



Queensberry
DESIGN LIMITED
RESIDENTIAL AND COMMERCIAL DESIGN CONSULTANTS

Avant Homes

South Tyneside College

DRAINAGE MAINTENANCE PLAN

November 2023

Head Office: The Staithes, The Watermark, Gateshead, NE11 9SN

ISSUE SHEET

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This document has been prepared solely as a Drainage Maintenance Plan for Avant Homes, Queensberry Design Ltd accepts no responsibility or liability for any use that is made of this document other than by the Client for which it was originally commissioned and prepared.

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APPENDICES

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1. Introduction

- 1.1 Queensberry Design Ltd has been commissioned by Avant Homes to prepare a Drainage Maintenance Plan in connection with a proposed residential development at South Tyneside College, South Shields.
- 1.2 This Maintenance Plan has been produced to demonstrate how the proposed SuDS and drainage features on site will be managed and maintained to satisfy the requirements set out in CIRIA C753.

2. Site Description

- 2.1 It is proposed to construct 260 dwellings on a single portion of land currently occupied by South Tyneside College, consisting of a mixture of multi storey buildings, hardstanding, playing pitches and mature trees.
- 2.2 The site is approximately 9.41ha in size and is located within South Shields off Grosvenor Road at a national grid reference of NZ 372658
- 2.3 The site is bound to the north and east by dwellings forming part of Westoe Village, Grosvenor Road and with dwellings beyond forms the southern boundary, the western boundary is bound by St Georges Avenue, access to the development is by both Grosvenor Road and St Georges Avenue.

3. Management of Surface Water

- 3.1 Surface water flows are being attenuated by two detention basins with two outfalls at a combined rate of 14.94 litres / second before connection into the existing combined sewerage adjacent the development.
- 3.2 The detention basins are designed to accommodate flows up to an including the 1 in 100-year event plus 45% climate change with an allowance for 10% urban creep.
- 3.3 Private curtilage shared driveways provide source control / treatment via filter drains, the ground conditions are unfavourable for infiltration, however it is proposed to allow partial infiltration and provide a land drain to collect infiltrated run-off into the drainage system.
- 3.4 The Engineering Layouts can be viewed in Appendix 1.
- 3.5 All new adoptable standard surface water drainage is designed in accordance with 'The Design and Construction Guidance Document (DCG).

4. Management and Maintenance Responsibilities

Section 104 Drainage

- 4.1 The section 104 drainage will be adopted by Northumbrian Water. Up on adoption Northumbrian Water will be responsible for future maintenance of this system. Once a suitable number of dwellings are connected into the Section 104 drainage system (51% of the total) the system will be subject to a 12 month maintenance period where defects encountered will be rectified before the adoption is complete. During the construction and maintenance periods the maintenance of the system will be the responsibility of Countryside Partnerships and their appointed contractor. The sewers will be inspected by site management on a frequent basis and after rainfall events to ensure effective operation.

Private Drainage System

- 4.2 The private plot drainage system will be maintained by Avant Homes and their appointed contractor until the completion of each property sale. Following the property sale, the maintenance of the private drainage system will become the responsibility of the individual homeowner served by the drain.

Filter Drains

- 4.3 Filter drains serving multiple dwellings (shared parking) is the responsibility of the management company.
- 4.4 Filter drains shall be maintained as the guidance provide in this document.

Detention Basins

- 4.5 The detention basins must be managed and maintained in accordance with the guidance outlined in this document.
- 4.6 Up to the completion of construction and plot connections the management and maintenance of the basins will be the responsibility of Avant Homes.
- 4.7 At an agreed point in development delivery the management and maintenance of the basins will be handed over to a management company. The management company will then maintain the drainage features in accordance with this document.

Contact Details

- 4.8 The developer is to ensure that that a Site Waste Management Plan, Health and Safety Plan, Construction management Plan and Surface Water Management plan is prepared and implemented; and that works are carried out in accordance with Ciria Guidance.

Company Name	Avant Homes
Company Address	Avant Homes North East, Investor House, Colima Avenue, Sunderland, SR5 3XB
Email Address	
Telephone Number	0191 516 5100
Emergency 24hr callout/out of hours number	TBC

Details of who is responsible for the final management and maintenance

- 4.9 The detention basins will be managed and maintained in accordance with the guidance outlined in this document by a management company:

Company Name	TBC
Company Address	
Email Address	
Telephone Number	
Emergency 24hr callout/out of hours number	

Landownership Details

- 4.10 The land containing the SuDS features will be owned by Avant Homes:

Company Name	Avant Homes
Company Address	Avant Homes North East, Investor House, Colima Avenue, Sunderland, SR5 3XB
Telephone Number	0191 516 5100

Expected Handover

- 4.11 The expected handover date is to be confirmed. However, it is expected to be on completion of plot connections to the main drainage and legal transfers of dwellings.

Funding Arrangements

- 4.12 The installation and initial management of the SuDS features will be funded by the developers until final inspection and handover to management company. Once the features are the responsibility of the management company the funding will be via a management company resident charge.

5. SuDS Management and Maintenance Activities

5.1 The proposed storm water system consists of the following SuDS components:

- Detention Basins
- Filter Drains

5.2 There are three categories of maintenance activities referred to in this report:

Regular Maintenance (including inspections and monitoring)

5.3 Consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.

Occasional Maintenance

5.4 Comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).

Remedial Maintenance

5.5 Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design.

6. Detention Basin

- 6.1 The scheme proposes 2 dry SuDS detention basins to assist with the controlled release of surface water to the existing public sewer network.
- 6.2 The SuDS basin general arrangement are illustrated in Appendix 1.

Basin S29 Depth: 1.4m Side Slope: 1 in 5 Volume: 1995m³ Flow Control Manhole: S29_FC Flow Control: Hydro Brake Discharge Rate: 8.5 l/s Outfall: Section 104 Drainage Accessed from: Public Road/footpath	
Basin S122 Depth: 1.5m Side Slope: 1 in 5 Volume: 2201m³ Flow Control Manhole: S123_FC Flow Control: Hydro Brake Discharge Rate: 6.4 l/s Outfall: Section 104 Drainage Accessed from: Public Road/footpath	

- 6.3 The primary function of the detention basin is providing flow control through attenuation of storm water runoff, and to facilitate some settling of particulate pollutants. As a result, the primary maintenance requirements will be mowing (monthly during growing season) and removal of litter and debris (monthly). Mowing grass length should be ideally left between 75mm and 150mm to assist in filtering pollution and removing sediment. Grass clippings should be disposed of offsite or outside detention basins to remove nutrients and pollutants. Every 5 years sediment should be removed to both remove the contaminated sediment and maintain its capacity.
- 6.4 Regular inspection and maintenance are important for the effective operation of the detention basin. Maintenance responsibility for these SuDS should be placed with a responsible organisation. Many of the maintenance activities for the basin can be undertaken as part of landscape maintenance and should have marginal cost implications.
- 6.5 Safety grilles will be provided to all inlet and outlets and should be regularly inspected for blockages or sediment build up.

Maintenance Access

- 6.6 Adequate access must be provided for inspection and maintenance, including the appropriate equipment and vehicles. A maintenance access way (or easement) will be provided to the SuDS basins from a public or private road.

Basin Construction Requirements

- 6.7 The bottom and side slopes of the basin should be carefully prepared to ensure that they are structurally sound, and checks should be made that any embankment structures meet their design criteria. The preparation should also ensure that the basin will satisfactorily retain the surface water runoff without significant erosion damage.
- 6.8 Backfilling against inlet and outlet structures needs to be controlled to minimise settlement and erosion. The soils used to finish the side slopes need to be suitably fertile, porous and of sufficient depth to ensure healthy vegetation growth. All trench excavations should follow construction best practice and be supported, if required. No personnel should be allowed to enter an unsupported trench deeper than 1.2 m. Trench supports must be designed to guarantee the safety of those working in the trench. Support may also be needed for shallower trenches in weak ground.
- 6.9 During the SuDS establishment phase, runoff from bare soils should be minimised all temporary works shall be in accordance with the developments Construction Phase Surface Water Management plan.

Basin Maintenance Requirements

6.10 The maintenance schedule is outlined in Table 1.

TABLE 1 - Operation and Maintenance requirements for Detention Basins		
Schedule	Required Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season) or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation including the hedges bounding the basin and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets, 45' safety grilles and overflows for blockages, and clear if required	Monthly
	Inspect bankside, structures, pipework for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year) then annually or as required
	Check any penstock or mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlets	Annually (or as required)
Occasional Maintenance	Re-seed areas of poor vegetation growth	As required
	Prune and trim trees and remove cuttings	Every 2 years or as required
	Remove sediment from inlets, outlets and main basin when required	Every 5 years, or as required
Remedial Actions	Repair of erosion or other damage by re-seeding or re-turfing	As required
	Repair / rehabilitation of inlets, outlets and overflows	As required
	Re-level uneven surfaces and reinstate design level	As required
	Remove debris from the catchment surface (where it may cause risk 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
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 structure for sediment build-up and remove if necessary	Every 5 years or as required

7. Filter Drains

- 7.1 Shared drives are designed with a crossfall with gravel filter strips located on the low side to provide source control. The filter drains will be linked to the proposed gully network. Typical filter drainage details are enclosed in Appendix 1.
- 7.2 Regular inspection and maintenance are required to ensure the continuing operation to design performance standards for all filter drains. Adequate access should always be provided to the filter drain for inspection and maintenance. Litter (including leaf litter) and debris removal should be undertaken as part of general landscape maintenance for the site and before any other SuDS management task. Inlet/outlet pipework should be regularly inspected and maintained for blockages, clogging, standing water and structural damage.

Operation and Maintenance requirements for Filter Drains		
Schedule	Required Action	Frequency
Regular Maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices	Monthly or as required
	Inspect filter drain surface, inlet/ outlets and control systems for blockage, clogging, standing water and structural damage	Monthly
	Inspect pre-treatment systems, inlet and perforated pipework for silt accumulation and establish appropriate silt removal frequencies	Six monthly
	Remove sediment from pre-treatment devices	Six monthly or as required
Occasional Maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (eg NJUG, 2007 or BS 3998:2010)	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium	Five yearly, or as required
	Clear perforated pipework of blockages	As required

8. Gullies

- 8.1 Trapped road gullies provide a degree of pollution control in preventing silt and debris passing from the site into the main sewer network. Road gullies are provided throughout the adoptable road network onsite as indicated in Appendix 1.

Management and Maintenance Responsibility

- 8.2 The highways gullies will be adopted by South Tyneside Council under a Section 38 agreement.
- 8.3 The maintenance schedule is outlined in Table 5 responsibilities.

TABLE 5 - Operation and Maintenance requirements for Trapped Road Gullies		
Schedule	Required Action	Frequency
Regular Maintenance	Clean and empty gullies	Quarterly

9. Performance Assessment

- 9.1 The operation and maintenance requirements laid out in the tables above are intended to ensure effective operation of the detention basins. The frequency of inspections includes the requirement to inspect before and after storm events. The post storm inspection should also be used to ensure that the SuDS features have drained down without leaving any permanent water. The presence of permanent water during any dry period inspection is an indication of poor performance or failure of the SuDS feature and requires immediate investigation to rectify the problem.
- 9.2 The design process has aimed to remove and or reduce all risks associated with the SuDS features, by using best practice and adoptable standards. The management company must only employ competent contractors, to complete the required maintenance tasks. The management company is required to obtain task specific risk assessments and method statements (RAMS) for every action in relation to the maintenance of the SuDS features. The management company must hold and update a site-specific health and safety file including all RAMS.
- 9.3 It would be anticipated that a review and potential revisions of the maintenance regime will be required following a period of monitoring, during and post completion. Furthermore, the level of maintenance will likely vary with time as development expands, construction works reduce and various facilities become established. It is recommended that regular inspection and monitoring of the maintenance programme is carried out to determine any changes that are required and to plan for future actions.

10. Important Information

- 10.1 The management company is to familiarise themselves with site constraints plan detailing existing utility locations across the scheme notably the presence of underground HV, watermain and foul sewerage.
- 10.2 The LLFA will be notified once the maintenance and management has been handed over to the responsible company. If a new management company is ever appointed details will be provided to the Lead Local Flood Authority.

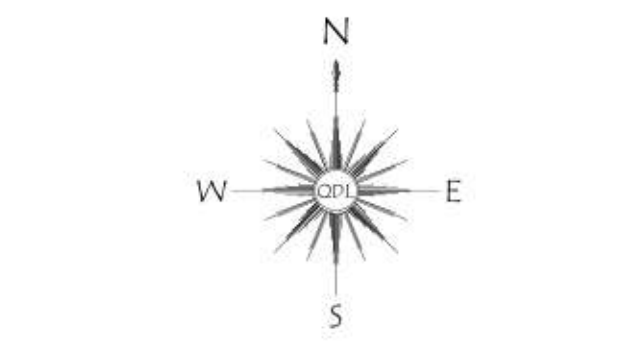
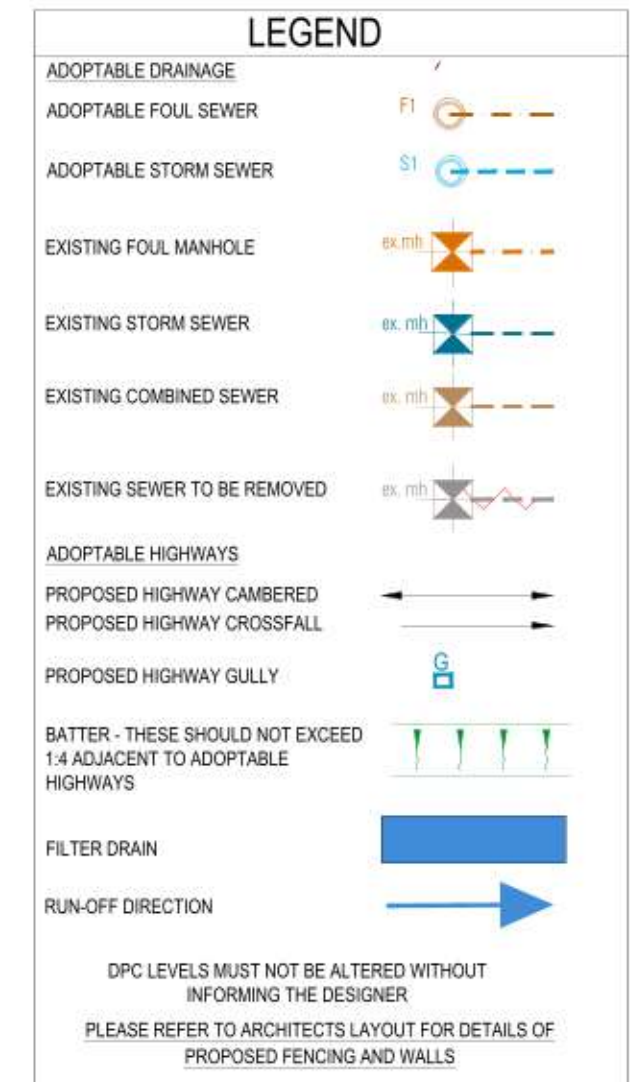
Appendix 1 – Engineering Design

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 - DRAWING SETS WILL REMAIN PRELIMINARY UNTIL FULL TECHNICAL APPROVAL IS RECEIVED FROM LOCAL AUTHORITY AND SEWERAGE UNDERSTAKER WORKS COMMENCED PRIOR TO TECHNICAL APPROVAL ARE DONE SO AT RISK AND WILL BE SUBJECT TO CHANGE.
 - THE CONTRACTOR IS EXPECTED TO PREPARE APPROPRIATE CONSTRUCTION METHOD STATEMENTS FOR ALL ASPECTS OF APPROPRIATE WORK. THIS SHOULD INCLUDE ANY TEMPORARY PROTECTION WORKS.
 - LAND DRAINAGE IS NOT PERMITTED TO DISCHARGE INTO THE PUBLIC SEWER NETWORK. ANY NEED FOR LAND DRAINAGE SHOULD BE ASSESSED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. IF LAND DRAINAGE IS REQUIRED, THEY SHOULD BE APPOINTED PRIOR TO COMMENCEMENT OF WORKS.
 - THE CONTRACTOR IS EXPECTED TO CROSS CHECK ALL DRAINAGE INVERTS PRIOR TO COMMENCEMENT OF WORK. THEY MAY INVOLVE COMPLETION OF TRAIL HOLES IF EXISTING LEVELS HAVE BEEN INTERPOLATED.
 - THE CONTRACTOR MUST MONITOR THE AS BUILT PROGRESS OF EACH CONSTRUCTION STAGE. RECORDS OF WORKS (TO) TO DRAINAGE THE NEXT STAGES OF CONSTRUCTION TO BE CHECKED BEFORE.
 - EXTERNAL WORKS, RETAINING WALLS, AND PLAT DRAINAGE ARE TO BE READ AS GUIDANCE ONLY.
 - ALL WORKS TO BE UNDERTAKEN IN COMPLIANCE WITH BS 8001 WORKMANSHIP ON BUILDING SITES.

- ROADWAYS:
- ALL HIGHWAY WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION.
 - ALL EXISTING ROADS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 100MM UNLESS OTHERWISE ADVISED.
 - HIGHWAY AUTHORITY TO BE NOTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS.

- ADOPTABLE DRAINAGE:
- ALL ADOPTABLE DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE WATER AUTHORITIES PUBLICATION 'CODE FOR ADOPTABLE' AS WELL AS THE APPROVED DRAWINGS.
 - PRECAST CONCRETE MANHOLE RINGS TO COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 PART 200.
 - ALL BROCHURES TO BE CLASSIFIED ENGINEERING COMPLYING WITH THE RELEVANT PROVISIONS OF BS 3201. CONCRETE BROCHURES USED IN THEIR SPECIFICATIONS TO THE SAME AS CLASS B ENGINEERING BROCHURES. PLEASE SEEK APPROVAL FROM RELEVANT WATER AUTHORITY BEFORE USING.
 - MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF A NON-ROCKING, NON-VENTILATING DESIGN.
 - LOADERS THAT ARE REQUIRED IN TYPE A MANHOLES ARE TO COMPLY WITH 'CODE FOR ADOPTABLE'.
 - CONCRETE MUST BE EITHER C20/25 OR SLAB/PAVEMENT PORTLAND CEMENT WITH HIGH STRENGTH CONCRETE TOPPING TO THE RELEVANT BS 5911 PART 200. ORDINARY PORTLAND CEMENT.
 - USING CONCRETE SHROUDS IS REQUIRED AROUND PIPES WHERE THE DEPTH FROM FINISHED SURFACE TO SOFFIT OF PIPE IS LESS THAN 100MM. THIS MAY BE REDUCED TO 50MM WITH OPEN GRACE.
 - THE LOCATION OF EXISTING DRAINAGE THAT IS WITHIN CLOSE PROXIMITY TO THE PROPOSED SITE WORKS, WHICH IS NOT TO BE DIVERTED, SHOULD BE CONFIRMED BY THE CONTRACTOR AND REPORTED TO THE DEVELOPER TO ENSURE IT IS CORRECT TO THAT SHOWN ON THE ENGINEERING LAYOUT AND THAT NO PROPOSED WORKS ARE AFFECTED.
 - THE POSITION, LINE AND DIAMETER OF ALL EXISTING DRAINAGE APPARATUS SHOULD BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - THE CONNECTION OF ALL SURFACE WATER DRAINAGE TO THE EXISTING PUBLIC SEWER SYSTEM SHALL BE SUBJECT TO THE APPROVAL OF THE LOCAL SEWERAGE UNDERSTAKER. THE CONTRACTOR IS EXPECTED TO APPLY FOR RELEVANT PERMITS PRIOR TO COMMENCEMENT OF THE WORKS.
 - ROADS AND SEWERS CONTRACTOR MUST INFORM WATER AUTHORITY PRIOR TO WORKS COMMENCING.

- EXISTING SERVICES:
- PRIOR TO THE COMMENCEMENT OF ANY WORKS UNDER GROUND MAPPING SURVEYS AND CONSTRAINTS PLAN TO BE REFERRED TO ANY DISCREPANCIES ARE TO BE REPORTED TO ENGINEER.
- ANY EXISTING SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS SHOULD BE LOCATED BY MEANS OF A HAND DIG IN CLOSE PROXIMITY TO THE EXISTING SERVICES. THE CONTRACTOR SHALL INFORM THE DEVELOPER OF ANY SERVICES THAT MAY AFFECT THE PROPOSED DESIGN. THE CONTRACTOR SHALL NOTIFY ANY EXISTING SERVICES AUTHORITIES PRIOR TO COMMENCEMENT OF WORKS. AS CONSTRUCTED INFORMATION IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE FOLLOWING AS CONSTRUCTED DRAWINGS TO THE DEVELOPER UPON THE COMPLETION OF THE WORKS COVERED BY THE CONTRACT.
- POSITIONING ORIGINATES OF ALL ADOPTABLE MANHOLES.
 - INVERT AND COVER LEVELS OF ALL ADOPTABLE MANHOLES.
 - NEW GULLY POSITIONS AND CONNECTIONS.
 - POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING STATING SIZE AND NUMBER OF DUCTS.



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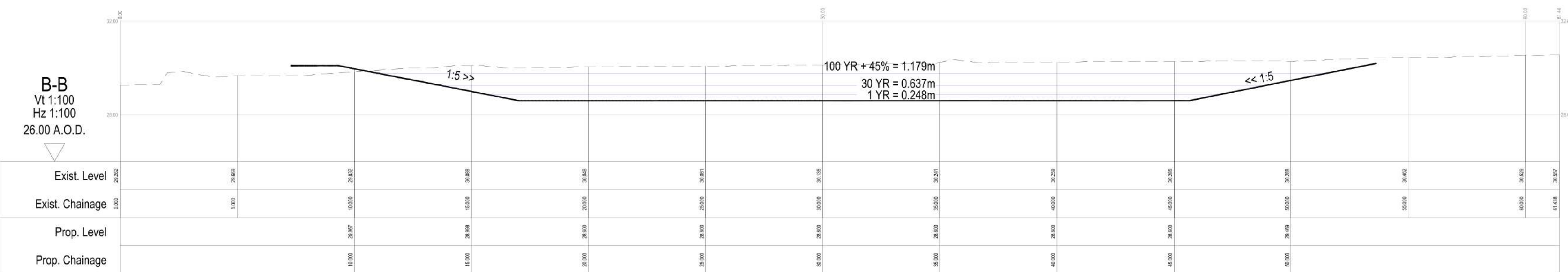
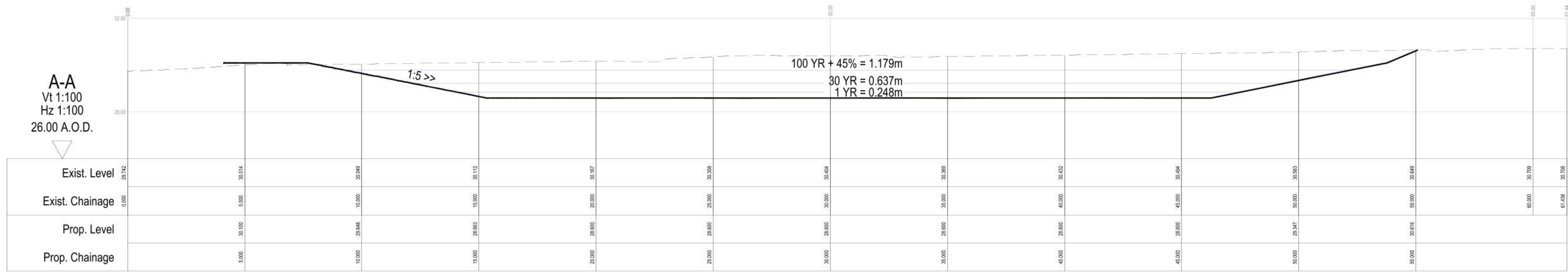
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Client: AVANT HOMES

Project: SOUTH TYNESIDE COLLEGE

Title: DRAINAGE STRATEGY

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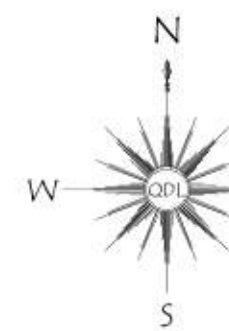


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 - MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF A NON-ROOKING, NON-VENTILATING DESIGN.
 - LADDERS THAT ARE REQUIRED IN TYPE A MANHOLES ARE TO COMPLY WITH 'CODE FOR ADOPTED'.
 - CONCRETE MUST BE EITHER C80/95 RESISTANT PORTLAND CEMENT WITH HIGH STRENGTH CONCRETE TOPPING TO THE REINFORCING OR C25 ORDINARY PORTLAND CEMENT.
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- POSITIONING COORDINATES OF ALL ADAPTABLE MANHOLES.
 - INVERT AND COVER LEVELS OF ALL ADAPTABLE MANHOLES.
 - NEW GULLY POSITIONS AND CONNECTIONS.
 - POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING, STATING SIZE AND NUMBER OF DUCTS.



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Client: **AVANT HOMES**

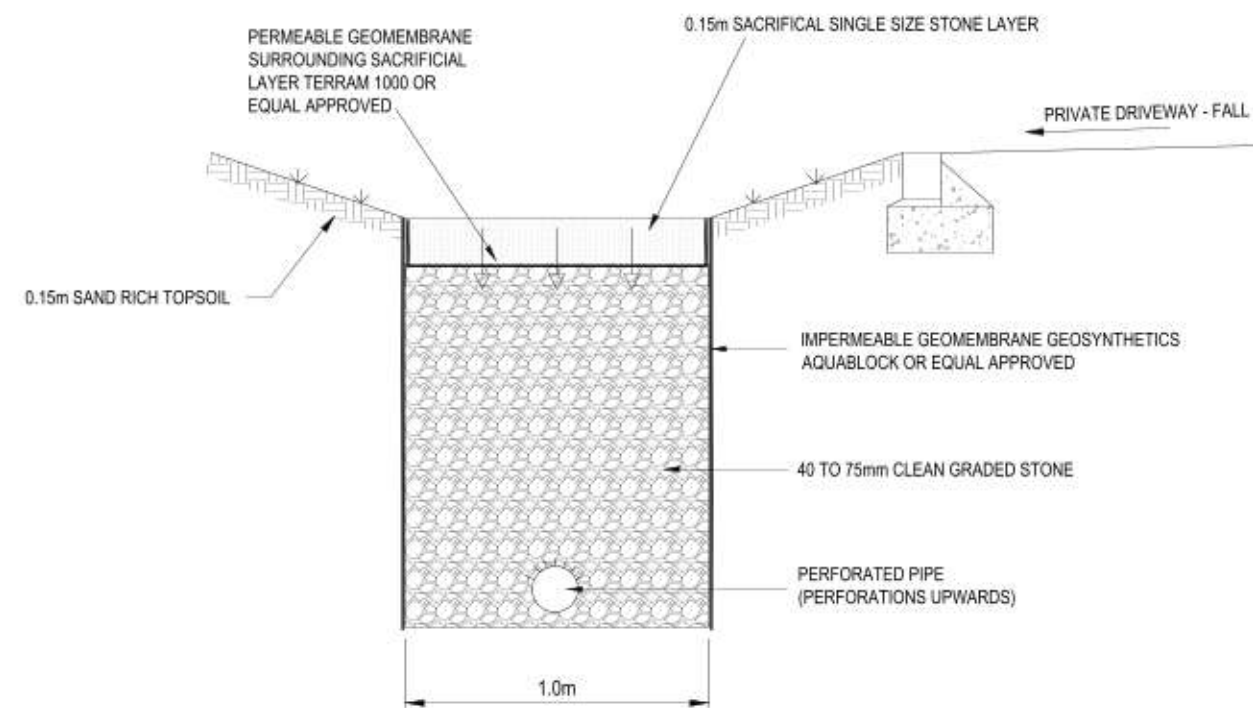
Project: **SOUTH TYNESIDE COLLEGE**

Title: **BASIN S122 CROSS SECTIONS**

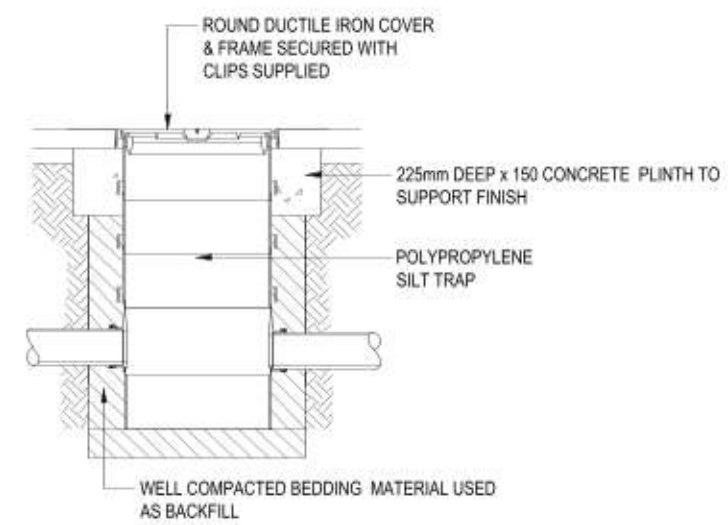
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Drawing Number: **QD2117-00-06**

Drawing Status: **FEASIBILITY** Scale: **1:250/100 - A0** Rev: **-**



FILTER DRAIN
ABUTTING PRIVATE DRIVEWAY



SILT TRAP
TO BE LOCATED AT TERMINATION OF FILTER DRAINS

Appendix 2 – Drainage Maintenance Responsibilities

- GENERAL NOTES:**
- DO NOT USE THIS DRAWING IN ISOLATION. THIS DRAWING HAS BEEN PREPARED AS PART OF A SET AND MUST THEREFORE BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS. ANY DISCREPANCIES OR DESIGN CHANGES MUST BE REPORTED TO THE ENGINEER PRIOR TO COMPLETION OF TENDER AND COMMENCEMENT OF WORKS. FOLLOWING COMPLETION OF TENDER IT IS ASSUMED THAT DEVELOPER AND CONTRACTOR ARE IN FULL AGREEMENT WITH THE DESIGN DRAWINGS WITH THE EXCEPTION OF PRE-TENDER QUERIES ONLY.
 - THIRD PARTY INFORMATION IS USED TO PREPARE THE ENGINEERING DESIGN (INCLUDING ARCHITECTURAL LAYOUT, GROUND INVESTIGATION, EXISTING UTILITIES RECORDS AND SPECIALIST DESIGN DATA). THE ENGINEERING DESIGN MUST THEREFORE BE READ IN CONJUNCTION WITH ALL THIRD PARTY INFORMATION PRIOR TO COMMENCEMENT OF WORKS. QUANTITIES DERIVED ARE NOT RESPONSIBLE FOR ANY THIRD PARTY INFORMATION OR DETAILS.
 - FOR THE WORKING DRAWINGS TO BE USED IN CONJUNCTION WITH THE PLAT SETTING OUT DRAWING.
 - DRAWING STATUS WILL REMAIN PRELIMINARY UNTIL FULL TECHNICAL APPROVAL IS RECEIVED FROM LOCAL AUTHORITY AND SEWERAGE UNDERSTAKER. WORKS COMMENCED PRIOR TO TECHNICAL APPROVAL ARE DONE SO AT RISK AND MAY BE SUBJECT TO CHANGE.
 - THE CONTRACTOR IS EXPECTED TO PREPARE APPROPRIATE CONSTRUCTION METHOD STATEMENTS FOR ALL ASPECTS OF ANTICIPATED WORK. THIS SHOULD INCLUDE ANY TEMPORARY PROTECTION WORKS.
 - LAND DRAINAGE IS NOT PERMITTED TO DISCHARGE INTO THE PUBLIC SEWER NETWORK. ANY NEED FOR LAND DRAINAGE SHOULD BE ASSESSED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. THE LOCATION AND PLACEMENT OF GULLIES ON AN INDIVIDUAL PLOT BASIS, IF LAND DRAINAGE DESIGN IS REQUIRED, THEY SHOULD BE APPOINTED PRIOR TO LOT COMPLETION.
 - THE CONTRACTOR IS EXPECTED TO CROSS CHECK ALL DRAINAGE INVERTS PRIOR TO COMMENCEMENT OF WORK. THIS MAY INVOLVE COMPLETION OF TRAIL HOLES IF NECESSARY. LEVELS HAVE BEEN INTERPOLATED.
 - THE CONTRACTOR MUST MONITOR THE AS BUILT PROGRESS OF EACH CONSTRUCTION STAGE. RECORDS/REPORTS OF WORKS (TO) TO ENABLE THE NEXT STAGES OF CONSTRUCTION TO BE CHECKED BEFORE PROCEEDING.
 - EXTERNAL WORKS, RETAINING WALLS, AND PLOT DRAINAGE ARE TO BE READ AS GUIDANCE ONLY.
 - ALL WORKS TO BE UNDERTAKEN IN COMPLIANCE WITH BS 8001 WORKMANSHIP ON BUILDING SITES.
- ROADWAYS:**
- ALL HIGHWAY WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION.
 - ALL LOCATIONS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 100MM UNLESS OTHERWISE AGREED.
 - THE HIGHWAY AUTHORITY TO BE NOTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS.
- ADOPTABLE DRAINAGE:**
- ALL ADOPTABLE DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE WATER AUTHORITIES PUBLICATION 'CODE FOR ADOPTABLE' AS WELL AS THE APPROVED DRAWINGS.
 - PRECAST CONCRETE MANHOLE RINGS TO COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 12056 PART 2.
 - ALL PROVISIONS TO BE CLASS B ENGINEERING COMPLYING WITH THE RELEVANT PROVISIONS OF BS 3201. CONCRETE BROOKS MAY BE USED IF THEIR SPECIFICATIONS TO THE SAME AS CLASS B ENGINEERING BROOKS. PLEASE SEEK APPROVAL FROM RELEVANT WATER AUTHORITY BEFORE USING.
 - MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF A NON-ROOFING, NON-VENTILATING DESIGN.
 - LOADERS THAT ARE REQUIRED IN TYPE A MANHOLES TO COMPLY WITH 'CODE FOR ADOPTABLE'.
 - CONCRETE MUST BE EITHER C28/35 OR C35/45 PORTLAND CEMENT WITH HIGH STRENGTH CONCRETE TOPPING TO THE FINISHED OR C28/35 ORDINARY PORTLAND CEMENT.
 - USING CONCRETE SURROUND IS REQUIRED AROUND PIPES WHERE THE DEPTH FROM FINISHED SURFACE TO SOFFIT OF PIPE IS LESS THAN 100MM. THIS MAY BE REDUCED TO 50MM WITH OPEN GRATE.
 - THE LOCATION OF EXISTING DRAINAGE THAT IS WITHIN CLOSE PROXIMITY TO THE PROPOSED SITE WORKS WHICH IS NOT TO BE DIVERTED SHOULD BE CONFIRMED BY THE CONTRACTOR AND REPORTED TO THE DEVELOPER TO ENSURE IT CORRESPONDS TO THAT SHOWN ON THE ENGINEERING LAYOUT AND THAT NO PROPOSED WORKS ARE AFFECTED.
 - THE POSITION, LINE AND DIAMETER OF ALL EXISTING DRAINAGE APPARATUS SHOULD BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - THE CONNECTION OF SOIL AND SURFACE WATER DRAINAGE TO THE EXISTING PUBLIC SEWER SYSTEM SHALL BE SUBJECT TO THE APPROVAL OF THE LOCAL SEWERAGE UNDERSTAKER. THE CONTRACTOR IS EXPECTED TO APPLY FOR RELEVANT PERMITS PRIOR TO COMMENCING THE WORK.
 - ROADS AND SEWERS CONTRACTOR MUST INFORM WATER AUTHORITY PRIOR TO WORKS COMMENCING.

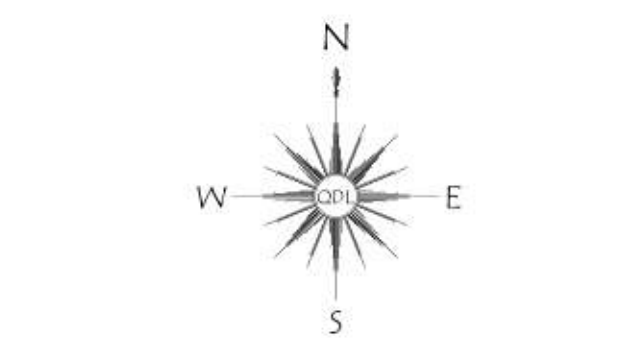
EXISTING SERVICES

PRIOR TO THE COMMENCEMENT OF ANY WORKS UNDER GROUND MAPPING SURVEYS AND CONSTRAINTS PLAN IS TO BE REFERRED TO ANY DISCREPANCIES ARE TO BE REPORTED TO ENGINEER.

ANY EXISTING SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS SHOULD BE LOCATED BY MEANS OF A HAND DIG IN CLOSE LIAISON WITH THE UTILITY SERVICE AUTHORITIES. THE CONTRACTOR SHALL INFORM THE DEVELOPER OF ANY SERVICES THAT MAY AFFECT THE PROPOSED DESIGN. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE UTILITY SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORK AS CONSTRUCTED INFORMATION IF THE CONTRACTOR RESPONSIBILITY TO PROVIDE THE FOLLOWING AS CONSTRUCTED DRAWINGS TO THE DEVELOPER UPON THE COMPLETION OF THE WORKS COVERED BY THE CONTRACT.

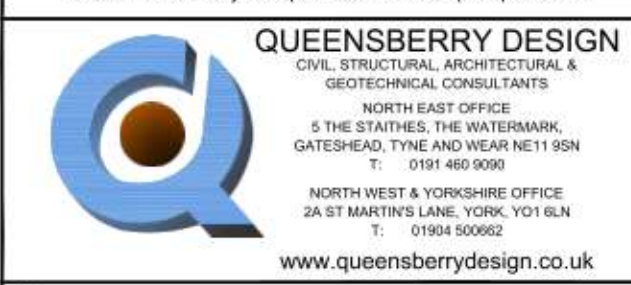
- POSITIONS ORIGINATES OF ALL ADOPTABLE MANHOLES.
- NEW GULLY POSITIONS AND CONNECTIONS.
- POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING STATING SIZE AND NUMBER OF DUCTS.

LEGEND	
ADOPTABLE DRAINAGE	
SEWER - SECTION 10A ADOPTION	
SEWER - MANAGEMENT COMPANY	
BASIN - MANAGEMENT COMPANY	



Rev.	Date	Revision Details	Drawn	Checked
1	20.11.23	FIRST ISSUE	NO	NO

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Project: **SOUTH TYNESIDE COLLEGE**

Title: **DRAINAGE MAINTENANCE RESPONSIBILITIES**

Rev.	Date	Revision Details	Drawn	Checked
1	20.11.23	AL	NO	NO

Drawing Number: **INFORMATION**

Scale: **1:500 - A0**

Rev: **-**

Appendix 3 – Maintenance Logs

C753 The SuDS Manual

Appendix B: Maintenance inspection checklist

Table B.25 SuDS maintenance inspection checklist			
General information			
Site ID			
Site location and co-ordinates (GIS if appropriate)			
Elements forming the SuDS scheme		Approved drawing reference(s)	
Inspection frequency		Approved specification reference	
Type of development		Specific purpose of any parts of the scheme (eg biodiversity, wildlife and visual aspects)	

Inspection date								
	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date Completed
General inspection items								
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Is there any deterioration in the surface of permeable or porous surfaces (eg rutting, spreading of blocks or signs of ponding water)?								

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Appendix B: Maintenance inspection checklist

Silt/sediment accumulation								
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator)								
Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?								
Does permeable or porous surfacing require sweeping to remove silt?								
System blockages and litter build-up								
Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								
Is there any evidence of any other clogging or blockage of outlets or drainage paths?								
Vegetation								
Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (Check against approved planting regime.)								
Does any part of the system require weeding, pruning or mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species becoming established? If yes, state action required								
Infrastructure								
Are any check dams or weirs in good condition?								
Is there evidence of any accidental damage to the system (eg wheel ruts?)								

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Appendix B: Maintenance inspection checklist

Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the flow controls?								
Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								
Other observations								
Information appended (eg photos)								
Suitability of current maintenance regime								
Continue as current Increase maintenance Decrease maintenance								
Next inspection								
Proposed date for next inspection								