Whitshaw Builders Ltd

Land Adj 196 Wakefield Rd, Earlsheaton WF12 8AH

Drainage Maintenance & Management Plan

sanderson associates consulting engineers

Control Sheet

CLIENT: Whitshaw Builders Ltd

PROJECT TITLE: Land Adj 196 Wakefield Rd, Earlsheaton WF12 8AH

REPORT TITLE: Drainage Maintenance & Management Plan

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1. Drainage Maintenance

1.1 Introduction

1.1.1 Sanderson Associates (Consulting Engineers) Ltd has been appointed by Whitshaw Builders Ltd to produce a drainage maintenance and management plan for the development of a proposed surface and foul water drainage system at Land Adj 196 Wakefield Rd, Earlsheaton WF12 8AH.

1.1.2 The drainage layout that this drainage maintenance and management plan is based on is included in **Appendix A**. The surface water is collected in from the dwelling roofs via a gravity fed drainage system, before being conveyed in pipe work into a geocellular storage system and then ultimately restricted via a Hydrobrake. Permeable Paving is used to collect and convey the surface water from the parking area into the geocellular storage with back up of aco drainage.

1.1.3 The main objective of maintenance control is to establish procedures to ensure that onsite drainage systems/apparatus function appropriately over the lifetime of the development term within an environment that promotes proactive control.

1.1.4 The below sections will look at maintenance requirements for different elements of the proposed industrial units drainage system:

1.2 Private Drains

1.2.1 Pipe sizes and gradients should be designed to be self-cleansing albeit regular maintenance and inspections are required to ensure the long-term efficiency of the systems. All works will be undertaken by Achieve Together, waste should be treated and removed by an appropriately registered company.

1.2.2 Maintenance includes:

- Local repair or replacement of damaged pipes or other structures in order to maintain the function of the onsite system.
- Cleaning and removal of sediments and obstructions etc. to restore hydraulic capacity and to prevent blockages; Jetting/vacuum of sewers to be undertaken as often as necessary to remove silts and/or ordinary debris.
- In the event that any extraordinary issues are encountered during an inspection, further information may be required such as a CCTV survey report.
- Maintenance to be undertaken on an annual schedule.

1.3 Geocellular Storage

1.3.1 Regular inspection and maintenance is important to ensure the effective long-term operation of the attenuation tank. Maintenance responsibility should be by Achieve Together.

1.3.2 CIRIA's SUDS manual C753 recommends the below maintenance regime for attenuation storage, the list isn't exhaustive and some actions may not be required, following inspection;

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

1.4 Channel Drainage

1.4.1 Inspection routines are essential to maintain efficient performance of drainage channels and they should be carried out at frequent and regular intervals. The frequency will depend upon the location and the environment, and should be based on local knowledge, but inspections should be carried out at least once a year. When lifting gratings, use the Drainlock™ grating lifting tool (part number 1367). Insert the tool in from the end of the grate as shown, and gently lift the grate until the Drainlock™ clips release taking care not to bend or damage the grate.

1.4.2 Lifting with/without the lifting tool at the end of a grate, may result in damage/ bending of the grate (particularly the composite and steel grates).

1.4.3 Each site has different levels of debris and leaf matter which will be collected by the sump bucket during rain events. The frequency for inspecting your sumps or gullies will depend on these factors. Inspection of sumps/gullys should be carried out in conjunction with an inspection of the underground drainage connection out of the channel system. Occasionally, water should be poured into the sump (or gully) to check that it disperses freely.

1.5 Permeable Paving

1.5.1 Depending on the system selected, the maintenance activities will vary but broadly follow the principal as outlined below taken from CIRIA SuDS Manual.

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 glyphospate 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

1.6 Flow Control Chamber

1.6.1 The surface water drainage system has a discharge restriction device. This is controlled by a flow control device located at the last chamber on the system or where identified on drainage layout plans and should be checked and cleaned out on an annual basis to ensure that no objects are in the chamber interfering with the flow through the unit. The maintenance requirements of the specified units manufacturer should also be referred to this will ensure that an specific maintenance requirements of the unit are met.

1.6.2 The below section is an extract of Hydro Internationals maintenance recommendation for a Hydro-Brake flow control device.

1.6.3 Normally, little maintenance is required as there are no moving parts within the Hydro-Brake 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. Hydro-Brake Flow Controls are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur. The smaller type conical units, below the minimum recommended size, are also supplied with rodding facilities or vortex suppressor pipes as standard.

1.6.4 Following installation of the Hydro-Brake 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.

1.7 Manholes/Access Chambers

1.7.1 All manhole covers should be lifted and the manholes visually inspected for silt, debris and signs of blockages within the drainage system. Check manhole covers and frames for damage and ensure correctly bolted together. This should be undertaken on an annual basis.

1.7.2 Should any debris or blockages be detected, the manholes should be cleaned along with associated pipe runs which should be high pressure jetted and CCTV surveyed to verify/identify that no further remedial works are required.

1.8 Health and Safety

1.8.1 Relevant parties shall, so far as is reasonably practical, provide and maintain systems of work that are safe and without risks to health. The systems of work shall cover all aspects of the works including above-ground operations (for example manhole location and traffic control), access to the private drainage system and all operations in the confined space of the private drainage system.

1.9 Responsibility for Maintenance Activities

1.9.1 Drainage components that fall outside of public authority or statutory undertaker adoption should be co-ordinated by Achieve Together to ensure the proposed drainage strategy performs as designed.

1.9.2 Drainage components downstream of, and including, the existing surface and foul sewer are to be adopted by the Yorkshire Water.

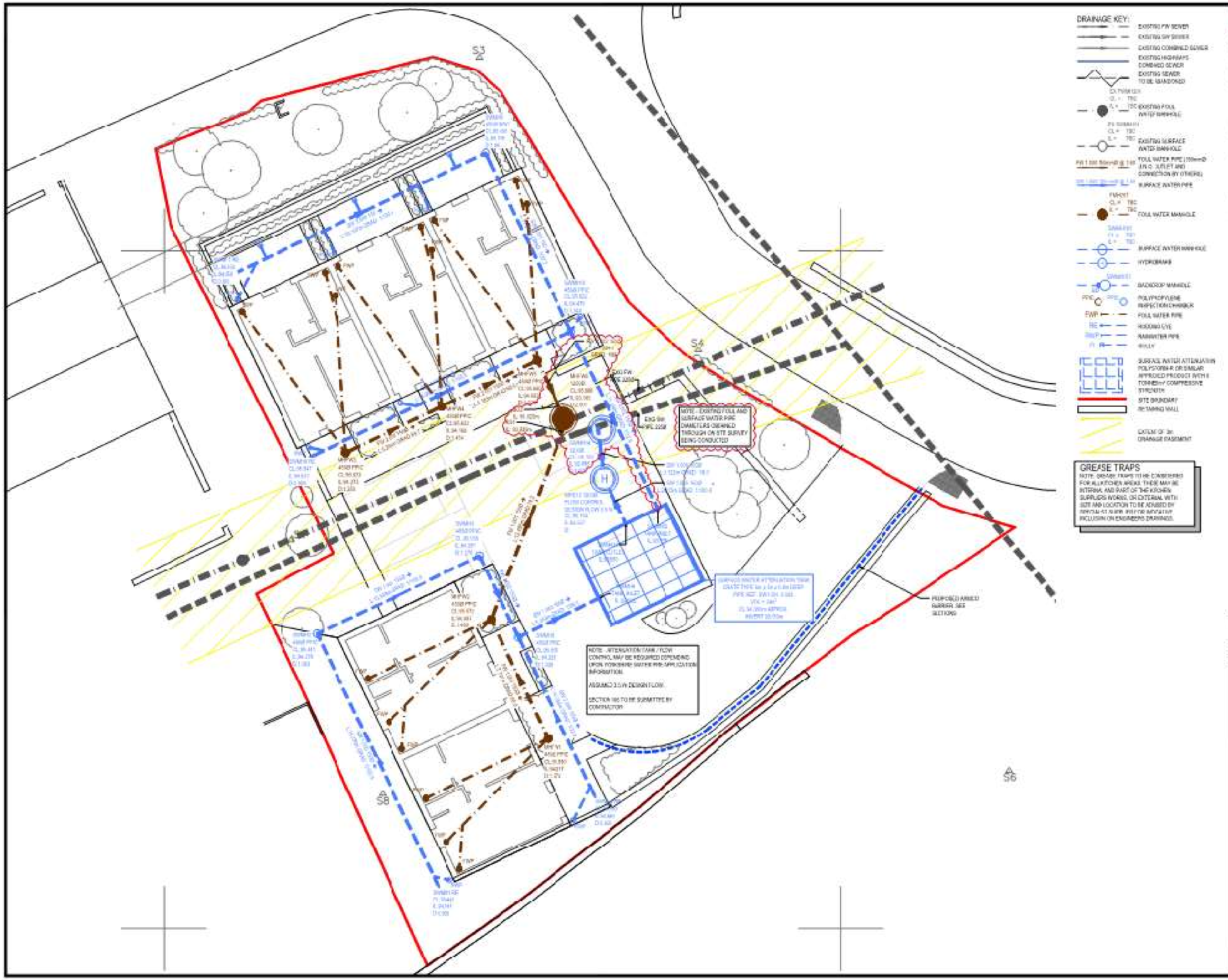
1.10 Record History

1.10.1 Relevant parties shall be responsible for recording and updating details of prior maintenance and operations, which can be made available for future reference.

1.10.2 The relevant parties shall also be responsible for scheduling future maintenance in accordance with the necessary requirements of each component, create a fixed timetable of routine checks and ensure that the maintenance is undertaken appropriately.

Appendix A

23066-ARC-XX-XX-DR-C-5001 P3 DRAINAGE GENERAL ARRANGEMENT



DO NOT SCALE

GENERAL NOTES

SAFETY, HEALTH & ENVIRONMENTAL INFORMATION

Risks listed here are not exhaustive. Refer to Risk Assessment Register: 23086-ARC-XX-XX-RE-S-0002

Construction

ADD PROJECT NOTES HERE

Demolition
No Unusual hazards/risks

For information relating to Use, Cleaning and Maintenance see Health & Safety File

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION

INDICATES A RESIDUAL RISK FOR INFORMATION

INDICATES A RESIDUAL RISK REQUIRING PROHIBITIVE ACTION

INDICATES A RESIDUAL RISK AS A WARNING

P2	DRAINAGE LAYOUT UPDATED				
P1	INITIAL ISSUE	PJH	TD	HVF	

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CLIENT

WHITSHAWS BUILDERS & ACHIEVE TOGETHER

PROJECT

WAKEFIELD ROAD, EARLSHEATON DEWSBURY

TITLE

DRAINAGE GENERAL ARRANGEMENT

PRELIMINARY

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
PJH	20.01.2024	TD	20.01.2024	HVF	20.01.2024

PROJECT No.	SCALE
23086	1:100

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