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Surface Water and SuDS Assessment Rev0

Al-Sunnah Mosque,
Winterford Road,
Cheetham Hill,
Manchester

18 December 2023

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Appendices

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Prepared by	Checked by	Date
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This document has been prepared solely as a Surface Water and SuDS Assessment for Seed Architects. Base Energy accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

1. Introduction

This Surface Water and SuDS Assessment has been prepared to support the planning application for the proposed redevelopment of Al-Sunnah Mosque, Winterford Road, Manchester.

Existing Site Description

The existing site is currently occupied by the current Mosque along with associated hard and soft landscaped areas.

The existing layout is shown in **Appendix A**.

Development Proposals

Proposals are for the demolition of the existing Mosque, and the construction of a new Mosque.

A copy of the proposed site layout plans is provided in **Appendix B**.

2. Planning Policy

Manchester Council

Core Strategy

Policy EN 14 Flood Risk states:
All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.

12.84 The main ways in which Local Authorities can influence water quality are by: encouraging the use of sustainable drainage systems (SUDS) as a way to reduce water run-off: not all types of SUDS are appropriate for all urban areas; in some parts of Manchester there are brownfield sites which have issues of contamination where the use of some types of SUDS would be problematic, causing transfer of contaminants to receptor sites (the Strategic Flood Risk Assessment provides further guidance on this); where appropriate, above-ground SUDS such as retention ponds, ponds and swales are preferred to underground options because they have greater landscape and biodiversity value; in densely built-up urban areas such as Manchester where there is limited open space, there is also a role for innovative SUDS solutions including green roofs and green walls.

Non-Statutory Technical Standards for SuDS

The Non-Statutory Technical Standards for SuDS, (and accompanying Local Authority SuDS Officer Organisation (LASOO) Practice Guidance) sets out the details which should be addressed within a SuDS Report, including:

- Flood Risk Outside of the Development
- Peak Flow Control and Volume Control
- Flood Risk Within the Development
- Runoff Destinations

- Structural Integrity
- Designing for Maintenance Considerations
- Construction

3. Surface Water and SuDS

The whole site comprises approximately 2030m^2 (0.2ha).

The **ICP SuDS** method within Micro Drainage has been used to calculate flow rates from the total site (as detailed in **Appendix C** and shown in **Table 1**).

Table 1 – ICP SuDS – Proposed Greenfield Runoff Rates (l/s)

Return Period	Flow Rate for 2030m^2 (0.2ha) (l/s)
QBAR	0.2
1 in 30 year	0.4
1 in 100 year	0.5

Following redevelopment of the site, the areas will be made up as follows:

- Roof areas ~630m^2
- Hardstanding ~1200m^2
- Landscaping ~200m^2

SuDS Approach

When choosing and designing SuDS for a development, it is important to recognise the constraints associated with the type of SuDS to be installed, including the size of the site and the underlying ground conditions. Most Councils set out a strategic approach for the disposal of surface water runoff, which mirrors the hierarchy set out in Building Regulations Approved Document Part H[1]. In general, these are as follows:

[1] Building Regulations Approved Document H Section 3 page 45

Infiltration

The British Geological Survey geology maps indicate that the site is underlain by Glaciofluvial Sheet Deposits – sand and gravel. The underlying bedrock is shown to be comprised of Chester Formation - sandstone.

In order to investigate the underlying ground conditions further, reference has been made to the BGS borehole records; there nearest record is from Marlborough Road (**Appendix D**). The record confirms that the underlying ground is glacial sand, becoming medium dense brown silty sand, and medium dense alternating bands of light brown, grey, brown and orange, fine silty sand with occasional coal traces.

On this basis there may be the potential for infiltration SuDS, such as permeable paving.

This would be confirmed through infiltration testing to BRE Digest 365 which would be undertaken to a) confirm the suitability of the site for infiltration, and b) to confirm a rate of infiltration.

Discharge to a watercourse

There are no watercourses in the immediate vicinity of the site.

Discharge to a surface water sewer

It is understood that surface water runoff currently connects into the public sewer system.

If the infiltration testing indicates that infiltration would not be feasible, then surface water could continue to drain as existing, via attenuation storage and a controlled outlet.

SuDS Strategy

SuDS aim to mimic natural drainage and can achieve multiple objectives such as removing pollutants from urban runoff at source, controlling surface water runoff from developments, ensuring that flood risk is not increased further downstream and combining water management with green space which can increase amenity and biodiversity value. When selecting SuDS, consideration needs to be given to a range of factors including the ground conditions, type of proposals, and the constraints of the site.

Based on the desktop study of underlying ground condition, and in line with the strategic approach for the disposal of surface water runoff, the following SuDS are recommended to manage flows from hardstanding areas:

- *Option One*
  Permeable paving on the car parking areas. This will be subject to infiltration testing to BRE Digest 365 which will be undertaken to a) confirm the suitability of the site for infiltration, and b) to confirm a rate of infiltration.

  OR, should the infiltration testing conclude that infiltration of surface water is not feasible:

- *Option Two*
  Attenuation storge with a controlled outlet (set at a rate to be agreed with United Utilities) into the public sewer system. If this option is to be pursued.

The SuDS strategy has been put together based on our understanding of the ground conditions and site layout. Building Control will need to be consulted on the siting of the SuDS, and the recommendations and advice of the SuDS manufacturer / installer should always be followed.

SuDS Maintenance

Schedules are provided below (taken from Ciria C753 The SuDS Manual): these, or similar should be followed.

Option 1 - Permeable Paving

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface Stabilise and mow contributing areas Removal of weeds or management using glyphosphate applied directly into the weeds	As required
Remedial Actions	Remediate any landscaping which through vegetation maintenance or soil slip has been raised to within 50mm of the level of the paving Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users	As required

Option 2 - Attenuation Storage

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where is may cause risks to performance)	Monthly
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
Remedial Actions	Repair/ rehabilitate inlets, outlet, overflow, and vents	As required
Monitoring	Inspect/ check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build up and remove if necessary	Every five years, or as required

Pipe System

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually or as required
	Maintain vegetation to designed limits within the vicinity of below ground drainage pipes and tanks to avoid damage to system	Monthly or as required
Remedial Actions	Repair physical damage if necessary	As required
Monitoring	Inspect all inlets, outlets and vents to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of pipe runs for sediment build up and remove if necessary.	Every 5 years or as required

Hydrobrake

Hydro International Warranty, Maintenance Statement

The following has been provided by Hydro International:

Normally, little maintenance is required as there are no moving parts within the Flow Control. Experience has shown that if blockages occur they do so at the intake, and the cause on such occasions has been due to a lack of attention to engineering detail such as approach velocities being too low, inadequate benching, or the use of units below the minimum recommended size.

The Flow Control (where applicable) is fitted with a pivoting bypass door, which allows the manhole chamber to be drained down should blockage occur. The smaller conical units, below the minimum recommended size, are also supplied with rodding facilities or vortex suppressor pipes as standard.

Following installation of the Flow Control it is vitally important that any extraneous material i.e. building materials are removed from the unit and the chamber.

After the system is made live, and assuming that the chamber design is satisfactory, it is recommended that each unit be inspected monthly for three months and thereafter at six monthly intervals with hose down if required.

4. Conclusions

This Surface Water and SuDS Assessment has been prepared to support the planning application for the proposed redevelopment of Al-Sunnah Mosque, Winterford Road, Manchester.

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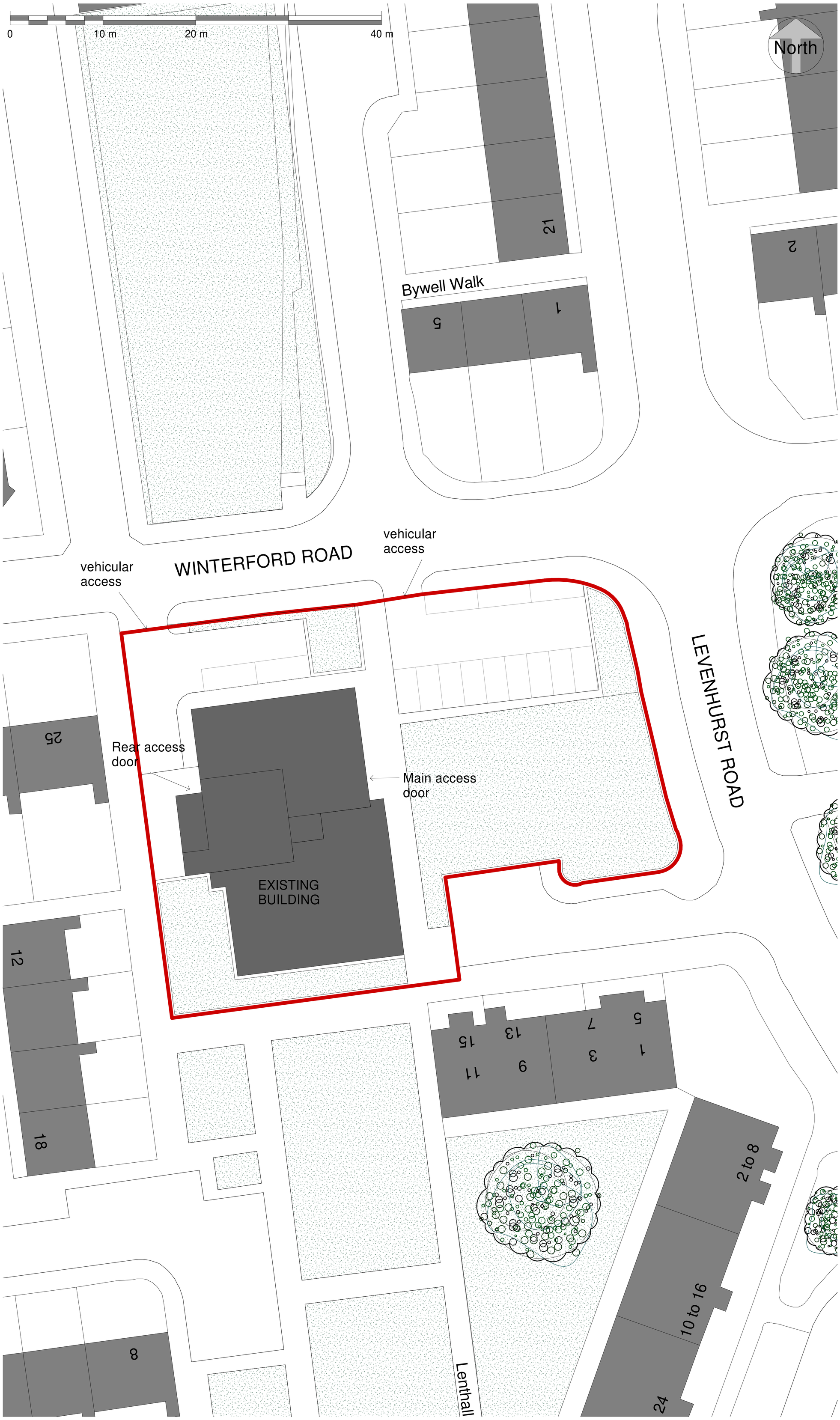
Appendices

Appendix A - Existing Site Layout



Existing site plan
1 : 200

©
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NOTES:

Rev No	Date	Revision Description	Issued by

SEED Architects
Parsonage Chambers
3 Parsonage
Manchester
M3 2HW
● Tel: 0161 832 5750 ● E: office@seedarchitects.co.uk ●

status
Planning

job title
Al-Sunnah Mosque, Manchester

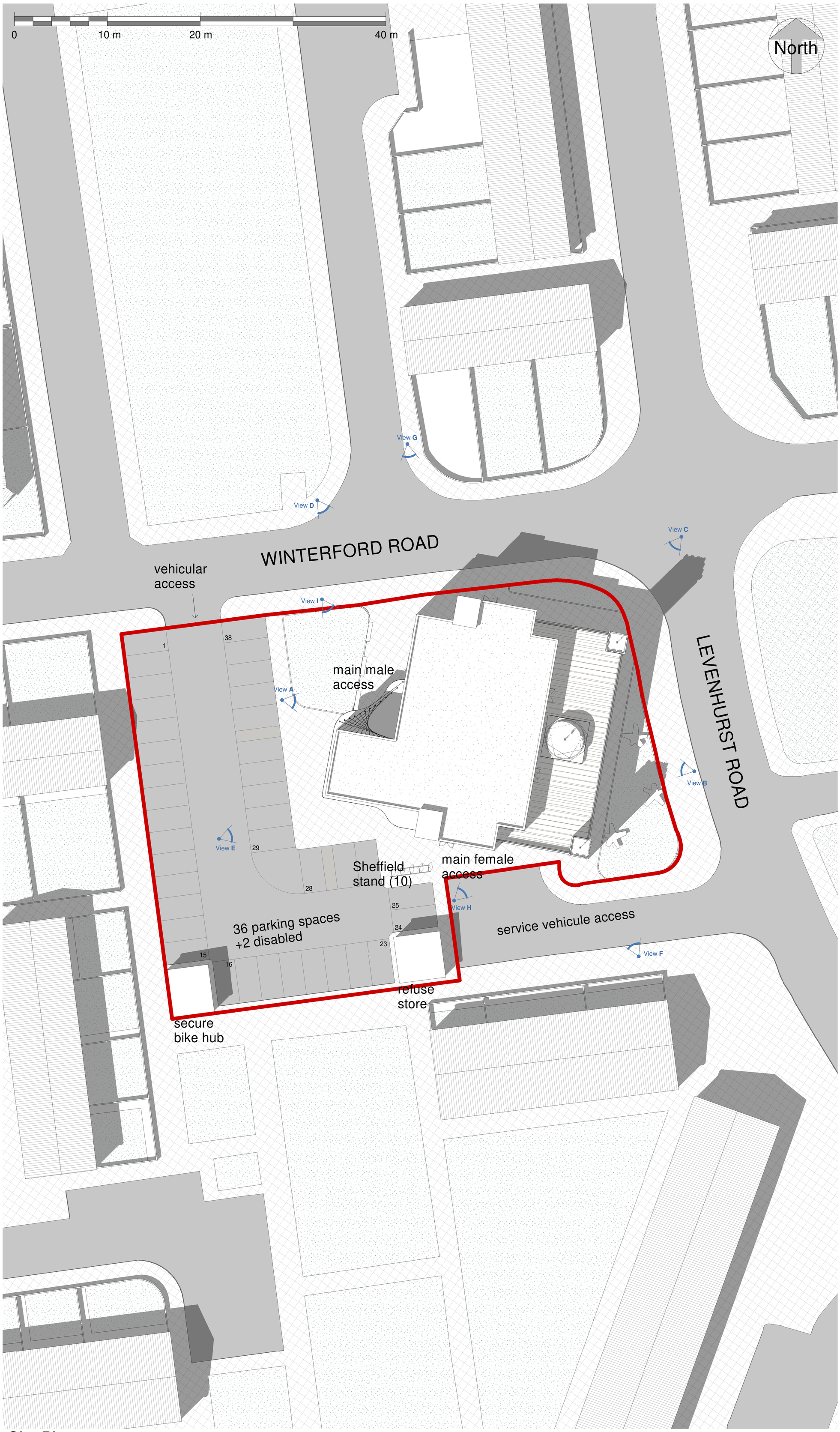
Location

drawing title
Existing Site plan

author	date
DR	24/08/23
checker	date
RH	24/08/23
scale	paper size
1 : 200	A1

Project no.	Cont.	Seed drawing no.	Rev.
3283	-	SP00	

Appendix B - Proposed Site Layout



Site Plan
1 : 200

©
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SEED Architects
Parsonage Chambers
3 Parsonage
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M3 2HW
● Tel: 0161 832 5750 ● E: office@seedarchitects.co.uk ●

status
Planning

job title
Al-Sunnah Mosque, Manchester

Location

drawing title
Proposed Site plan

author	date
Designer	24/08/23
checker	date
Checker	24/08/23
scale	paper size
1 : 200	A1

Project no.	Cont.	Seed drawing no.	Rev.
3283	-	SP01	

Appendix C - Greenfield Runoff

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.300
Area (ha)	0.200	Urban	0.000
SAAR (mm)	818	Region Number	Region 10

Results	**l/s**
QBAR Rural	0.4
QBAR Urban	0.4
Q100 years	0.9
Q1 year	0.4
Q30 years	0.7
Q100 years	0.9

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Appendix D - British Geological Survey Borehole Records

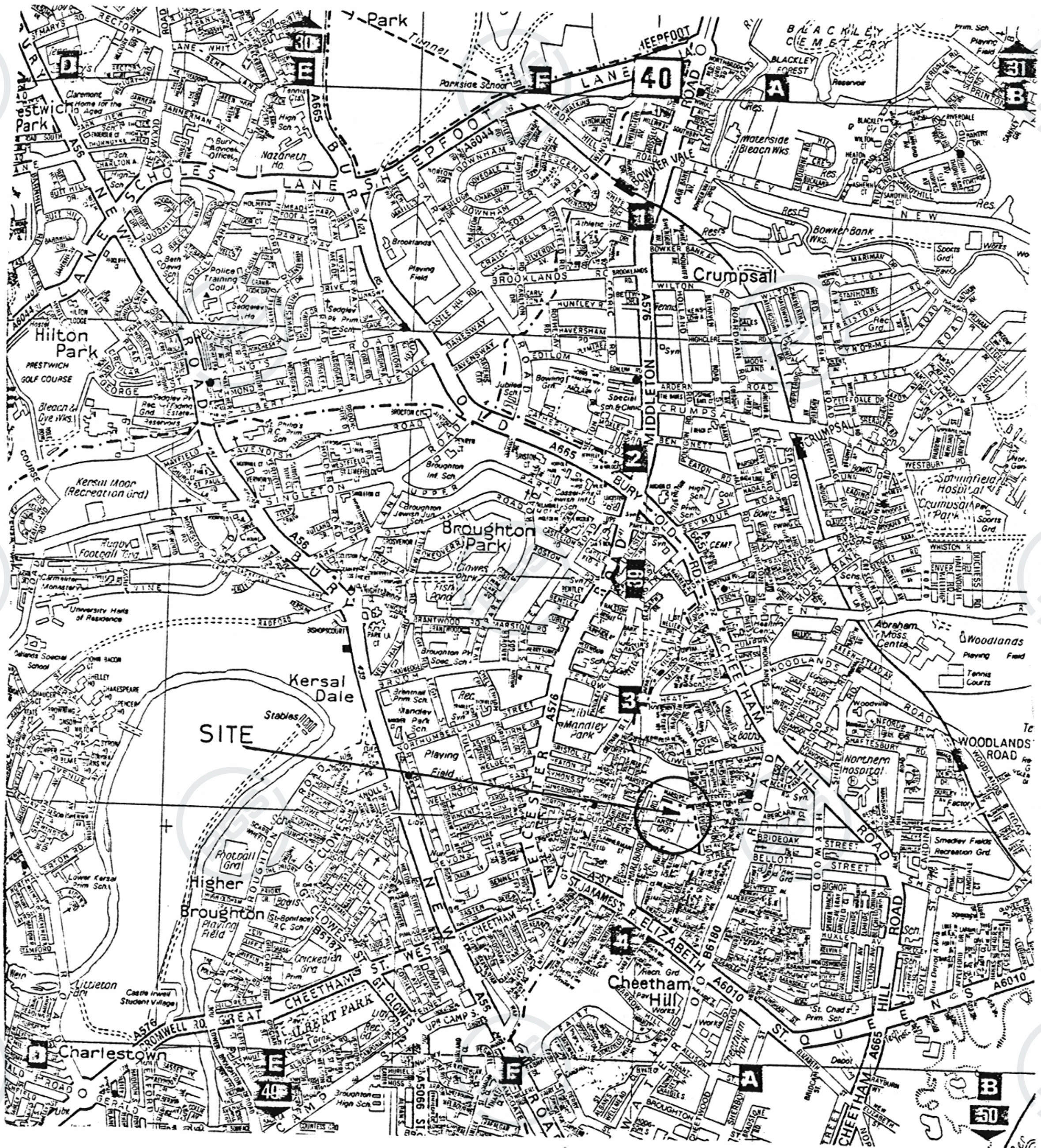
British Geological Survey
BGS ID: 28909 : BGS Reference: SD80SW121
British National Grid (27700) : 383744,401058

Geological Survey Sheet 85 (Manchester) at 837011

DATA SHEET

GEOTECHNICAL DEVELOPMENTS
GEOTECHNICAL INVESTIGATION SERVICES
Tel: (0455) 554746 – Fax: (0455) 557928

SITE MARLBOROUGH STREET: SALFORD	TITLE SITE LOCATION PLAN
	BGS REGISTRATION No. SD80SW/118–122
	CONTRACT NO. E077/90 · DATE MAR 90



SD80SW

NGDC ACCESSION NUMBER 1668

FIG.

Contact BGS: ngdc@bgs.ac.uk

BGS REGISTRATION No.
SD 80 SW/118-122

DATA SHEET

GEOTECHNICAL DEVELOPMENTS GEOTECHNICAL INVESTIGATION SERVICES Tel: (0788) 565115 - Fax: (0788) 547111	TITLE PLAN SHOWING LOCATION OF BOREHOLES.	
SITE MARLBOROUGH STREET: SALFORD	DATE APRIL 90	CONTRACT No. E07790

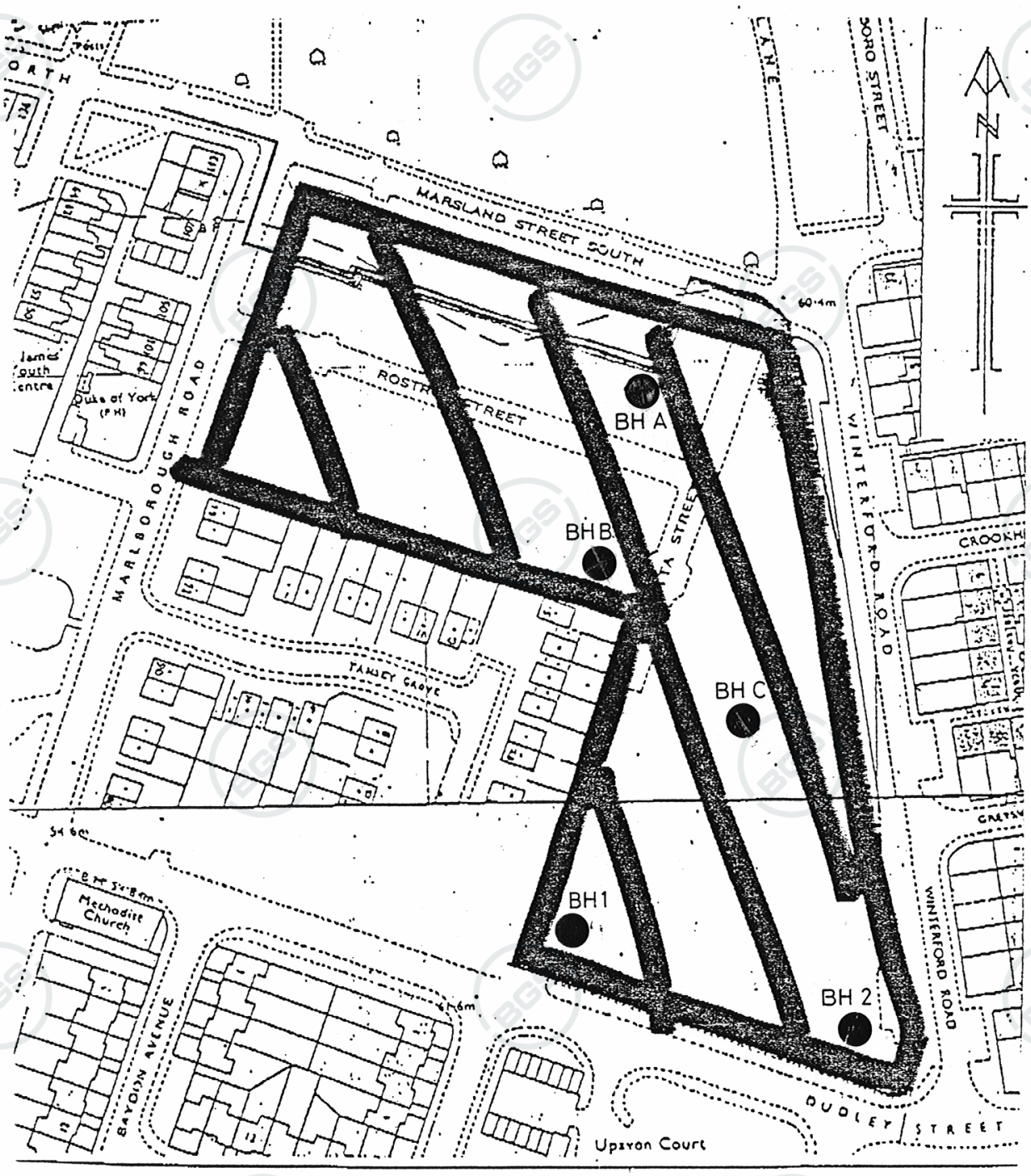


FIG.

MY 276112 D

BGS REGISTRATION No.
....SD.80.SW/121....

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
Telephone (0788) 565115. Fax (0788) 547111.

383744 401058

BOREHOLE LOG

Borehole B

Sheet 1 of 1

Method	Date	Site
Shell & Auger.	12/03/90 - 14/03/90	MARLBOROUGH ROAD: SALFORD: LANCS

Dia mm	Coord	Ground Level m.OD	Client
150			SALFORD COMMUNITY HOUSING ASSOCIATION

Soil Samples/Tests Type/Test	Depth m.	Water & Progress	OD Level m.	Depth m.	Description of Strata	Legend
					Poorly compacted topsoil, clay, gravel, sand, wood and brick. (FILL) (1.00)	
S1 N=4	1.00 - 1.45			1.00		
					Loose brown mottled silty fine SAND with occasional gravels and thin bands/ pockets of soft to firm silty clay. (GLACIAL SAND) (2.00)	
D1	1.80					
S2 N=7	2.00 - 2.45					
D2	2.80					
S3 N=13	3.00 - 3.45			3.00		
B1	3.00 - 4.00				Medium dense fine to medium brown SAND with occasional coal traces. (GLACIAL SAND) (2.00)	
S4 N=22	4.00 - 4.45					
B2	4.50 - 5.00					
				5.00		
S5 N=11	5.20 - 5.65	STRIKE at 5.3m Slow			Medium dense brown silty fine SAND with occasional fine black carbon particles. (GLACIAL SAND) (3.00)	
B3	5.80 - 6.20					
S6 N=12	6.50 - 6.95				becoming orange brown mottled grey with occasional coal traces	
B4	7.00 - 8.00					
S7 N=14	8.00 - 8.45			8.00		
					Medium dense alternating bands of light brown, grey, brown and orange brown fine silty SAND with occasional coal traces. (2.00)	
B5	8.50 - 9.50					
S8 N=17	9.50 - 9.95					
				10.00		

Remarks
Slow water strike at 5.3m bgl

Logged by	Scale	End Casing Depth	Job No.
JCE	1:50	m. 9.50	E07790

Sample/Test key:
U () U100 sample (blows)
D Disturbed sample
B Bulk sample
W Water sample
- Progress & Day

Penetration Tests
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved