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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 2030m² (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 ~630m²
- Hardstanding ~1200m²
- Landscaping ~200m²

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 H¹. 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 storage 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 it 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

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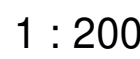
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Appendices

Appendix A - Existing Site Layout



Project no. 3283	Cont. -	Seed drawing no. SP00	Rev.
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Appendix B - Proposed Site Layout



Project no. 3283	Cont. -	Seed drawing no. SP01	Rev.
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Appendix C - Greenfield Runoff

Base Energy Services Limited		Page 1
44 Canal Street Bootle Liverpool L20 8QU	Al-Sunnah Mosque Total Site Greenfield	
Date 18/12/2023 File 100ys 40CC.SRCX	Designed by CH Checked by PK	
Micro Drainage Source Control 2020.1.3		
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 100 Soil 0.300 Area (ha) 0.200 Urban 0.000 SAAR (mm) 818 Region Number Region 10 Results 1/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

Geological Survey Sheet 85 (Manchester) at 837011

DATA SHEET

 GEOTECHNICAL DEVELOPMENTS GEOTECHNICAL INVESTIGATION SERVICES Tel: (0455) 554746 - Fax: (0455) 557928	TITLE SITE LOCATION PLAN BGS REGISTRATION NO. SD80SW/118-122	
SITE MARLBOROUGH STREET: SALFORD	CONTRACT NO. E077/90	DATE MAR 90



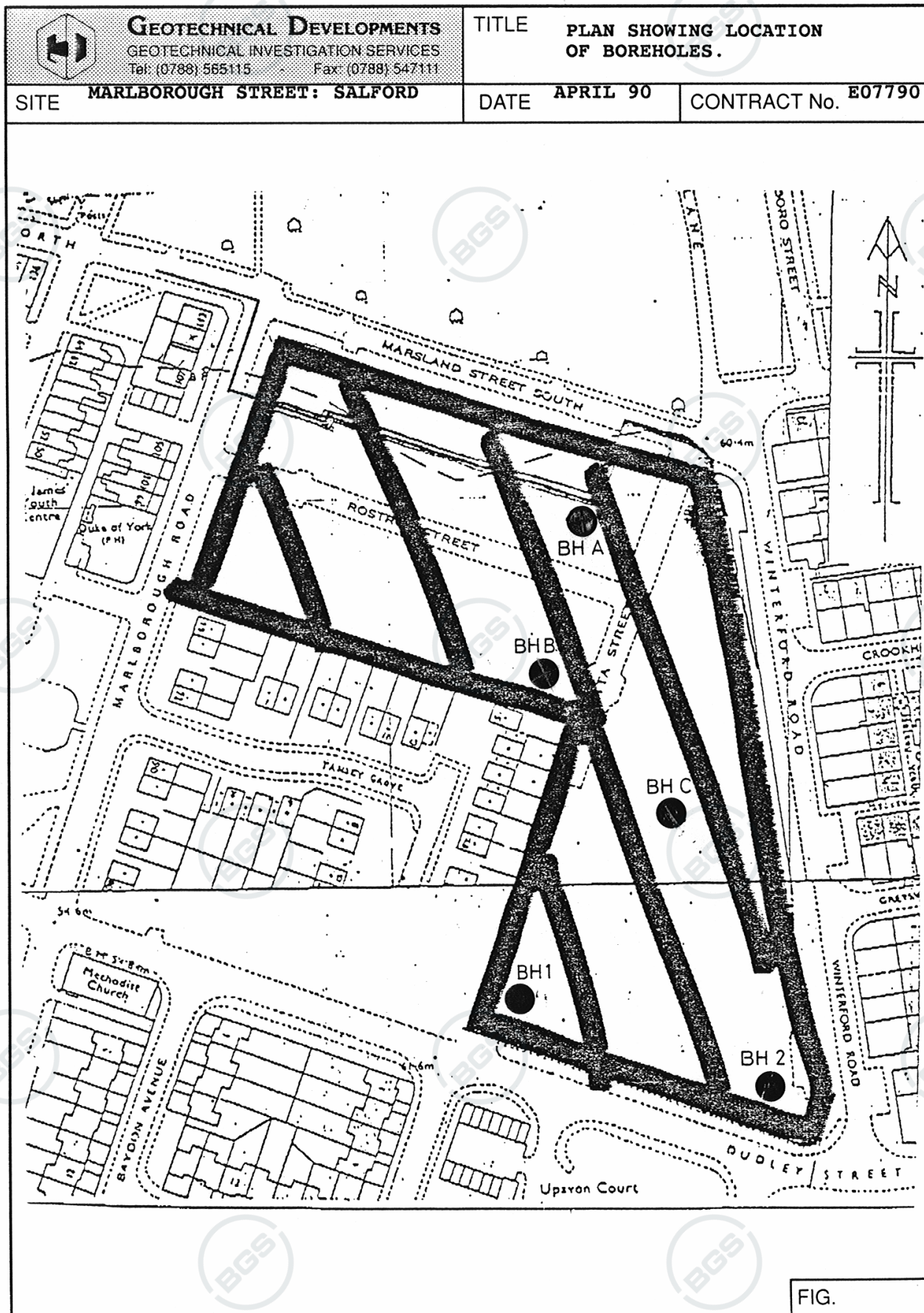
SD80SW

NGDC
ACCESSION
NUMBER
1668

FIG.

BGS REGISTRATION No.
SD 80 SW 118-122

DATA SHEET



MY 276112 D

Contact BGS: ngdc@bgs.ac.uk