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.12	71.53		ASPHALT MADE GROUND: Brown slightly sandy angular to subrounded fine to coarse gravel including brick, concrete and metal with moderate ash and cobble content. Cobbles are angular of brick and intact bricks.
	▼	1.20		N=29 (4,8/9,8,6,6)				
		1.45 - 1.80	ES		1.40	70.25		Medium dense light brown slightly clayey fine to medium SAND.
					1.70	69.95		Firm light brown slightly sandy slighty gravelly CLAY. Sand is medium to coarse. Grvel is subangular to subrounded fine to coarse including sandstone and mudstone.
		2.00		N=11 (4,3/3,4,2,2)				
					2.80	68.85		Medium dense light brown/orange fine to medium SAND.
		3.00		N=17 (4,4/6,4,4,3)	3.00	68.65		End of borehole at 3.00 m

Remarks

Service inspection pit hand excavated from GL to 1.20m. Groundwater at 1.00m bgl, no rise noted.

A Status - No Comments (FOR INFORMATION)

Borehole Log

Borehole No. **WS102**

Sheet 1 of 1

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords:	384927.74 - 402518.84	Hole Type WS
Location:	North Manchester General Hospital		Level:	71.57	Scale 1:50
Client:	Bruntwood		Dates:	09/03/2021 - 09/03/2021	Logged By PN

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	71.45		ASPHALT
		0.35	ES		0.30	71.27		MADE GROUND: Light brown/grey sandy angular to subrounded fine to medium gravel of aggregate, limestone and brick. Sand is medium to coarse.
		1.20		N=13 (2,6/6,3,2,2)				MADE GROUND: Dark brown very gravelly medium to coarse SAND. Gravel is subangular to subrounded fine to coarse including brick, slate and concrete. No recovery from 1.00m to 1.80m
					1.80	69.77		MADE GROUND: Intact bricks
					2.00	69.57		End of borehole at 2.00 m

Remarks

Service inspection pit hand excavated from GL to 1.20m. Groundwater not encountered.

A Status - No Comments (FOR INFORMATION)

Trial Pit Log

Trialpit No
SA101
Sheet 1 of 1

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385118.84 - 402347.71 Level: 72.48	Date 19/03/2021
Location:	North Manchester General Hospital		Dimensions (m): 2 x 1, Depth 2.10	Scale 1:40
Client:	Bruntwood			Logged PN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	72.28		GRASS over TOPSOIL: Brown slightly sandy clay with frequent rootlets. Sand is medium to coarse.
				0.50	71.98		MADE GROUND: Dark brown slightly clayey slightly gravelly medium to coarse sand with low cobble content. Gravel is subangular medium to coarse including brick and sandstone. Cobbles are subangular of brick and concrete.
							Light brown slightly clayey medium to coarse SAND.
				2.10	70.38		End of pit at 2.10 m

Remarks: Machine excavated trial pit to 2.00m bgl. No groundwater encountered. See Appendix D for soakway results.

Stability: Pit remained stable and open throughout.

A Status - No Comments (FOR INFORMATION)

Trial Pit Log

Trialpit No **SA102** Sheet 1 of 1

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385086.70 - 402427.41 Level: 74.09
Location:	North Manchester General Hospital	Dimensions (m): Depth 2.00	2 × 1
Client:	Bruntwood		

Date 18/03/2021 | Scale 1:40 | Logged PN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	73.89		GRASS over TOPSOIL: Brown slightly sandy clay with frequent rootlets. Sand is fine to medium.
				0.50	73.59		MADE GROUND: Firm reddish brown slightly clayey gravelly medium to coarse sand with moderate cobble content. Gravel is subangular fine to medium including brick and concrete. Cobbles are subangular of brick.
				1.00	73.09		MADE GROUND: Dark brown slightly clayey gravelly medium to coarse sand with moderate ash content. Gravel is anglar fine to coarse inlcuding brick and sandstone. Cobbles are subangular of brick and sandstone.
				1.10	72.99		Light brown gravelly medium SAND. Gravel is subangular to subrounded medium to coarse of sandstone.
				1.20	72.89		Dark brown very gravelly fine to medium SAND. Gravel is angular medium to coarse including coal and sandstone.
				2.00	72.09		Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse including mudstone.
							End of pit at 2.00 m

Remarks: Machine excavated trial pit to 2.00m bgl. No groundwater encountered. See Appendix D for soakway results.

Stability: Pit remained stable and open throughout.

A Status - No Comments (FOR INFORMATION)

Trial Pit Log

Trialpit No **SA103** Sheet 1 of 1

Project Name:	NMGH Masterplanning	Project No. 076686.300	Co-ords: 385059.27 - 402455.44 Level: 74.01	Date 18/03/2021
Location:	North Manchester General Hospital	Dimensions (m): 2 x 1 Depth 2.00		Scale 1:40
Client:	Bruntwood			Logged PN

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	73.71		GRASS over TOPSOIL: Brown slightly sandy clay with frequent rootlets. Sand is fine to medium.
				0.70	73.31		MADE GROUND: Dark grey very gravelly coarse sand with low cobble content and moderate ash content. Gravel is angular fine to coarse including brick and ash. Cobbles are angular of brick.
				1.50	72.51		Firm dark brown mottled grey sandy CLAY. Sand is fine to medium.
				2.00	72.01		Stiff brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of mudstone.
							End of pit at 2.00 m

Remarks: Machine excavated trial pit to 2.00m bgl. No groundwater encountered. See Appendix D for soakway results.

Stability: Pit remained stable and open throughout.

A Status - No Comments (FOR INFORMATION)

Appendix A3 – Geo-Environmental Laboratory Testing Results

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/02515
Issue Number: 1 **Date:** 18 March, 2021

Client:
Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: Philippa Neesham/Rob Allen
Project Name: North Manchester General Hospital - MSCP
Project Ref: 076686
Order No: EBMA2726
Date Samples Received: 10/03/21
Date Instructions Received: 11/03/21
Date Analysis Completed: 18/03/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Richard Wong
Client Manager

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/02515

Client Project Name: North Manchester General Hospital - MSCP

Client Project Ref: 076686

Lab Sample ID	21/02515/1	21/02515/2	21/02515/3					Units	Limit of Detection	Method ref
Client Sample No	WS101	WS101	WS102							
Client Sample ID										
Depth to Top	0.20	1.45	0.35							
Depth To Bottom										
Date Sampled	09-Mar-21	09-Mar-21	09-Mar-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AB	4A	2ABE							
% Stones >10mm$_A$	36.8	<0.1	32.2					% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	9.88	8.80	8.95					pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.28	0.03	0.04					g/l	0.01	A-T-026s
Cyanide (total)$_A$$^{M\#}$	<1	<1	<1					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2					mg/kg	0.2	A-T-050s
Organic matter$_D$$^{M\#}$	9.7	0.3	4.5					% w/w	0.1	A-T-032 OM
Arsenic$_D$$^{M\#}$	3	1	3					mg/kg	1	A-T-024s
Boron (water soluble)$_D$	1.1	<1.0	<1.0					mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.8	<0.5	0.9					mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	26	6	16					mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	13	5	9					mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1					mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	71	4	146					mg/kg	1	A-T-024s
Mercury$_D$	0.62	<0.17	1.34					mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	17	5	10					mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1					mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	70	18	83					mg/kg	5	A-T-024s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/02515

Client Project Name: North Manchester General Hospital - MSCP

Client Project Ref: 076686

Lab Sample ID	21/02515/1	21/02515/2	21/02515/3					Units	Limit of Detection	Method ref
Client Sample No	WS101	WS101	WS102							
Client Sample ID										
Depth to Top	0.20	1.45	0.35							
Depth To Bottom										
Date Sampled	09-Mar-21	09-Mar-21	09-Mar-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AB	4A	2ABE							
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD							A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A							A-T-045

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/02515

Client Project Name: North Manchester General Hospital - MSCP

Client Project Ref: 076686

Lab Sample ID	21/02515/1	21/02515/2	21/02515/3					Units	Limit of Detection	Method ref
Client Sample No	WS101	WS101	WS102							
Client Sample ID										
Depth to Top	0.20	1.45	0.35							
Depth To Bottom										
Date Sampled	09-Mar-21	09-Mar-21	09-Mar-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AB	4A	2ABE							
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.54	<0.01	0.15					mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.03	<0.01	0.05					mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	1.09	<0.02	0.33					mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	3.42	<0.04	1.92					mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	3.57	<0.04	1.99					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	4.22	<0.05	2.20					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	1.58	<0.05	0.92					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	1.43	<0.07	0.77					mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	3.15	<0.06	1.92					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.32	<0.04	0.20					mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	6.05	<0.08	3.54					mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.36	<0.01	0.09					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	1.88	<0.03	1.04					mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.07	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	4.05	<0.03	1.31					mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	7.19	<0.07	3.59					mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	39	<0.08	20					mg/kg	0.01	A-T-019s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/02515

Client Project Name: North Manchester General Hospital - MSCP

Client Project Ref: 076686

Lab Sample ID	21/02515/1	21/02515/2	21/02515/3					Units	Limit of Detection	Method ref
Client Sample No	WS101	WS101	WS102							
Client Sample ID										
Depth to Top	0.20	1.45	0.35							
Depth To Bottom										
Date Sampled	09-Mar-21	09-Mar-21	09-Mar-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AB	4A	2ABE							
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	3	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	8	<1	2					mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	43	<1	31					mg/kg	1	A-T-055s
Total Aliphatics$_A$	54	<1	34					mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16$_A$	6	<1	3					mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	44	<1	21					mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	179	<1	92					mg/kg	1	A-T-055s
Total Aromatics$_A$	230	<1	116					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	284	<1	151					mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.
Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

A Status - No Comments (FOR INFORMATION)

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: North Manchester General Hospital - MSCP

Clients Project No: 076686

Project No: 21/02515

Date Received: 11/03/2021 (pm)

Cool Box Temperatures (°C): 6.2

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab
Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	21/02515		
Issue Number:	1	Date:	9-Apr-21
Client:	Curtins Consulting (Manchester) Merchant Exchange 17-19 Whitworth Street Manchester UK M1 5WG		
Project Manager:	Philippa Neesham/Rob Allen		
Project Name:	North Manchester General Hospital - MSCP		
Project Ref:	76686		
Order No:	EBMA2726		
Date Samples Received:	10-Mar-21		
Date Instructions Received:	11-Mar-21		
Date Analysis Completed:	9-Apr-21		

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

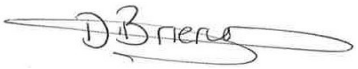
Please contact us if you need any further information.

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	21/02515/1				
Client Sample Number				WS101		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID								
Depth to Top				0.2				
Depth to Bottom								
Date Sampled				09/03/2021				
Sample Type				Soil - ES				
Sample Matrix Code				4AB				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**9.89**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.2**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**4**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**4.44**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**39.3**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**107**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**0.041**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.019	**0.190**	0.5	2	25
Barium	A-T-025	N	N	0.063	**0.630**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.003	**0.030**	0.5	10	70
Copper	A-T-025	N	N	0.009	**0.090**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.001	**0.010**	0.5	10	30
Nickel	A-T-025	N	N	0.002	**0.020**	0.4	10	40
Lead	A-T-025	N	N	0.052	**0.520**	0.5	10	50
Antimony	A-T-025	N	N	0.013	**0.130**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.032	**0.320**	4	50	200
Chloride	A-T-026	N	N	17	**169**	800	15000	25000
Fluoride	A-T-026	N	N	0.8	**8.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	45	**455**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	118	**1180**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	9.0				
Conductivity (µS/cm)	A-T-037	N	N	235				
Mass Sample (kg)				0.214				
Dry Matter (%)	A-T-044	N	N	81.8				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

A Status - No Comments (FOR INFORMATION)

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	21/02515/2				
Client Sample Number				WS101		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID								
Depth to Top				1.45				
Depth to Bottom								
Date Sampled				09/03/2021				
Sample Type				Soil - ES				
Sample Matrix Code				4A				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**8.72**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.02**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.02**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**1.1**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**0.28**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**<0.08**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**<10**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1 mg/l**	**10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.002	**0.020**	0.5	2	25
Barium	A-T-025	N	N	0.040	**0.400**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	0.003	**0.030**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.002	**0.020**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	0.003	**0.030**	0.5	10	50
Antimony	A-T-025	N	N	0.007	**0.070**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.005	**0.050**	4	50	200
Chloride	A-T-026	N	N	16	**159**	800	15000	25000
Fluoride	A-T-026	N	N	0.4	**4.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	17	**172**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	44	**440**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	6.4				
Conductivity (µS/cm)	A-T-037	N	N	88				
Mass Sample (kg)				0.212				
Dry Matter (%)	A-T-044	N	N	82.6				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	21/02515/3				
Client Sample Number				WS102		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID								
Depth to Top				0.35				
Depth to Bottom								
Date Sampled				09/03/2021				
Sample Type				Soil - ES				
Sample Matrix Code				2ABE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**9.03**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.49**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**2.5**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**1.31**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**20.3**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**81**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1** mg/l	**10:1** mg/kg	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.005	**0.050**	0.5	2	25
Barium	A-T-025	N	N	0.120	**1.200**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.001	**0.010**	0.5	10	70
Copper	A-T-025	N	N	0.005	**0.050**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.002	**0.020**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	0.047	**0.470**	0.5	10	50
Antimony	A-T-025	N	N	0.006	**0.060**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.023	**0.230**	4	50	200
Chloride	A-T-026	N	N	3	**34**	800	15000	25000
Fluoride	A-T-026	N	N	0.6	**6.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	12	**116**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	67	**670**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	6.9				
Conductivity (µS/cm)	A-T-037	N	N	135				
Mass Sample (kg)				0.192				
Dry Matter (%)	A-T-044	N	N	91				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

A Status - No Comments (FOR INFORMATION)

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/02827
Issue Number: 1 **Date:** 30 March, 2021

Client:
Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: Philippa Neesham/Rob Allen
Project Name: North Manchester General Hospital - MSGP
Project Ref: 076686
Order No: EBMA2740
Date Samples Received: 16/03/21
Date Instructions Received: 18/03/21
Date Analysis Completed: 30/03/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Richard Wong
Client Manager

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Envirolab Job Number: 21/02827

Client Project Name: North Manchester General Hospital - MSGP

Client Project Ref: 076686

Lab Sample ID	21/02827/1	21/02827/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP104	CP102								
Depth to Top	0.45	0.50								
Depth To Bottom										
Date Sampled	10-Mar-21	12-Mar-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4ABE								
% Stones >10mm$_A$	12.6	2.8						% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.82	8.00						pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.02	0.08						g/l	0.01	A-T-026s
Cyanide (total)$_A$$^{M\#}$	<1	<1						mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2						mg/kg	0.2	A-T-050s
Organic matter$_D$$^{M\#}$	8.7	10.7						% w/w	0.1	A-T-032 OM
Arsenic$_D$$^{M\#}$	24	24						mg/kg	1	A-T-024s
Boron (water soluble)$_D$	<1.0	<1.0						mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.9	1.0						mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	86	156						mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	16	17						mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1						mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	145	337						mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.39						mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	37	36						mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1						mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	135	181						mg/kg	5	A-T-024s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Envirolab Job Number: 21/02827

Client Project Name: North Manchester General Hospital - MSGP

Client Project Ref: 076686

Lab Sample ID	21/02827/1	21/02827/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP104	CP102								
Depth to Top	0.45	0.50								
Depth To Bottom										
Date Sampled	10-Mar-21	12-Mar-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4ABE								
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A								A-T-045

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/02827

Client Project Name: North Manchester General Hospital - MSGP

Client Project Ref: 076686

Lab Sample ID	21/02827/1	21/02827/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP104	CP102								
Depth to Top	0.45	0.50								
Depth To Bottom										
Date Sampled	10-Mar-21	12-Mar-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4ABE								
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.07	2.08						mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	0.17						mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.09	2.63						mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.28	9.85						mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.22	8.57						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.33	11						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.12	3.82						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.11	3.83						mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.35	10.9						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	0.89						mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.74	19.6						mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.04	1.39						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.10	3.52						mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.04	0.30						mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.56	14.6						mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.74	19.1						mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	3.79	112						mg/kg	0.01	A-T-019s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/02827

Client Project Name: North Manchester General Hospital - MSGP

Client Project Ref: 076686

Lab Sample ID	21/02827/1	21/02827/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP104	CP102								
Depth to Top	0.45	0.50								
Depth To Bottom										
Date Sampled	10-Mar-21	12-Mar-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	4ABE								
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	0.02						mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	1	7						mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<5						mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	2	8						mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	2	13						mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	10	32						mg/kg	1	A-T-055s
Total Aliphatics$_A$	15	61						mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	2	12						mg/kg	1	A-T-055s
Aro >C10-C12$_A$	2	11						mg/kg	1	A-T-055s
Aro >C12-C16$_A$	7	114						mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	11	414						mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	33	1060						mg/kg	1	A-T-055s
Total Aromatics$_A$	55	1610						mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	70	1670						mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.
Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

A Status - No Comments (FOR INFORMATION)

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: North Manchester General Hospital - MSGP

Clients Project No: 076686

Project No: 21/02827

Date Received: 18/03/2021 (am)

Cool Box Temperatures (°C): 9.2, 12.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab
Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	21/02827		
Issue Number:	1	Date:	22-Apr-21
Client:	Curtins Consulting (Manchester) Merchant Exchange 17-19 Whitworth Street Manchester UK M1 5WG		
Project Manager:	Philippa Neesham/Rob Allen		
Project Name:	North Manchester General Hospital - MSGP		
Project Ref:	76686		
Order No:	EBMA2740		
Date Samples Received:	16-Mar-21		
Date Instructions Received:	18-Mar-21		
Date Analysis Completed:	22-Apr-21		

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

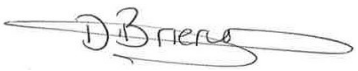
Please contact us if you need any further information.

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	21/02827/1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample Number								
Client Sample ID				CP104				
Depth to Top				0.45				
Depth to Bottom								
Date Sampled				10/03/2021				
Sample Type				Soil - ES				
Sample Matrix Code				4A				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**7.82**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.03**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**<0.01**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**8.2**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**7.15**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**3.81**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**16**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.001	**0.010**	0.5	2	25
Barium	A-T-025	N	N	0.053	**0.530**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	0.003	**0.030**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.004	**0.040**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	0.001	**0.010**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.002	**0.020**	4	50	200
Chloride	A-T-026	N	N	<1.00	**<10**	800	15000	25000
Fluoride	A-T-026	N	N	0.6	**6.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	2	**24**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	63	**630**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.7				
Conductivity (µS/cm)	A-T-037	N	N	127				
Mass Sample (kg)				0.219				
Dry Matter (%)	A-T-044	N	N	79.9				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	21/02827/2		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample Number								
Client Sample ID				CP102				
Depth to Top				0.5				
Depth to Bottom								
Date Sampled				12/03/2021				
Sample Type				Soil - ES				
Sample Matrix Code				4ABE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**8.00**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.05**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**<0.01**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**13.1**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**11.5**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**113**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**61**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1** mg/l	**10:1** mg/kg	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.003	**0.030**	0.5	2	25
Barium	A-T-025	N	N	0.048	**0.480**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	0.004	**0.040**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.005	**0.050**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	0.002	**0.020**	0.5	10	50
Antimony	A-T-025	N	N	<0.001	**<0.01**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.004	**0.040**	4	50	200
Chloride	A-T-026	N	N	6	**58**	800	15000	25000
Fluoride	A-T-026	N	N	2.1	**21.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	8	**82**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	60	**600**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.6				
Conductivity (µS/cm)	A-T-037	N	N	120				
Mass Sample (kg)				0.244				
Dry Matter (%)	A-T-044	N	N	71.8				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/03611
Issue Number: 1 **Date:** 19 April, 2021

Client:
Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: EBMA/Philippa Neesham
Project Name: NMGH, Multistorey Car Park
Project Ref: BO76686
Order No: EBMA2808
Date Samples Received: 06/04/21
Date Instructions Received: 07/04/21
Date Analysis Completed: 18/04/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Danielle Brierley
Client Manager

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/03611

Client Project Name: NMGH, Multistorey Car Park

Client Project Ref: BO76686

Lab Sample ID	21/03611/1							Units	Limit of Detection	Method ref
Client Sample No	ES1									
Client Sample ID	CP103									
Depth to Top	0.60									
Depth To Bottom										
Date Sampled	31-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	3E									
% Stones >10mm$_A$	<0.1							% w/w	0.1	A-T-044
pH$_D$[M#]	6.14							pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$[M#]	<0.01							g/l	0.01	A-T-026s
Cyanide (total)$_A$[M#]	<1							mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2							mg/kg	0.2	A-T-050s
Organic matter$_D$[M#]	1.6							% w/w	0.1	A-T-032 OM
Arsenic$_D$[M#]	5							mg/kg	1	A-T-024s
Boron (water soluble)$_D$	<1.0							mg/kg	1	A-T-027s
Cadmium$_D$[M#]	0.7							mg/kg	0.5	A-T-024s
Copper$_D$[M#]	25							mg/kg	1	A-T-024s
Chromium$_D$[M#]	16							mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1							mg/kg	1	A-T-040s
Lead$_D$[M#]	29							mg/kg	1	A-T-024s
Mercury$_D$	<0.17							mg/kg	0.17	A-T-024s
Nickel$_D$[M#]	15							mg/kg	1	A-T-024s
Selenium$_D$[M#]	<1							mg/kg	1	A-T-024s
Zinc$_D$[M#]	44							mg/kg	5	A-T-024s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/03611

Client Project Name: NMGH, Multistorey Car Park

Client Project Ref: BO76686

Lab Sample ID	**21/03611/1**									
Client Sample No	**ES1**									
Client Sample ID	**CP103**									
Depth to Top	**0.60**									
Depth To Bottom										
Date Sampled	**31-Mar-21**									
Sample Type	**Soil - ES**									
Sample Matrix Code	**3E**									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	**NAD**									**A-T-045**
Asbestos ACM - Suitable for Water Absorption Test?$_D$	**N/A**									**A-T-045**

Units | **Limit of Detection** | **Method ref**

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/03611

Client Project Name: NMGH, Multistorey Car Park

Client Project Ref: BO76686

Lab Sample ID	21/03611/1							Units	Limit of Detection	Method ref
Client Sample No	ES1									
Client Sample ID	CP103									
Depth to Top	0.60									
Depth To Bottom										
Date Sampled	31-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	3E									
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01							mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01							mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02							mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.07							mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.06							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.08							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07							mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.08							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04							mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.16							mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03							mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03							mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.08							mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.16							mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	0.69							mg/kg	0.01	A-T-019s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/03611

Client Project Name: NMGH, Multistorey Car Park

Client Project Ref: BO76686

Lab Sample ID	21/03611/1							Units	Limit of Detection	Method ref
Client Sample No	ES1									
Client Sample ID	CP103									
Depth to Top	0.60									
Depth To Bottom										
Date Sampled	31-Mar-21									
Sample Type	Soil - ES									
Sample Matrix Code	3E									
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	2							mg/kg	1	A-T-055s
Total Aliphatics$_A$	2							mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1							mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1							mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	2							mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	8							mg/kg	1	A-T-055s
Total Aromatics$_A$	11							mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	13							mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.
Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

A Status - No Comments (FOR INFORMATION)

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: NMGH, Multistorey Car Park

Clients Project No: BO76686

Project No: 21/03611

Date Received: 07/04/2021 (am)

Cool Box Temperatures (°C): 5.2

Lab Sample ID	21/03611/1
Client Sample No	ES1
Client Sample ID/Depth	CP103 0.60m
Date Sampled	31/03/21
Deviation Code	
F	✓

Key

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	21/03611/1
Client Sample No	ES1
Client Sample ID/Depth	CP103 0.60m
Date Sampled	31/03/21
Cyanide (total)	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/03841
Issue Number: 1 **Date:** 21 April, 2021

Client:
Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: EBMA/Philippa Neesham
Project Name: NMGH - MSCP
Project Ref: 076686
Order No: EBMA2809
Date Samples Received: 12/04/21
Date Instructions Received: 13/04/21
Date Analysis Completed: 21/04/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Holly Neary-King
Client Services Supervisor

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/03841

Client Project Name: NMGH - MSCP

Client Project Ref: 076686

Lab Sample ID	21/03841/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP101									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	12-Apr-21									
Sample Type	Soil - ES									
Sample Matrix Code	6A									
% Stones >10mm$_A$	11.3							% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.78							pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	<0.01							g/l	0.01	A-T-026s
Cyanide (total)$_A$$^{M\#}$	<1							mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2							mg/kg	0.2	A-T-050s
Organic matter$_D$$^{M\#}$	1.6							% w/w	0.1	A-T-032 OM
Arsenic$_D$$^{M\#}$	2							mg/kg	1	A-T-024s
Boron (water soluble)$_D$	<1.0							mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.5							mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	19							mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	27							mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1							mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	14							mg/kg	1	A-T-024s
Mercury$_D$	2.79							mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	18							mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	2							mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	65							mg/kg	5	A-T-024s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Envirolab Job Number: 21/03841

Client Project Name: NMGH - MSCP

Client Project Ref: 076686

Lab Sample ID	21/03841/1									
Client Sample No										
Client Sample ID	CP101									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	12-Apr-21									
Sample Type	Soil - ES									
Sample Matrix Code	6A									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	NAD									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	N/A									A-T-045

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

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Envirolab Job Number: 21/03841

Client Project Name: NMGH - MSCP

Client Project Ref: 076686

Lab Sample ID	21/03841/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP101									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	12-Apr-21									
Sample Type	Soil - ES									
Sample Matrix Code	6A									
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.06							mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01							mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.10							mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.28							mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.30							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.30							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.17							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.12							mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.30							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04							mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.62							mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.04							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.18							mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03							mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.45							mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.56							mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	3.48							mg/kg	0.01	A-T-019s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

envirolab

Envirolab Job Number: 21/03841

Client Project Name: NMGH - MSCP

Client Project Ref: 076686

Lab Sample ID	21/03841/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	CP101									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	12-Apr-21									
Sample Type	Soil - ES									
Sample Matrix Code	6A									
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	3							mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	5							mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	19							mg/kg	1	A-T-055s
Total Aliphatics$_A$	27							mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1							mg/kg	1	A-T-055s
Aro >C12-C16$_A$	3							mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	8							mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	23							mg/kg	1	A-T-055s
Total Aromatics$_A$	36							mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	63							mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

REPORT NOTES

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The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.
Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

A Status - No Comments (FOR INFORMATION)

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: NMGH - MSCP

Clients Project No: 076686

Project No: 21/03841

Date Received: 13/04/2021 (am)

Cool Box Temperatures (°C): 2.8

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

Appendix A4 – Generic Assessment Criteria (GACs)

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

Adopted Soil Generic Assessment Criteria
Sandy loam with 2.5% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	*1.7*	*1.7*	*35*	*12*	*2.2*	*63*
Boron	*290*	*11,000*	*45*	*240,000*	*21,000*	*46,000*
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	*120* 220	*560* 880
Chromium III	*910*	*910*	*18,000*	*8,600*	*1,500*	*33,000*
Chromium VI	*6* 21	*6* 21	*1.8* 170	*33* 49	*7.7* 21	*220* 250
Lead	200	310	80	2,300	630	1,300
Mercury *(elemental)*	**1**	**1**	**26**	**26**	*16*	**26**[8] [*30*]
Mercury (inorganic)	**170**	**240**	**80**	**3600**	*120*	*240*
Nickel	*130*[10]	*180*[10]	*53*[11]	*980*[10]	*230*	*800*
Vanadium	*410*	*1200*	*91*	*9000*	*2000*	*5000*
Copper	*2400*	*7100*	*520*	*68000*	*12000*	*44000*
Zinc	*3700*	*40000*	*620*	*730000*	*81000*	*170000*
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	*79* 79	*170* 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	*1100*	*1800*
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	*78*	*78*	*1700*	*5900*	*590000*	*130000*
$EC_{>6}$ - EC_8	*230*	*230*	*5600*	*17000*	*610000*	*220000*
$EC_{>8}$ - EC_{10}	*65*	*65*	*770*	*4800*	*13000*	*18000*
EC_{10}-EC_{12}	*330*	*330*	*4400*	*23000*	*13000*	*23000*
EC_{12}-EC_{16}	*2400*	*2400*	*13000*	*82000*	*13000*	*25000*
$EC_{>16}$ - EC_{35}	*92000*	*92000*	*270000*	*1700000*	*250000*	*480000*
$EC_{>35}$ - EC_{44}	*92000*	*92000*	*270000*	*1700000*	*250000*	*480000*
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_7	*140*	*690*	*27*	*46000*	*56000*	*84000*
$EC_{>7}$ - EC_8	*290*	*1800*	*51*	*110000*	*56000*	*95000*
$EC_{>8}$ - EC_{10}	*83*	*110*	*21*	*8100*	*5000*	*8500*
EC_{10} - EC_{12}	*180*	*590*	*31*	*28000*	*5000*	*9700*
EC_{12} - EC_{16}	*330*	*2300*	*57*	*37000*	*5100*	*10000*
$EC_{>16}$ - EC_{21}	*540*	*1900*	*110*	*28000*	*3800*	*7700*
$EC_{>21}$ - EC_{35}	*1500*	*1900*	*820*	*28000*	*3800*	*7800*
$EC_{>35}$ - EC_{44}	*1500*	*1900*	*820*	*28000*	*3800*	*7800*
Aliph + Arom EC >44-70	*1800*	*1900*	*2100*	*28000*	3800	7800
Aromatic						
Benzene	**0.16**	**0.49**	**0.035**	**50**	*72*	*100*
Ethyl benzene	**150**	**380**	**39**	**1200**[8] [35000]	**1200**[8] [*24000*]	**1200**[8] [*22000*]
Toluene	**270**	**1300**	**51**	**1900**[8] [110000]	**1900**[8] [*56000*]	**1900**[8] [*95000*]
Xylene[9]	**98**	**120**	**70**	**1200**[8] [14000]	**1200**[8] [*42000*]	**1200**[8] [*23000*]
Phenol	**290**	**420**	**140**	**1500**[14] (35000)	**1500**[14] (*10000*)	**1500**[14] (*8300*)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	*5.6*	*5.6*	*10*	*460*	*4900*	*1900*
Acenaphthylene	*420*	*4600*	*69*	*97000*	*15000*	*30000*
Acenaphthene	*510*	*4700*	*85*	*97000*	*15000*	*30000*
Fluorene	*400*	*3800*	*67*	*68000*	*9900*	*20000*
Phenanthrene	*220*	*1500*	*38*	*22000*	*3100*	*6200*
Anthracene	*5400*	*35000*	*950*	*540000*	*74000*	*150000*
Fluoranthene	*560*	*1600*	*130*	*23000*	*3100*	*6300*
Pyrene	*1200*	*3800*	*270*	*54000*	*7400*	*15000*
Benz(a)anthracene	*11*	*14*	*6.5*	*170*	*29*	*56*
Chrysene	*22*	*31*	*9.4*	*350*	*57*	*110*
Benzo(b)fluoranthene	*3.3*	*4.0*	*2.1*	*44*	*7.2*	*15*
Benzo(k)fluoranthene	*93*	*110*	*75*	*1200*	*190*	*410*
Benzo(a)pyrene	*2.7*	*3.2*	*2*	*35*	*5.7*	*12*
Indeno(123cd)pyrene	*36*	*46*	*21*	*510*	*82*	*170*
Dibenzo(ah)anthracene	*0.28*	*0.32*	*0.27*	*3.6*	*0.57*	*1.3*
Benzo(ghi)perylene	*340*	*360*	*470*	*4000*	*640*	*1500*
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	*0.00087*	*0.001*	*0.001*	*0.077*	*3.5*	*5*
Trichloroethene (TCE)	*0.034*	*0.036*	*0.091*	*2.6*	*120*	*91*
1,1,1,2 Tetrachlorethane	*2.8*	*3.5*	*1.9*	*250*	*1400*	*1800*
Tetrachlorethene (PCE)	*0.39*	*0.4*	*1.5*	*42*	*1400*	*1100*
1,1,1 Trichlorethane	*18*	*18*	*110*	*1300*	*140000*	*76000*

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, *numbers in italics are S4ULs*, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 2.5% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

V1 Mar 2017

A Status - No Comments (FOR INFORMATION)

A Status - No Comments (FOR INFORMATION)

APPENDIX B – JOINT INDUSTRY WORKING GROUPS DECISION TOOL OUTPUT

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	TE1650
Site Name	MSCP, North Manchester General Hospital
Client	Morgan Sindall
Run by	Sean Lee
Date	17.03.2022
Scenario details	Isolated insulation (assumed as third party information is limited)

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Clearly identifiable insulation or lagging	3
Extent of degradation of ACMs at outset of work	Degraded (Significant degradation in ACM; material has lost its basic integrity)	3
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not firmly linked in a matrix	2
Distribution of Visible Asbestos Across Affected Area	Sporadic/random occurrences of visible contamination by ACMs	2
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - >0.1 %wt/wt	4
Sub-total		**14**

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking **Medium**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Exposure Factors		Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.1 fibres/ml (4 Hr TWA) or <0.6 fibres/ml (10 minute STEL)	2
Anticipated duration of exposure to asbestos	> 2 hours in a 7 day period and Up to 10 hours in a day (e.g. full time occupational exposure)	4
Activity type and effect on deterioration of ACMs during work	Sampling, manual or mechanical (significant deterioration expected)	2
Best description of primary host material matrix (soil/made ground)	Coarse to Fine Gravel	3
Respirable fibre index for ACM - RIVM report 711701034 (2003)	High	4
Sub-total		**15**
Exposure ranking		Medium
Combined hazard and exposure ranking	**29**	Medium

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Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN140 with P3 filter half mask
Dust Suppression**	Localised mechanical dust suppression
Hygiene/Decontamination***	Localised and enhanced personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

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APPENDIX C – COMPLYING WITH CONTROL OF ASBESTOS REGULATIONS 2012

Complying with Control of Asbestos Regulations (CAR): Risk Assessments, Licensing and Training

This appendix outlines CAR risk assessments and where they should be applied in relation to assessing and remediating brownfield sites. The information below details the different classifications of work with asbestos under CAR, summarises the legal requirements for asbestos awareness training for all involved in the investigation and management of asbestos containing soil (ACS), and details the potential requirements for suitable proficiency training relating specifically to ACS.

CAR RISK ASSESSMENTS

A CAR Risk Assessment is required for any work which may expose employees to asbestos. It is recommended that a precautionary approach is adopted if there is any doubt about risks associated with asbestos.

There are three main activities for potential asbestos exposure during work on brownfield sites:

- Site reconnaissance visits;
- Site investigation works; and
- Site remediation.

CAR risk assessments are needed at each stage but may be incorporated during the site investigation stage into the overarching health and safety risk assessments.

The CAR risk assessment must:

- Identify the type of asbestos to which employees are liable to be exposed, where possible, or assume it is present in different forms;
- Determine the type and extent of exposures to asbestos that may occur during the work
- Identify the steps to be taken to prevent exposure or reduce it to the lowest level reasonably practicable; and,
- Consider the effects of control measures that have been or will be taken.

The CAR risk assessment should include any information used to inform the risk assessment such as asbestos reports or desk study information. In the event that this information is not available, the assessor should be assumed that all forms of asbestos may be present on Site.

For all investigation and remediation of ACSs, a detailed written work plan should he produced and followed as detailed on the HSE website and in the CAR.

The CAR risk assessments for specific investigations or remediation projects, will determine whether or not work is 'licensable work' (LW), notifiable non-licensable work' (NNLW) or 'non-licensed work' (NLW). In addition, training requirements are also defined by the CAR risk assessment.

Some examples of control measures that apply during site reconnaissance, site investigation works and site remediation are given below and should be applied depending on the asbestos risks identified for the Site at each stage of investigation:

- Avoiding stirring up dust;
- Cleaning footwear after site works;
- Removing and bagging any overalls for disposal/laundering;
- Respirators and hygiene facilities for high risk sites;
- Segregated welfare units;
- Wetting ground
- Minimising soil disturbances;
- Implementation or retention of capping/break layers;
- Implementation of awareness training;
- Air monitoring;
- Managing stockpiles;
- Area segregation;
- Wheel washing
- Road washing/cleaning

It is important to note that during Site reconnaissance visits, Site investigation works and Site remediation that asbestos should not be considered in isolation and control measures are likely to form part of a wider health and safety precautions.

Respiratory protective equipment (RPE)

RPE is the last line of defence and its requirement would be defined by the CAR risk assessment. HSE (2013b) advises that RPE should have an assigned protection factor of 20 or more for all work with asbestos. In certain instances, full face-piece, positive pressure respirators with a protection factor of 40 are necessary (to EN 12942:1998, TM3).

Suitable types of RPE for most ***short*** duration non-licensed asbestos work:

- Disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3)
- Half mask respirator (to standard EN140) with P3 filter
- Semi-disposable respirator (to EN405) with P3 filter

These filters are not suitable for people with beards/stubble or for long or continuous use.

LICENSING

CAR defined certain types of activities involving asbestos as 'licensable work' (LW) or as 'notifiable non-licensable work' (NNLW). All other work would be 'non-licensable work' (NLW).

LW is defined as:

- work where exposure is not 'sporadic and low intensity'
- work where the risk assessment cannot demonstrate that the control limits (four hour and 10 minute limits) will not be exceeded
- work on asbestos coating
- work on AIB or insulation where risk assessment is either of first two points above or not of short duration (where short duration is defined for any work liable to disturb asbestos as taking less than two hours per week (including ancillary work) and no one person carries out that work for more than one hour').

NNLW includes work with:

- AIB or asbestos insulation of short duration that is not licensable
- fire-damaged asbestos cement or asbestos cement damaged so as to create significant dust and debris
- asbestos ropes, yarns, woven cloths in poor condition or handling cutting or breaking up the materials
- asbestos papers, felts and cardboard in poor condition, unencapsulated or not bound into another material.

Work with weathered asbestos cement, air monitoring and collecting samples of ACM in buildings would not normally be notifiable.

It is impossible to specify definitively what activities will and will not be licensable. This decision should be made as part of the CAR risk assessment. CAR is not primarily aimed at work with ACSs and there is little published information on airborne asbestos concentrations during work with ACSs. Nevertheless, CAR will require some remediation projects, and occasionally site investigations, to be LW. Investigations on other sites may involve NNLW. The decision as to whether work is LW or NNLW should be made during the CAR risk assessment by those in charge of the brownfield site investigations and remediation projects.

TRAINING REQUIREMENTS

Asbestos health and safety courses are offered by a number of providers in the UK. Training courses that include the problem of identifying ACMs in soil should be undertaken at regular intervals by those involved in the investigation, assessment and management of sites where ACs are known or suspected. It is the role of the employer to identify the level of training required for an employee based on their role, experience and duties. Reference to Regulation 10 of CAR should be referred to for more information on training requirements.

Recognising asbestos within soils is challenging due to the heterogeneity of such soils and the discolouration of asbestos by smeared soil. Specific training for ground workers should include understanding fibre release potential, potential control measures in the field, how to take representative ACSs safely, sample labelling and what analytical tests are available and when the y should be implemented.

Health and safety training required under CAR includes asbestos awareness, non-licensable work (including notifiable non-licensable work) and licensable work with asbestos.

In addition to health and safety training, some staff involved in the technical identification on site of ACMs, sampling and analysis may require technical proficiency training (competency training).

Training vs. Competence

HSE (2005) identifies that 'training alone does not make people competent. Training must be consolidated by practical experience so that the person becomes confident, skilful and knowledgeable in practice on the job'. It is critical that ACS surveyors demonstrate competency with details of relevant field experience alongside training and examples of previous works/references.

ASBESTOS IN SOILS REMOVAL VERIFICATION REPORT FOR MSCP, NORTH MANCHESTER GENERAL HOSPITAL

TE1650-TE-00-XX-RP-GE-001-V01

VERSION 1.0

27 JULY 2022

FINAL

Prepared for:

Morgan SindallConstruction & Infrastructure Ltd

Prepared by: Stuart Milne

Tier Environmental Ltd

Warrington	London	Manchester	Bromsgrove	Bristol	Sheffield
| **HQ Telephone** 01244 684900			| **Telephone** 01925 818388		
| **Website**: www.tieruk.com			| **Email**: environmental@tieruk.com		

Tier Environmental is a trading name of Tier Environmental Ltd. Registered in England and Wales no 05441804

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Project Engineer:	Stuart Milne
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Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
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Appendix D – Air Monorting Certificates

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1. INTRODUCTION

Tier Environmental was commissioned by Morgan Sindall Construction & Infrastructure Ltd to provide a Verification Report for the removal of asbestos impacted soils for a proposed multi-storey car park (MSCP) at North Manchester General Hospital, Crumpsall, M8 5RB (the "Site").

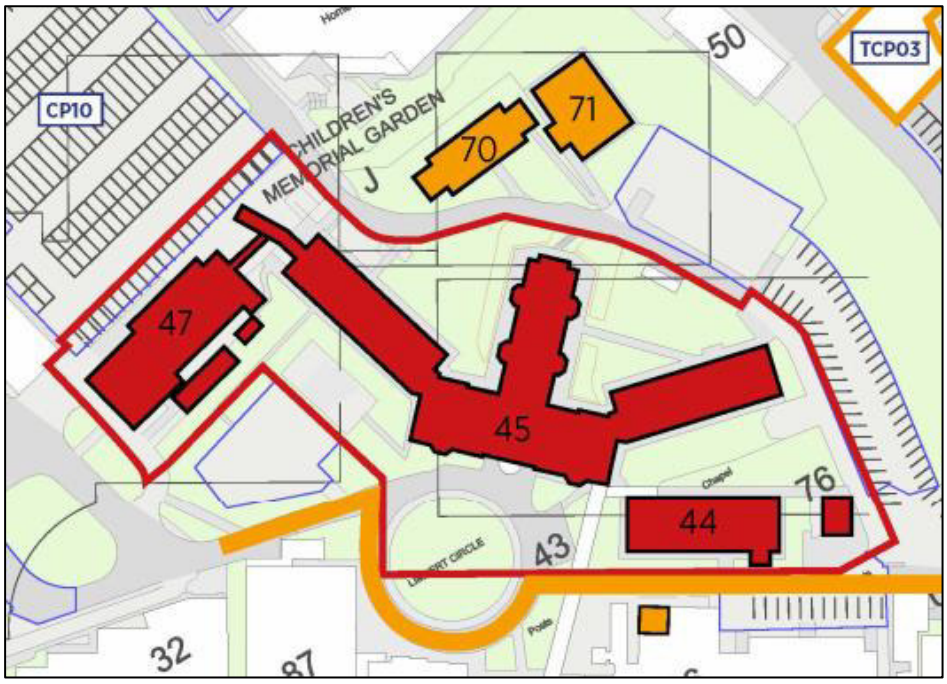
1.1. Proposed Development

It is understood that the current development proposals include the demolition of the following buildings (see Figure 1-1 below from the Curtins Demolition Specification) and construction of a multi-storey car park:

- Building 44 (Security/Consultants Offices);
- Building 45 (Limbert House);
- Building 47 (Infectious Diseases Offices); and,
- Building 76 (HV Sub 5).

Minor regrading works will be required to provide a suitable development platform, including the infilling of the basement to Limbert House (FFL of existing basement understood to be approx. 70.30m AOD). It is understood that the FFL for the proposed MSCP will be 72.34m AOD.

Figure 1-1 Plan of buildings to be demolished (reproduced from the Demolition Specification)



1.2. Previous Reports

Tier Environmental has previously produced an Asbestos Management Plant for MSCP, North Manchester General Hospital (Ref: TE1650-TE-00-XX-AMP-GE-001-V03, dated May 2022).

1.3. Objectives

The objectives of this verification report are as follows:

- To provide lines of evidence that the removal works have been completed in accordance with the Asbestos Management Plan;
- To provide documented assessment of data and permanent records of on-site verification works;
- To determine whether there is any residual risk to receptors, post remediation; and,
- Whether relevant contaminated land planning conditions should be discharged.

This report, which was designed to meet the requirements of all relevant current guidance including 'Land contamination: risk management' (LC:RM) (which supersedes CLR11) presents the factual information available during this appraisal, interpretation of the data obtained and recommendations relevant to the defined objectives.

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2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Proposed multi-storey car park (MSCP) North Manchester General Hospital
Site address	Limbert House, Limbert Circle (off Crumpsall Way) North Manchester General Hospital, Crumpsall, M8 5RB
National Grid Reference (NGR)	385049, 402427
Approximate Site area	Approximately 0.96 Ha.
Site shape	The site is irregular but elongate in shape and surrounded by hospital buildings, car parks and open space.
Current land use on the Site	The Site was formerly occupied by 4 No. buildings that have since been demolished: • Building 44 (Security/Consultants Offices); • Building 45 (Limbert House); • Building 47 (Infectious Diseases Offices); and, • Building 76 (HV Sub 5). Building 45 is known as Limbert House and is multi-storey and the most prominent of the buildings demolished, comprising load bearing masonry and some local mild steel framing. This building contained an extensive basement. The basement floor level is believed to be approximately 70.30m AOD albeit this will need to be verified. It is understood that the basement comprises a central corridor beneath each wing with 'crawler spaces' off the central corridors.
Surrounding land uses	The Site is located in the north-eastern area of North Manchester General Hospital, Crumpsall, Manchester Salford, approximately 5km NNE of Manchester city centre. The immediate surrounds are that of the wider grounds of North Manchester General Hospital, with commercial properties to the north and east and residential areas to the south and west.
General topography and ground levels	The site comprises an area of land lying at around 72m AOD in the northwest to 73.9m AOD in the southeast.

3. ASBESTOS MANAGEMENT PLAN SUMMARY

3.1. Previous Ground Investigations

The Asbestos Management Plan included an assessment of the following third party reports and drawings:

- Interim Letter Report for Multi-Storey Car Park, North Manchester General Hospital, produced by Curtins (Ref. 20200-CUR-MSCP-XX-RP-G-0002 P01 dated 18th June 2021);
- NMGH Phase 1C Demolition Specification produced by Curtins (Ref: NMGH-CUR-XX-XX-SP-S-26001, Revision: P01, Issue Date: 15th October 2020);
- Drawing No. 20200-CUR-MSCP-EX-DR-D-7501, Rev. P4 dated 21.12.2021 produced by Curtins
- Drawing No. 20200-CUR-MSCP-FN-DR-S-1601, Rev P3 dated 19.11.2021 produced by Curtins
- Basement Soil Sample Plan for Building 45 produced by Acorn Analytical Services – reproduced in Appendix A; and,
- IOM Certificate of Analysis for the Acorn Analytical Services basement soil samples for Limbert House.

3.2. Asbestos Identified

Curtins

No asbestos containing materials (ACMs) were identified during the Curtins ground investigation. Asbestos was not identified within any of the 8 No. samples scheduled for asbestos screening during the Curtins investigation.

Acorn

ACMs were recorded within all four buildings during the Acorn Analytical Services asbestos surveys. These ACMs will be removed from the buildings prior to the commencement of the demolition works and are therefore outwith the scope of the Asbestos Management Plan and this verification report.

A total of 22 No. soil samples (S01-S08 and S10-S23) that were obtained from beneath the mortar/concrete blinding within the 'crawler spaces' within the basement of Limbert House were submitted to IOM for asbestos analysis. Asbestos was identified within the following 6 No. samples:

- S01 – 0.022% w/w chrysotile in sample from ACM (thermal insulation).
- S08 – 1.688% w/w amosite and chrysotile in sample from ACM (thermal insulation).
- S011 – 0.050% w/w chrysotile and crocidolite in sample from ACM (thermal insulation).
- S14 – 0.013% w/w chrysotile in sample from ACM (thermal insulation).
- S16 – 0.003% w/w chrysotile in sample from unbound fibres (free fibres).
- S21 – 0.020% w/w amosite, chrysotile and crocidolite in sample as unbound fibres (loose insulation).

It should be noted that the Acorn sample location plan (Appendix A) identifies 'thermal insulation' at location S09, adjacent to S08. A test result for sample S09 is not included on the IOM test certificate and it is understood that a fragment of ACM insulation was visually identified by Acorn during the site works.

Samples S01, S08, S09, and S11 were obtained from beneath or in the immediate vicinity of the piling works for the proposed MSCP.

Where concentrations are 0.001% w/w or below, they were considered trace and fall below the scope of current regulations. A total of 6 No. samples recorded concentrations between 0.003% w/w and 1.688% w/w, with only sample S08 (and S09 of thermal insulation) recording 'large quantities' (greater than 0.1% w/w in accordance with CAR-soil). There is therefore potential for ACMs and hazardous fibre concentrations in soils to be present within the Made Ground and the base and sides of excavations, therefore the management of exposed surfaces should be considered in order to protect site workers.

It was also considered that ACMs could be adhered to the underside of the mortar/concrete blinding therefore the lifting of this will need to be undertaken in a controlled manner and appropriate mitigation measures. Consideration would also need to be given to the demolition of the superstructure to minimise the risk of damaging the blinding and possible fibre release.

3.3. Risk Assessment

The site setting with respect to asbestos was therefore for 'trace' low quantities' of asbestos fibres within the Made Ground, with localised 'large quantities'. Based on the results it was not unreasonable to assume that localised ACMs, such as thermal insulation, may also be locally present beneath the basement floor slab/blinding.

The anticipated risks were assessed in the context of the proposed development and the risk to construction workers during soil disturbance activities. The risks to end users were also considered given that the full depth of Made Ground was not anticipated to be excavated and there was the likelihood that asbestos in soils would remain present on completion of the development.

The following risks were considered:

- Fibre release from undisturbed conditions;
- Excavation to achieve reduced level;
- Excavation sides and base;
- Materials movements;
- Piling works; and,
- End user exposure.

Each risk was considered in more detail in the Asbestos Management Plan.

3.4. Summary of Anticipated Site Works

The review of the investigation data identified localised 'low' quantities of asbestos (>0.01% to <0.05% w/w), potentially 'moderate' quantities (0.05% w/w) within the Made Ground soils beneath the basement floor slab of Limbert House, with localised large quantities (>0.1% w/w) of asbestos fibres locally present (1.688% w/w within sample S08). 'Thermal insulation' was potentially identified at location S09, adjacent to S08.

The risk assessment identified that any works to disturb the majority of the Made Ground within the site would be regarded as Non-Licensed Works with asbestos and that certain mitigation measures would be required to ensure the protection of the workforce. To minimise potential delays to the programme if significant quantities of ACMs are encountered, it was agreed that the HSE should be notified of the works prior to commencement.

The types of work that may be undertaken involving asbestos impacted soils were:

- The lifting and removal of the mortar/concrete blinding within the basement;

- Excavation and movement of Made Ground soils during the regrading works;
- Excavation/disturbance of soils during the removal of relict shallow foundations/obstructions;
- Localised hand picking to remove visible ACMs (where encountered);
- Installation of foundations (including piling), drainage and other below ground infrastructure/services; and,
- Vehicular movement over exposed Made Ground.

The above works would be undertaken by the Contractor or where applicable, by a suitably licensed subcontractor. Before the works were to commence, the following activities were to be undertaken:

- Notify the HSE that the works are to be undertaken;
- Induction of all personnel including details of the asbestos management plan;
- Establish a means to record wind direction;
- Create an exclusion zone around the working area;
- Prepare and implement a traffic management plan; and,
- Site specific method statements will be produced for each operation being undertaken on the site and must be agreed by all parties involved with any activities that will disturb the blinding and Made Ground soils.

3.5. Controls, Monitoring and Reporting

A **minimum** 5m exclusion zone was to be created from the perimeter of the Limbert House basement and only personnel wearing appropriate PPE (including respirator) would be allowed into the exclusion zone and into the basement excavation to inspect the blinding and soils. The exclusion zone should include the working area for the excavator(s). Dedicated excavator(s) would be used for the excavation of the blinding, asbestos containing materials (ACMs) and asbestos containing soils (ACSs) and these excavators will not be allowed to leave the exclusion zone without being washed down/decontaminated.

All operations involving the disturbance of Made Ground soils would be regularly damped down with water to control the generation of dust to suppress airborne fibre release. If excavation surfaces were intended to be left open for any period of time, then consideration would be made to covering these surfaces temporarily to prevent dust generation potentially impacting on the workforce.

Should gross contamination be realised during ground disturbance works, the method of mitigating dust emissions that may contain asbestos fibres may be required (e.g. use of a PVA based solution).

3.6. General Control of Dust

Control measures would be used to ensure that dust levels are kept to a minimum at all times. Where possible, vehicle transit routes and work areas would be damped down. This operation shall utilise an appropriate method which would dampen down soil surfaces effectively. (e.g. a mobile water bowser with a dispersion spray attachment).

3.7. Handpicking of ACMs

Asbestos is usually encountered in two forms:

- Asbestos as loose or clumps of fibres usually not visible to the naked eye

- Cement bonded materials visible to the naked eye (e.g. roof tile fragments)

Isolated occurrences of bulk ACMs (thermal insulation) were recorded beneath the basement blinding/floor slabs and there is a risk that further asbestos contamination may be encountered.

The risk assessment identified that the majority of the works are likely to be Non-Licensed works. However, any encounters with gross contamination, such as fragments of insulation/non-bonded asbestos, may require further investigation, sampling and interpretation to determine the anticipated working conditions with respect to CARsoil.

If any additional ACMs were identified during ground disturbance works (following the removal of any ACMs previously identified at location S09) and they were proven to be isolated occurrences, then removing the asbestos, placing into appropriate bags and appropriate disposal would be an acceptable course of action. The person removing the asbestos would be required to have the appropriate license, risk assessments and method statements.

3.8. Excavation of Blinding and Made Ground

It will be necessary to develop and document all proposed working methodologies to be adopted by all people involved with the proposed handling of Made Ground soils which may contain asbestos at low to high quantities. The standard procedures should contain the following minimum activities:

- Tool box talks on procedures for excavations and handling ACMs making all workers aware of the risks.
- Any movements of Made Ground must be preceded by dampening down. Materials should be loaded directly into covered vehicles and/or sealed skips (utilising minimum drop heights) dedicated to moving material potentially containing asbestos.
- Full time operative for dampening down soils during excavations.
- Weather conditions should be assessed continuously by the Site Manager to determine the potential for airborne dust to impact receptors (e.g. workforce, adjacent properties).
- Exposed surface should be inspected and photographed to determine the presence of any visible ACMs.

3.9. Personal Protective Equipment (PPE)

Site operatives, such as surveyors, labourers, etc, would not be permitted to enter the immediate vicinity where potential asbestos impacted soils are being disturbed. In general accordance with the HSE Guidance Note EM6 (non-licensed asbestos works) if these site operatives were required to enter excavations where potential asbestos impacted soils are being disturbed, they should be supplied with the following PPE and guidance:

- Disposable overalls - Type 5 (BS EN ISO 13982-1).
- Disposable respirator to standards EN149 (Type FFP3) or EN1827 (Type FMP3).
- Half mask respirator to standard EN140 with P3 filter.
- Single use protective gloves.
- Semi-disposable respirator (to EN405) with P3 filter (only if visible ACMs are exposed).

It was considered that a suitable decontamination unit will be necessary.

Only personnel wearing appropriate PPE (including respirator) would be allowed into the exclusion zone and the basement excavation to inspect the blinding and soils.

The excavator(s) used to remove the blinding, ACMs and any asbestos containing soils (ACSs) must be fitted with a P3 filter and the windows and doors of the excavator must be closed at all times during the works.

3.10. Air Monitoring Procedures

It was not anticipated that gross contamination that could potentially give rise to significant airborne fibres would occur. However, reassurance monitoring was deemed suitable to monitor effectiveness of site management practices and to indicate any potential issues.

Air monitoring for asbestos fibres would be undertaken as follows:

- **Working Area Monitoring:** Operations involving the disturbance of potential asbestos impacted materials that are likely to give rise to airborne dust will be subject to occasional air monitoring using static pumps. Monitoring will be undertaken within the immediate vicinity and downwind of the works (e.g. adjacent to excavations). The frequency of the working area monitoring will be daily (based on a two week programme). If increased quantities of airborne fibres are identified, then the operations will cease immediately and the working procedure amended.

- **Personal Monitoring of selected personnel**: Personnel involved in operations during the disturbance of the blinding, ACMs, ACSs and Made Ground Soils (e.g. excavations, vehicle movements etc) will be subject to personal monitoring. Personal monitoring pumps will be worn by selected workers or machine operators. If wearing a personal monitor is impractical, a static location close to the operations being monitored will be acceptable. The frequency of the personal monitoring will be daily. If increased quantities of airborne fibres are identified, then the operations will cease immediately and the working procedure amended.

4. VERIFICATION

It was detailed in the Asbestos Management Plan that a Verification Report should be compiled which would comprise all relevant site records and act as certification that the remedial preparation works have been carried out in accordance.

The Verification Report is to include the following:

1. A description of the works undertaken;
2. Records of the works including:
    a. A detailed site diary including weather conditions and wind direction.
    b. A sampling register, testing results, photographs, details of locations where ACMS have been identified, consignment notes relating to any ACMs discovered during excavation works and certificates of any air monitoring undertaken.
3. Progress photographs; and,
4. A statement that the works have been undertaken in accordance with the agreed strategy and CARsoil.

4.1. Asbestos Removal Verification

Asbestos Management during demolition was inspected in two phases by a qualified Geoenvironmental Engineer from Tier Environmental. Works completed and samples taken are summarised in the table below.

- 6 No. visits between 16th to 28th June 2022; and,
- 2 No. visits between 18th to 19th July 2022.

Table 4.1 Verification Samples from Basement Area Of Limbert House

Date	Area	Samples	Results
16/06/22	Works postponed	-	-
17/06/22	Southern side of east wing	AS1 to AS5	No asbestos detected
20/06/22	Northern side of east wing	AS6 to AS10	AS10 positive for chrysotile fibres (<0.001%). Further excavation and resampled as AS10a (no asbestos detected).
24/06/22	Southeast of central building	AS10a, AS11 to AS13	No asbestos detected
27/06/22	Eastern side of central building	AS14 & AS15	No asbestos detected
28/06/22	Western side of central building	A16 to A20	No asbestos detected
18/07/22	North of western wing	A21 to A25	No asbestos detected
19/07/22	South of western wing	A26 to A30	No asbestos detected

A total of 21 No. verification samples, including re-sampling, were taken across site works. Sample locations and work areas are indicated in Drawing No. TE1650-TE-00-XX-DR-001-V03 in Appendix A.

Each visit targeted a specific section of the building and involved part demolition of the remaining brickwork, concrete slab removal, excavation of Made Ground and sampling of soils to prove an absence of asbestos. Soils were removed directly into waiting wagons and dust was controlled by means of a jet washer spray during both excavations and loading of wagons. Daily record sheets with progress photos are enclosed in Appendix B.

Of the 30 No. samples initially submitted for asbestos screens, 1 No. samples returned positive for chrysotile fibres in AS10 (<0.001%) in the northern side of the east wing. Following receipt of the results, the area was subject to further excavation and re-sampled as AS10a in which no asbestos was detected.

4.2. Site Records and Certification

Air Monitoring

In accordance with the asbestos management plan, throughout the works daily site records were kept by Acorn including:

- Site reference log with description of works, weather conditions and wind direction.
- Locations of any encountered ACMs
- Air Monitoring results
- Photographic reference sheet denoting work area and pump locations.

4 No. pumps were sited around the perimeter of the exclusion zone with a further 1 No, pump located in the site office. Tests were completed in each pump for a period of approximately 60-120 minutes and repeated at different locations dictated by the size of the working area. Once the results had been calculated, all were found to be below the respirable fibre concentration detection limit. Full record sheets are enclosed in Appendix D.

Waste Tickets

A total of approximately 950m^3 of waste soils was removed from site.

Waste soils were removed to:

Pilsworth Landfill, Pilsworth Road, Bury BL9 8Q2

Waste tickets were provided by PP O'Connor and are presented in Appendix E.

5. SITE CERTIFICATION

It has been demonstrated in this report that the remediation works to remove the asbestos containing mortar blinding and underlying soils from beneath the former Limbert House have been undertaken in accordance with the agreed strategy such that no residual risk from asbestos remains.

6. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the remedial and verification works. These, however, cannot be guaranteed to gain regulatory approval therefore the report should be submitted to the appropriate regulatory authorities and/or other organisations for their comment and approval.

7. REFERENCES

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8. GLOSSARY OF TERMS

ACEC	Aggressive Chemical Environment for Concrete (classification)
AOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national of international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K_{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in the CIEH Guidance) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in the CIEH Guidance) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter

SPT	Standard Penetration Test
SPZ	Source Protection Zone **Error! Reference source not found.**
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound
TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

APPENDIX A - DRAWINGS

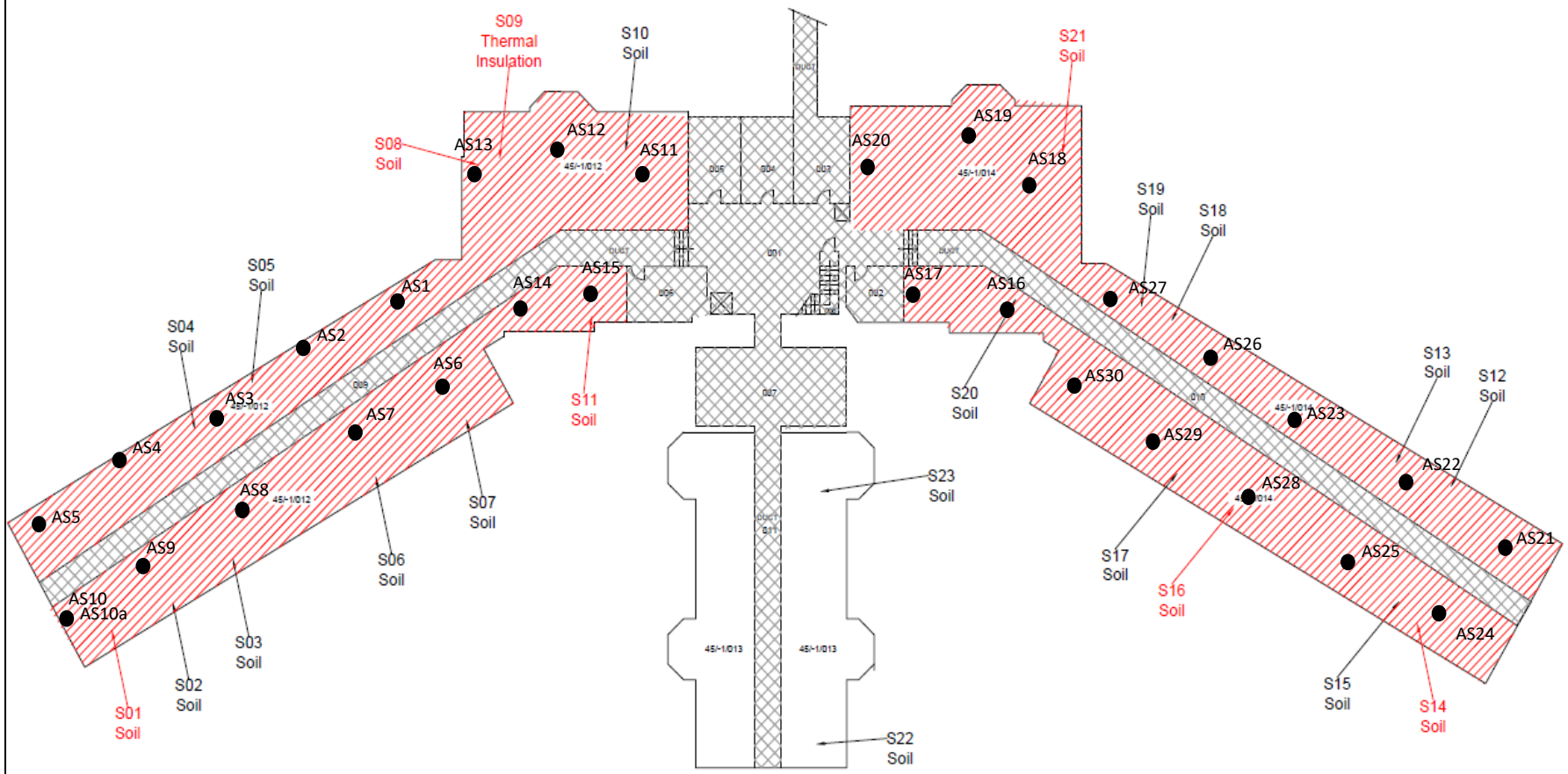
Asbestos Sample Location Plan

- Asxx – Location of asbestos soil samples

AS1 – No Asbestos Detected.
AS2 – No Asbestos Detected
AS3 – No Asbestos Detected
AS4 – No Asbestos Detected
AS5 – No Asbestos Detected
AS6 – No Asbestos Detected
AS7 – No Asbestos Detected
AS8 – No Asbestos Detected
AS9 – No Asbestos Detected
AS10 – Chrysotile loose fibres
AS10a – No Asbestos Detected (a further sample was taken in location AS10 after additional 300mm soil removed)
AS11 – No Asbestos Detected
AS12 – No Asbestos Detected
AS13 – No Asbestos Detected
AS14 – No Asbestos Detected
AS15 – No Asbestos Detected
AS16 – No Asbestos Detected
AS17 – No Asbestos Detected
AS18 – No Asbestos Detected
AS19 – No Asbestos Detected
AS20 – No Asbestos Detected
AS21 – No Asbestos Detected
AS22 – No Asbestos Detected
AS23 – No Asbestos Detected
AS24 – No Asbestos Detected
AS25 – No Asbestos Detected
AS26 – No Asbestos Detected
AS27 – No Asbestos Detected
AS28 – No Asbestos Detected
AS29 – No Asbestos Detected
AS30 – No Asbestos Detected

Job No.: TE1650
Drawing Title: Asbestos Sample Location Plan
Drawing No.: TE1650-TE-00-XX-DR-GE-001-V05
Drawn by: ER
Approved by: AP
Date: 21/07/2022
Client: Morgan Sindall

Block 45 - Basement



acorn analytical services

Client: Hive Projects Limited

Site: North Manchester General Hospital, Delaunays Road, Crumpsall, Manchester, M8 5RB

Project Number: B-31255 - Plan 1 of 1

Additional Information:
- Plans not to scale
- For more information please see the relevant section within the main report

Contains Asbestos

Limitation/No access Within Room

Outside Scope of Survey

APPENDIX B – DAILY RECORD SHEETS

Tier Environmental Ltd
Chadwick House,
Birchwood Park,
Warrington
WA3 6AE

DAILY DIARY SHEET

CONTRACT TITLE:	North Manchester General Hospital (NMGH)
CONTRACT No.:	TE1650
VISITOR(S):	Eve Rowland Alex Preston
DATE OF VISIT:	16.06.22
STAFF ON SITE:	Tim – Morgan Sindall Kevin – LAR Dean – PP O'Connor Richard - Acorn
PLANT ON SITE:	PP O'Connor Excavator
WEATHER	Hot and Sunny

Site Activities:

- Attendance of 8am Site induction and pre-start meeting with Morgan Sindall, LAR, Acorn and PP O'Connor
- Completion of online Morgan Sindall induction (not communicated prior to site visit)
- Awaiting wagons to start works
- Informed at 13.30 that wagons weren't going to be on site that day and therefore works pushed back to the following morning.

Tier Environmental Ltd

Chadwick House,
Birchwood Park,
Warrington

WA3 6AE

DAILY DIARY SHEET

CONTRACT TITLE:	North Manchester General Hospital (NMGH)
CONTRACT No.:	TE1650
VISITOR(S):	Eve Rowland
DATE OF VISIT:	17.06.22
STAFF ON SITE:	Tim – Morgan Sindall Kevin – LAR Dean – PP O'Connor Richard - Acorn
PLANT ON SITE:	PP O'Connor Excavator
WEATHER	Hot and Sunny

Site Activities:

- Attendance to Site to start works.
- Working on the southern side of the east wing (see diagram below).
- Concrete floor slab removed; Made Ground underneath. Excavated down to the natural soils (yellowish brown, clayey fine to coarse SAND).
- Natural soils were excavated down 200mm at which point 5 No. samples were taken spread across the wing.
- In total 7 No. wagon loads were removed from Site. (NB: discussion between Tier, Morgan Sindall and PP O'Connor led to the decision that wagons would only be filled approx. 75% to ensure that the cover could be put down completely as the spoil was asbestos containing.

Tier Environmental Ltd

Chadwick House,
Birchwood Park,
Warrington

WA3 6AE

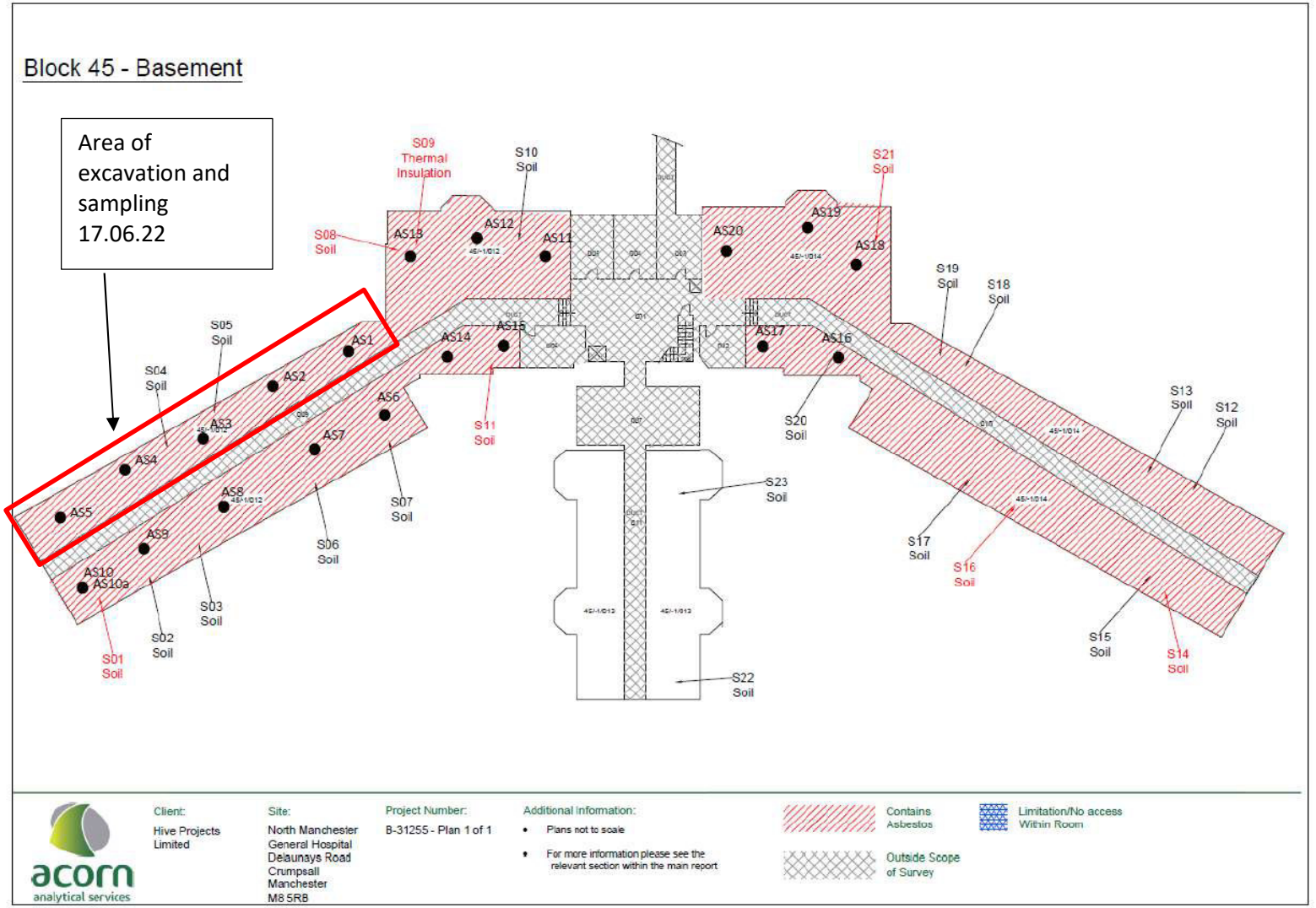
DAILY DIARY SHEET

Asbestos Sample Location Plan

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AS10a – No Asbestos Detected (a further sample was taken in location AS10 after additional 300mm soil removed)
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AS14 – No Asbestos Detected
AS15 – No Asbestos Detected
AS16 – No Asbestos Detected
AS17 – No Asbestos Detected
AS18 – No Asbestos Detected
AS19 – No Asbestos Detected
AS20 – No Asbestos Detected

Job No.: TE1650
Drawing Title: Asbestos Sample Location Plan
Drawing No.: TE1650-TE-00-XX-DR-GE-001-V03
Drawn by: ER
Approved by: AP
Date: 29/06/2022
Client: Morgan Sindall



Tier Environmental Ltd

Chadwick House,
Birchwood Park,
Warrington

WA3 6AE

DAILY DIARY SHEET

Photo 1: Excavation in progress



Photo 2: Natural soils



Photo 3: Loading wagons



Photo 4: Site Progress



Tier Environmental Ltd
Chadwick House,
Birchwood Park,
Warrington
WA3 6AE

DAILY DIARY SHEET

CONTRACT TITLE:	North Manchester General Hospital (NMGH)
CONTRACT No.:	TE1650
VISITOR(S):	Eve Rowland
DATE OF VISIT:	20.06.22
STAFF ON SITE:	Tim – Morgan Sindall Kevin – LAR Dean – PP O'Connor Greg - Acorn
PLANT ON SITE:	PP O'Connor Excavator
WEATHER	Hot and Sunny

Site Activities:

- Attendance to Site to start works.
- Working on the northern side of the east wing (see diagram below).
- Concrete floor slab removed; Made Ground underneath. Excavated down to the natural soils (yellowish brown, clayey fine to coarse SAND).
- Natural soils were excavated down 200mm at which point 5 No. samples were taken spread across the wing.
- In total 8 No. wagon loads were removed from Site. (NB: discussion between Tier, Morgan Sindall and PP O'Connor led to the decision that wagons would only be filled approx. 75% to ensure that the cover could be put down completely as the spoil was asbestos containing.

Tier Environmental Ltd

Chadwick House,
Birchwood Park,
Warrington

WA3 6AE

DAILY DIARY SHEET

Asbestos Sample Location Plan

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AS13 – No Asbestos Detected
AS14 – No Asbestos Detected
AS15 – No Asbestos Detected
AS16 – No Asbestos Detected
AS17 – No Asbestos Detected
AS18 – No Asbestos Detected
AS19 – No Asbestos Detected
AS20 – No Asbestos Detected

Job No.: TE1650
Drawing Title: Asbestos Sample Location Plan
Drawing No.: TE1650-TE-00-XX-DR-GE-001-V03
Drawn by: ER
Approved by: AP
Date: 29/06/2022
Client: Morgan Sindall

