

Our ref: 7359SMP

SuDS Management Plan
for
Ashton Old Road,
at
Manchester

For : Watson Homes
Spark Studio
2018-210 Great Clowes Street
Salford
M7 2ZS

03 January 2023

SuDS Management Plan Ashton Old Road, Manchester

Document Verification

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Prepared by



A Jones

*Senior Infrastructure Engineer***Document Revision**

Report Reference	Date	Description	Prepared	Checked and Approved
7359SMP	03/01/2023	SuDS Management Plan	A Jones	A Jones

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1.0 Introduction

Coopers (Chester) Ltd have been appointed by Watson Homes to prepare a SuDS Management Plan for the proposed residential development in Manchester. The site is bounded by Ashton Old Road, Lees Street and Stanley Street.

The surface water drainage system provides storage for up to a 100-year storm event plus 40% climate change allowance within a buried geo-cellular tank and upstream pipework and manholes. The flow is restricted using a vortex flow control device fitted in the last manhole before flows leave the site. A flow rate of 5.0 l/s has been agreed with United Utilities.

All components will be maintained by a management company for which this report sets out the inspection and maintenance requirements.

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2.0 Operation and Maintenance

As with any drainage system, SuDS require regular inspection and maintenance to ensure that they continue to operate as designed and are fully functional at all times. The Aston Old Road Development SuDS components will consist of a flow control device, buried geo-cellular tank, silt trap, trapped gullies and associated upstream pipework and inspection chambers.

The SuDS components require regular inspection/clearing to prevent blockages due to accumulation of silt and debris. In general, it is recommended that they are initially inspected and cleared by a suitably trained person every 6 months for at least the first 2 years of operation and then establish a long-term regular inspection/clearing regime appropriate for the site:

The upstream pipework and inspection chambers will generally be taking clean roof run-off so maintenance requirements should be minimal and will require occasional lifting of covers to ensure no silt build ups within the chambers. The regular inspections will be more relevant to the components located in the small car parking area.

Tables 14.2, 20.15 and 21.3 from CIRIA C753 The SuDS Manual provides a more detailed maintenance schedule. Inspection/clearing should also be carried out after every major storm event and to the manufacturer's recommendations.

If regular excessive accumulation of silts and debris is found in silt-traps/catchpits serving below ground attenuation/soakaway tanks, a CCTV inspection of the tank should be undertaken. The geocellular tanks are provided with a special unit type along the base to enable inspection via manholes/inspection chambers at each end. If required the inspection channel can also be used for water jetting to clear the tanks of silt/debris. Notwithstanding the above, a CCTV inspection of the tanks should be undertaken at least every five years.

Any debris obstructing or in danger of obstructing the surface water flow should be removed within a period not exceeding two weeks from inspection. Any blockage or partial blockages reported to the managing organisation should be removed within a period not exceeding two weeks.

The management company will also be required to maintain the gullies and drainage channels located within the private access road and small car parking areas. The gullies allow water to pass through the trap whilst retaining any silt and debris. As the gullies prevent silt from entering the main line drainage it is necessary to empty them occasionally, due to the depth of these unit's specialist equipment would normally be required such as a gully or post shovel and grafter, it is also good practice to jet or flush test the outlet after cleaning out the trap.

This maintenance plan is to be incorporated within the Health and Safety file, which, in addition to the details mentioned here, should include all the installed manufacturer's details and maintenance recommendations. In addition, it should hold the records of any inspections, together with any remedial measures undertaken. The drainage maintenance plan should be made available for inspection by the council if requested.

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Monitoring and maintenance of the SuDS components will be the responsibility of Watson Homes during the construction period, after completion it will be the responsibility of a management company appointed by For Housing. Details are as follows:

One Manchester*Lovell House**6 Archway**Hulme**Manchester**M15 5RN*

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3.0 Maintenance schedule

TABLE 14.2 An example of operation and maintenance requirements for a proprietary treatment system

Maintenance schedule	Required action	Typical frequency
Routine maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation	Six monthly
	Change the filter media	As recommended by manufacturer
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill
Remedial actions	Replace malfunctioning parts or structures	As required
Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect filter media and establish appropriate replacement frequencies	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first half year of operation, then every six months

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

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
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows 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 5 years or as required

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TABLE 20.15 Operation and maintenance requirements for pervious pavements

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Extracts from CIRIA C753 'The SuDS Manual'

Operation and Maintenance requirements for Flow Controls:

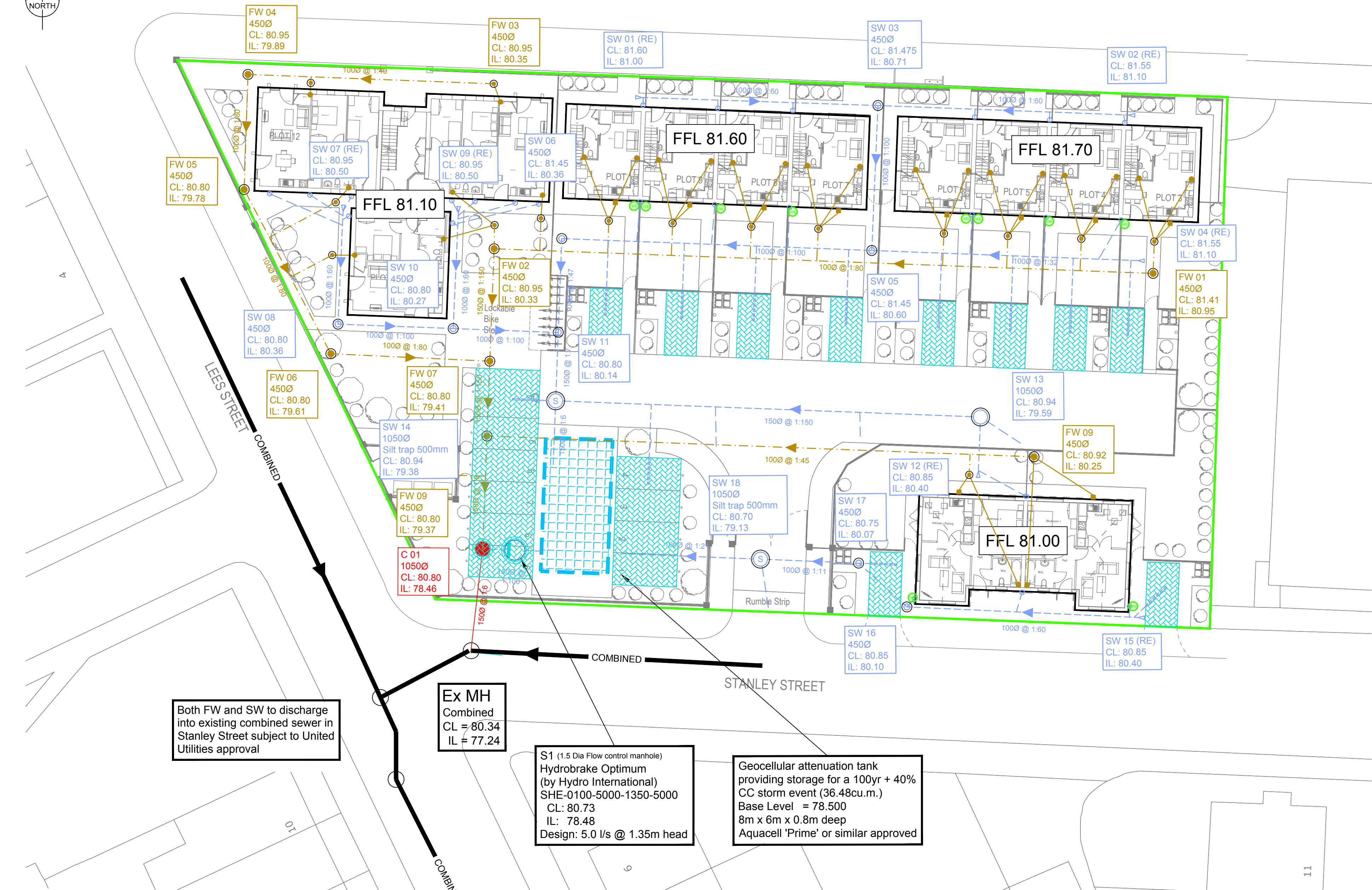
Six monthly checks as a minimum, plus following any major storm event. Checks to include:

- Clear chamber of any debris
- Visually inspect for signs of damage
- Check moving parts move freely
- Remove all dirt and foreign substances from all the internal and external parts of the unit
- Visually inspect the components for signs of wear and tear

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4.0 Reference Drawings

DO NOT SCALE

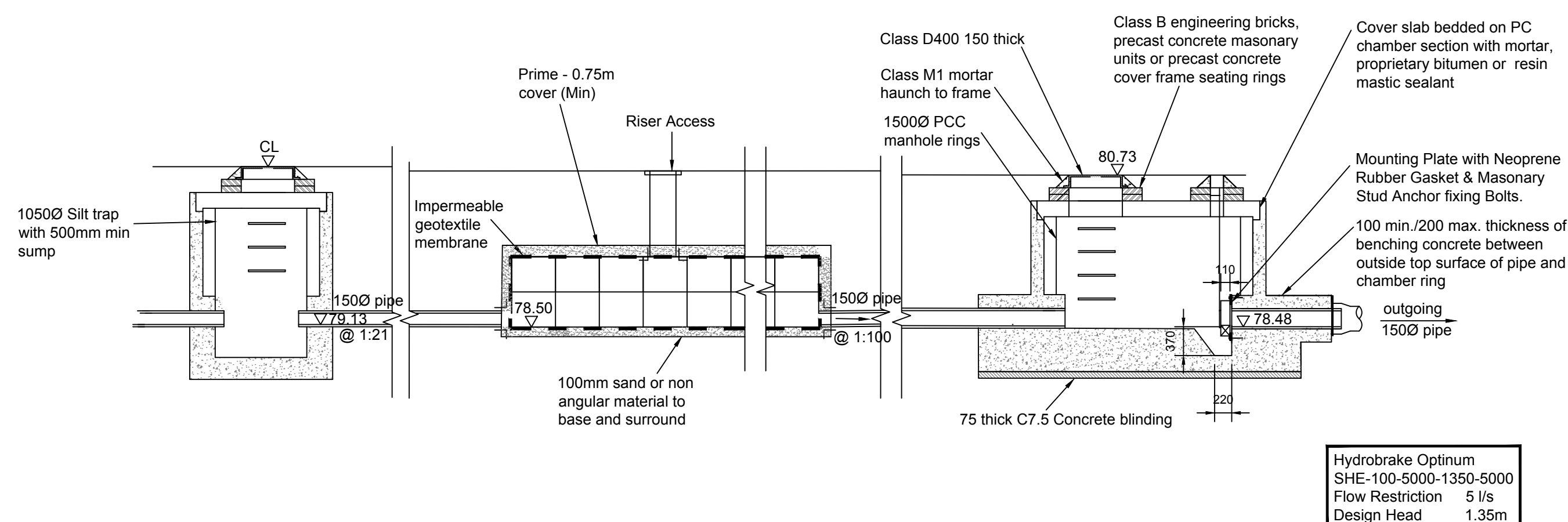


Both FW and SW to discharge into existing combined sewer in Stanley Street subject to United Utilities approval

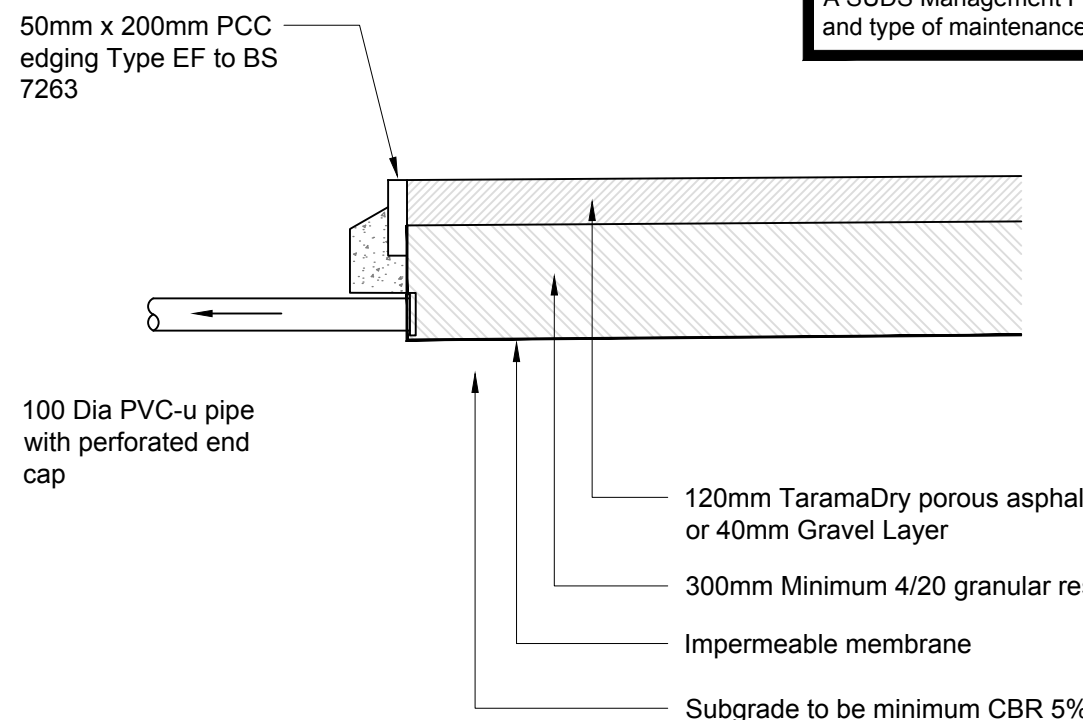
Ex MH
Combined
CL = 80.34
IL = 77.24

S1 (1.5 Dia Flow control manhole)
Hydrobrake Optimum
(by Hydro International)
SHE-0100-5000-1350-5000
CL: 80.73
IL: 78.48
Design: 5.0 l/s @ 1.35m head

Geocellular attenuation tank
providing storage for a 100yr + 40%
CC storm event (36.48cu.m.)
Base Level = 78.500
8m x 6m x 0.8m deep
Aquacell 'Prime' or similar approved



Typical Geocellular Tank System Section (NTS)
Aquacell Prime or similar approved with riser access for inspections and future maintenance



CROSS SECTION OF PERMEABLE ASPHALT
PAVING CONSTRUCTION DETAIL

Surface Water Drainage Philosophy

Policy Provision

The design for a surface water drainage system for the proposed development will be guided by the principles set out in the National Planning Policy Framework (NPPF) and the Building Regulations Approved Document H.

The NPPF Technical Guidance to the National Planning Policy Framework provides the following advice with regards to drainage in flood zone 1 sites:

"Developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems".

Sustainable drainage systems cover the whole range of sustainable approaches to surface drainage management. They are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible."

The Building Regulations Approved Document H states that rainwater shall discharge to one of the following, listed in order of priority:

1. An adequate soakaway or some other adequate infiltration system, or where this is not reasonably practical;
2. A watercourse, or where this is not reasonably practical;
3. A sewer.

This hierarchy approach is also set out in the Planning Practice Guidance at paragraph 80 of the Flood Risk and Coastal Change section.

Assessment

A phase 2 Site Investigation report have been undertaken by LK Group. Trial pits have confirmed the site is underlain with made ground and clay and will therefore not be suitable for infiltration techniques to dispose of surface water flows from the development.

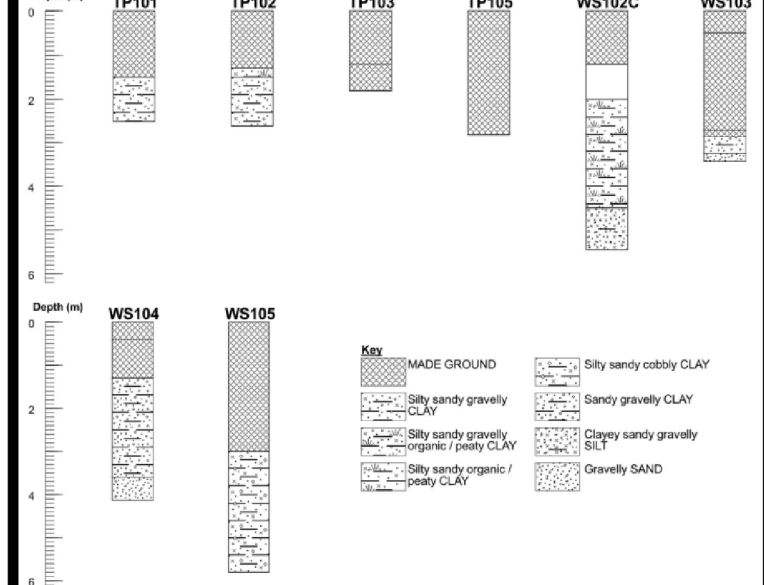


Plate 4-1: Summary of ground conditions.

There are no watercourses within the vicinity of the site so we are proposing a discharge into the public sewer network subject to United Utilities approval. The sewer records have identified a combined sewer flowing west along Stanley Street to the south of the site which connects into a larger combined sewer in Lees Street to the west of the site.

We are proposing to discharge all surface water from the proposed development into the combined sewer in Stanley Street. United Utilities have confirmed they will accept a maximum flow rate of 5 l/s into this sewer.

Greenfield run-off from the site has been calculated as 1.50 l/s QBAR. However, a minimum industry standard flow rate of 5 l/s is generally considered acceptable as this will have a 100mm orifice on flow control device. Anything smaller than this can be prone to future blockages and will become a maintenance issue.

The surface water network has been simulated in MicroDrainage and has been designed for a 100-year storm event with 40% climate change allowance. Approximately 46cu.m. of storage is required and can be provided within a buried cellular tank. This is based on a measured impermeable area of 1300sq.m. and a flow restriction of 5 l/s.

A Hydrobrake vortex flow control will be installed in the last manhole before flows are combined with foul flows and discharged into the existing sewer network.

PLOTS 1-10 will have water butts on rear RWP's to collect rainwater for garden re-use. Not appropriate for apartments.

All parking bays to be tanked permeable paving with pipe outlets back into SW network.

The incorporation of permeable paving trapped gullies and silt traps will provide sufficient components to control the quality of water being passed forward into the public sewerage network.

Maintenance / Responsibilities

All proposed drainage network will be maintained by a private 'Management Company'

A SUDS Management Plan will be produced to address frequency and type of maintenance activities.

Legend

- Site Boundary
- Existing Combined Sewer
- Proposed Private Surface Water
- Proposed Private Foul
- Proposed Private Combined
- Flow Control Manhole
- SW Attenuation
- Proposed Finished Floor Level
- Permeable Paving
- Water Butt (garden re-use)
- ACO Drain

APPROVAL

F	19.10.21	Drainage levels revised	AJ	AJ
E	13.10.21	Notes updated (infiltration consideration)	AJ	AJ
D	15.09.21	SVP/RWP Locations updated	PW	AJ
C	25.08.21	SuDS Details added	AJ	AJ
B	29.07.21	Notes Revised	AJ	AJ
A	23.06.21	SUDS components added	AJ	AJ
Rev	Date	Revision	By	Appd.


chartered consulting engineers

Tel: 01244 684910
Email: admin@coopers.co.uk
Web: http://coopers.co.uk

Park House
Sandpiper Court
Chester Business Park
Chester
CH4 9QU

Client			
Project	ASHTON OLD ROAD MANCHESTER		
Title	Drainage Strategy		
DRAWING NUMBER	7359 / SK01	SCALE at A1	1:200
DATE	AUG 2019	REVISION	F
DRAWN	AJ	CHECKED	AJ