

Weldale Street, Reading

Drainage Strategy

For

Ropemaker Properties

Issue 3



FAIRHURST

CONTROL SHEET**CLIENT** Ropemaker Properties**PROJECT TITLE:** Weldale Street, Reading**REPORT TITLE:** Drainage Strategy**PROJECT REFERENCE:** 112990 - 100**Issue and Approval Schedule:**

ISSUE 1	Name	Signature	Date
Prepared by	Matt Foster	<i>M Foster</i>	31/05/2019
Reviewed by	Neil Sproat	<i>N Sproat</i>	31/05/2019
Approved by	Mark Hayward	<i>M Hayward</i>	31/05/2019

Revision Record:

Issue	Date	Status	Description	By	Chk	App
2	12.07.19	Final	Revised to planning consultant comments	mh	MF	NS
3	18.09.19	Final	Updated to latest layout.	MH	NS	MH

This report has been prepared in accordance with procedure OP/P02 of Fairhurst's Quality Management System.

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The report has been produced for Ropemaker Properties. But should any other parties rely on the findings they do so at their own risk unless confirmed by Fairhurst in writing from a Partner that they can do so.

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1.0 Introduction

- 1.1 Fairhurst have been commissioned by Ropemaker Properties to develop a Drainage Strategy for the proposed development at Weldale Street, Reading, RG1 7BZ.

2.0 Site Location and Description

- 2.1 The site is located to the south of Weldale Street in Reading, and is bounded by Chatham Street to the south, Caversham Road to the east, and housing to the west. The site consists of a 3700 m² car park (which includes a higher level/second storey parking area of 1400 m² on the westernmost side of the site), an existing building with a footprint of 4300m², consisting of a 830m² retail unit adjacent to a large vacant unit to the south covering 2760m², and a second vacant unit occupies the south east of the site with a service yard to the north-east (950m²). The open landscaped area to the south of the site measures approximately 820m².
- 2.2 The postcode for the site is RG1 7BZ, and the centre of the site has an approximate grid reference of SU 71022 73616.
- 2.3 The site has been split into two phases from the planning stage; Blocks A1 and A2 which cover the western portion of the site, and B1 and B2 to the east. This report will cover Blocks A1 and A2 in detail, but make reference to B1 and B2 as it is likely that part of the drainage network will be shared in places.
- 2.4 A topographical survey of the site can be found in Appendix A.

3.0 Development Proposals

- 3.1 The proposed development is for the construction of two multi-storey residential buildings (A1/A2 and B1/B2), with commercial space available on the lower ground floor. The first phase of development comprises blocks A1 and A2.
- 3.2 An extract of the full phasing plan which is provided in Appendix D is given below:-



Figure 1 - Block A1 and A2 Phasing Extract

- 3.3 This document has been produced for submission relates for part discharge of Condition 34 of application 170326. The wording has been amended under a non-material amendment (reference 190793) to state

"No development (barring demolition) shall take place on any relevant phase (a) phase 1, b) phase 2 c) phase 3, d) phase 4, e) phase 5, f) phase 6, in accordance with the approved phasing details specified on drawing 3622_0250 Rev C phasing plan, as received 20/10/17) until a detailed sustainable drainage design for that phase, which shall also include details on the implementation, maintenance and management plan of the sustainable drainage scheme have been submitted to and approved by the Local Planning Authority. The plan shall include:

- i. a timetable for its implementation, and*
- ii. a management and annual maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.*

The scheme shall be implemented and thereafter managed and maintained in accordance with the approved plan."

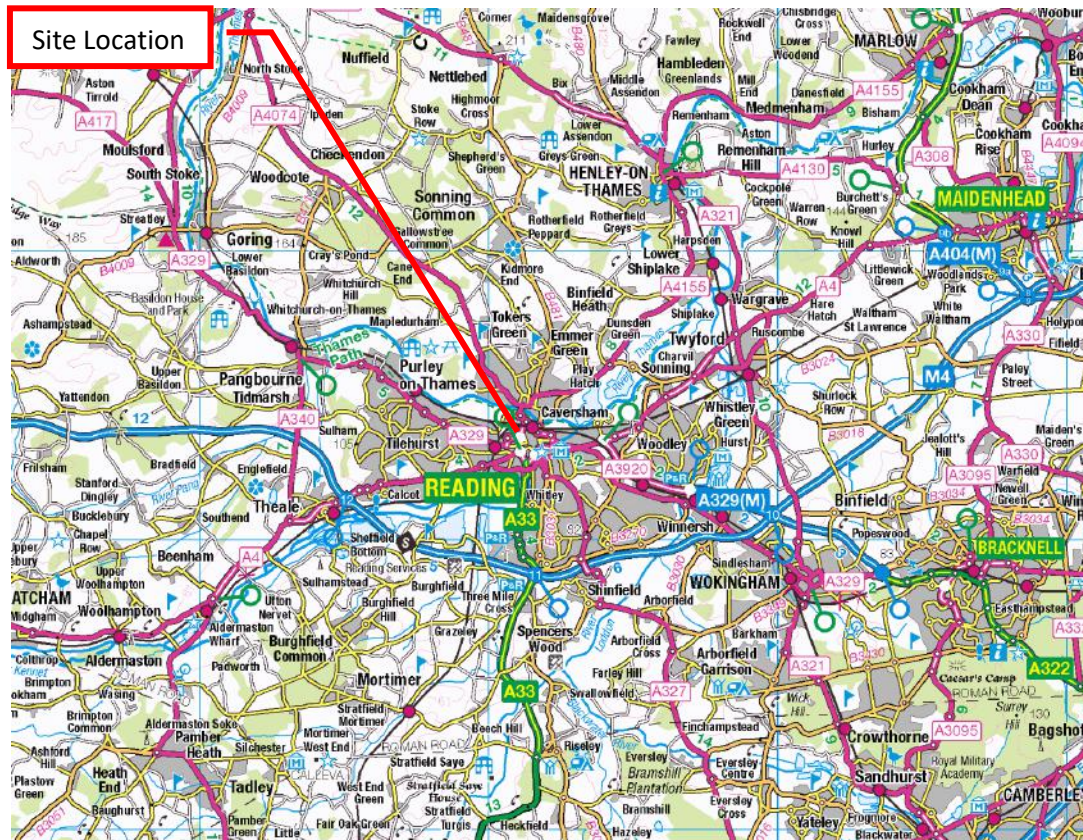


Figure 2: Site Location within Berkshire

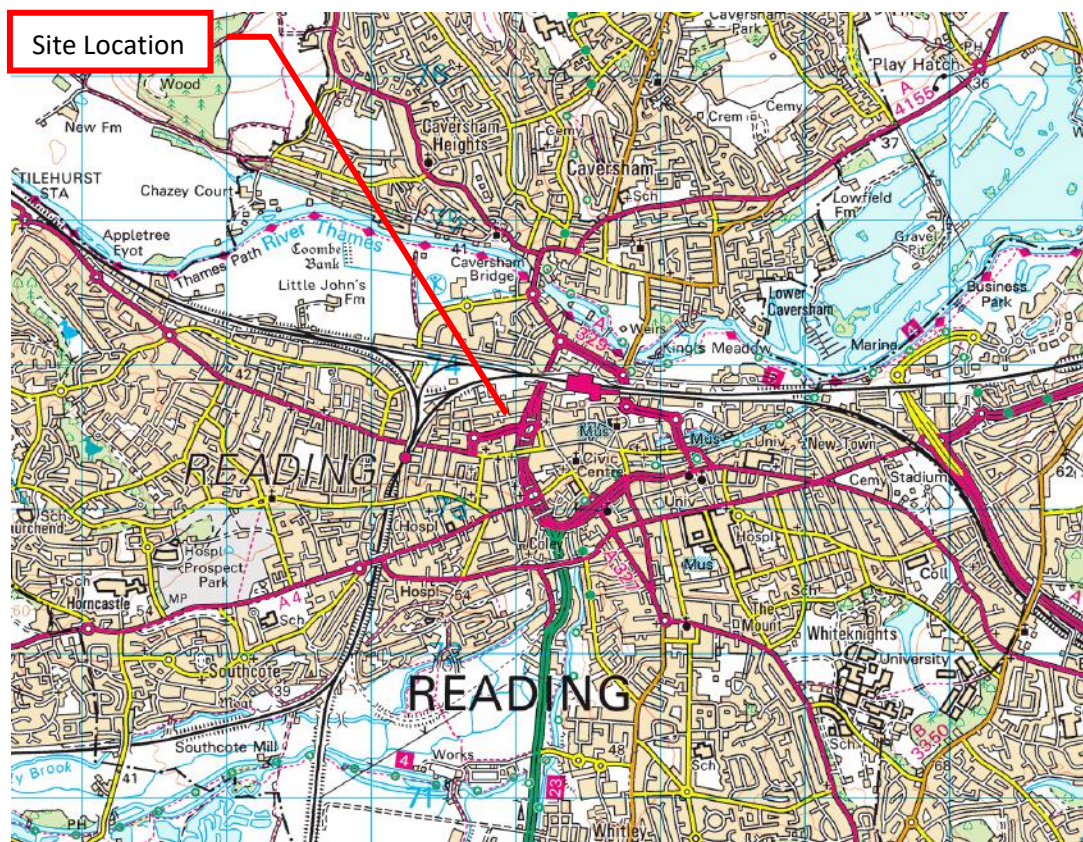


Figure 3: Site Location within Reading

4.0 Existing Drainage

- 4.1 Thames Water sewer records show that there are a number of adopted sewers in the area. Whilst none cross the area where the proposed buildings are to be placed, there is a 300mm surface water sewer that runs to the south of the development within the landscaped area. This sewer is close enough to the site that it will need a Section 185 agreement to divert the sewer around the development. For the block A1 and A2 phase of the project it is likely that a build close to agreement will be required as some development will take place within the easement of the sewer.
- 4.2 In addition there is a 225mm surface water sewer that flows from west to east along Weldale Street before joining the 525mm main drainage run that flows northwards along Caversham Road. There is also highways drainage within this road and a highways rising main.
- 4.3 There is a 225mm foul sewer that also flows from west to east along Weldale Street before joining a 300mm sewer located in Caversham Road.
- 4.4 A developer enquiry has been sent to Thames Water to enquire about connecting into the Thames Water network for foul and surface water discharges. They have stated that the increase foul flow will be acceptable to discharge into the existing system, and surface water discharges will require 50% betterment when re-using existing connections.
- 4.5 There is a large amount of existing drainage present on site, including a number of ring soakaways and three stage interceptors. It is proposed to re-use some of the existing connections into the Thames Water system; however the remainder of the drainage systems are proposed to be removed from site.
- 4.6 Surveys of the existing drainage can be found in Appendix B.

5.0 Proposed Surface Water Drainage

- 5.1 Building Regulations Part H3 states that storm water should discharge (in descending order of priority) to:
- a. An adequate soakaway or some other adequate infiltration system: or where that is not reasonably practicable,
 - b. A watercourse or where that is not reasonably practicable,
 - c. A segregated drainage system for storm and foul or if that is not possible,
 - d. A combined sewer.
- 5.2 British Geological Survey mapping of the site indicates that it is likely to be either directly underlain by a bedrock of Seaford Chalk Formation, or this chalk will be situated beneath a stratum of Taplow Gravel Member.
- 5.3 In-situ soil investigation undertaken encountered made ground in all borehole and trial pits, up to a maximum depth of approximately 2.4m in the southern landscaped area of the site. The records disagree slightly with the BGS data; the testing showed that Taplow Gravel was found in the eastern portion and not in the west, whilst the BGS data shows the opposite of this.
- 5.4 Infiltration testing performed on site has shown that the site has an infiltration rate between 2.58×10^{-5} and 3.93×10^{-5} m/s, however there is also hydrocarbon contamination present on site locally in the groundwater. Due to its presence, it is currently deemed to be infeasible to utilise infiltration features on site due to the potential for the mobilisation of contaminants. Discussions with the Local Planning Authority and geotechnical engineers may allow for small areas away from the polluted north of the site to drain into SuDS infiltration features, for example the paths in the southern landscaped areas may be designed to drain into a bioretention area or infiltration basin in the grassed areas. However it is considered that soakaways/infiltration features are unlikely to be acceptable for the majority of the site. In addition there are considerable geotechnical risks in using soakaways above chalk formations (particularly the Upper Chalk as has been proven at this site) and CIRIA 574 (2002) indicates that should be avoided if at all possible.
- 5.5 The nearest watercourses to the site are the River Kennet approximately 640m south east of the site, and the River Thames which is situated approximately 730m north east of the site at its closest point. Due to this

distance and the third party land in between it is infeasible to connect the surface water drainage on site into a watercourse.

- 5.6 It is proposed to discharge into the segregated Thames Water sewer network, and re-utilise existing connections wherever possible.
- 5.7 It is proposed to segregate the surface water networks for Blocks A1 and A2, with A1 re-using the connection to the Thames Sewer in the north west of the site and Block A2 connecting to the Thames Water Sewer via a new connection and manhole within the highway.
- 5.8 The drainage for block A1 is proposed to utilise a lined permeable pavement with a total depth of 650mm to provide adequate attenuation within the system, before being pumped up to a newly constructed manhole on the western boundary. The pump will be restricted to a rate of 17l/s that has been agreed with Thames Water.
- 5.9 The permeable pavement will require an impermeable liner around its sub-base to prevent any infiltration of runoff and potential mobilisation of contaminants.
- 5.10 The access road and parking areas have been designed to drain into the permeable pavement to reduce the requirement for gulleys.
- 5.11 The surface water drainage for Block A2 will utilise geocellular storage units beneath the amenity area within the courtyard (and also within the access road to the central parking area).
- 5.12 If required it may be possible to provide a SuDS feature in the northern grassed area near the substation. This feature may be able to drain the paths without the need for gulleys, and may also drain part of the access road and car park. This will also have to be lined to prevent mobilisation of contaminants.
- 5.13 The discharge into the Thames Water sewer will need to be restricted to 5l/s via a flow control manhole on the northern boundary. This will then discharge into the Thames Water sewer within Weldale Street, and a new manhole will have to be constructed within the highway.
- 5.14 The central parking area is proposed to drain via gulleys and a kerb drain system into the surface water network.
- 5.15 The location of rainwater pipes has been assumed and will need to be confirmed at detailed design stage; it has been assumed that the rainwater

pipes for the towers will be internal and as such a connection has been shown into the risers. This allows for the complete separation of the networks for block A1 and A2, block A1 will drain entirely into the western network, and A2 entirely into the eastern network.

- 5.16 The proposed drainage layout can be found in Appendix C.

6.0 Sustainable Urban Drainage System (SuDS)

- 6.1 SuDS are a way to improve the existing drainage situation in quantity, quality, biodiversity and amenity. SuDS aim to manage rainfall ideally at source to improve runoff in a way that best suits its proposed surroundings. The main SuDS components are infiltration, Retention/Detention, control devices and source controls (i.e. green roofs, rain water harvesting etc).
- 6.2 The site utilises permeable paving to the west of the site which will provide interception for the first few mm of rainfall, reducing the total volume of discharge off site. According to the SuDS manual, permeable block paving can provide an average of between 5mm and 7.3mm of interception storage. As the majority of rainfall events fall within these criteria, it is possible that there will be no runoff entering the network from the car park in most storm events.
- 6.3 The discharge rate is being restricted to provide 50% betterment on existing flows, and the majority of attenuation required for this is being provided through geocellular storage units. The inspection chambers directly before the tanks will be required to have silt traps to prevent silting up of the tanks, and also provide an increase in water quality. The gullies within the car parking areas will need to be trapped in order to prevent sediments entering the tanks.
- 6.4 It may be possible to provide “green” SuDS features within landscaped areas if it is shown that small amounts of infiltration are permissible on site. Currently the paths on site are proposed to drain into gulleys or channel drains, however these could be redesigned to fall into green areas, where they could be treated.

7.0 Foul Drainage

- 7.1 It is proposed for the foul water drainage for the development to discharge into the existing Thames Water Foul Sewer.
- 7.2 It is proposed to join the drainage systems for the two blocks and discharge into the Thames Water network using the existing connection that serviced one of the now abandoned units. In order to connect the two systems it has been required to provide a pipe run beneath the building, the feasibility of this will have to be confirmed at detailed design. Alternatively a secondary connection into the Thames Water network can be constructed in the north western part of the site. However this will require works to be undertaken within the highway.
- 7.3 The foul discharge rate has been calculated using the discharge unit method as set out in BS 12056-2:2000. The peak rate for the two blocks has been calculated as 27.74l/s, meaning a 225mm pipe will be required to convey effluent from both blocks. The above calculation is likely to be slightly high as it assumes each flat has two wash basins and two toilets; once the final flat layouts are confirmed a more accurate flow rate can be calculated.

Foul Drainage Flow Rate - Discharge Unit Method

Appliance	DU	Quantity	SUM DU
Wash Basin Bidet	0.5	854	427
Shower Without Plug	0.6	427	256.2
Single Urinal With Cistern	0.8	0	0
Kitchen Sink	0.8	427	341.6
Dishwasher	0.8	427	341.6
WC 6.0 l Cistern	2	854	1708
Floor Gully DN 50	0.8	4	3.2
Total DU			3077.6

Use of Appliances	k
Intermittent: dwellings/guesthouse/office	0.5

$Q = K(DU^{0.5})$	27.74 l/s
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Table 1: Calculation of Foul Flow Rates Using Discharge Unit Method to BS 12056-2:2000

8.0 Phase 4&5 Drainage

- 8.1 The phasing plan for the development can be found in Appendix D. Phase 1 of the development consists of much of the landscaping, whilst Phase 2 and 3 consist of blocks A1 and A2, and Phase 4 and 5 comprise Blocks B1 and B2.
- 8.2 As part of the planning permission for the site, a drainage strategy for the entire site was approved. The drainage layout for this included a few areas where the two drainage networks for the site coincided and these have been replicated within the drainage layout for Phase 2 and 3. The overall drainage strategy for the wider site has been replicated within the design for Phase 2 and 3, with all off-site discharge points, discharge rates and SuDS features remaining the same.
- 8.3 With the inclusion of a phasing plan, there is the potential for the buildings and impermeable areas to change, and therefore the amount of attenuation could potentially be greater than that originally included in the drainage strategy. However, the agreed discharge rates will need to be adhered to in all cases. The drainage layout for Phase 2 and 3 includes the proposed discharge locations that are to be installed as part of the Phase 4 and 5 drainage.
- 8.4 The foul drainage sewer running along the north of the site draining Blocks A1 and A2 has also been designed to have the foul discharge from Phase 4 and 5 discharging into at an unrestricted rate. This spur from Phase 4 and 5 has been shown on the drainage layout drawing to the east of Block A2.
- 8.5 The majority of the surface water drainage is to discharge into the southern Thames Water sewer, discharging into a newly constructed manhole included as part of the sewer diversion. This is to be restricted to a discharge rate of 17l/s. A spur connection is shown on the drainage layout drawing along with the maximum discharge rate and approximate impermeable area draining into the connection based on the site layout submitted for the planning application. In the outline application for the site it was shown that the Phase 4 and 5 parking area runoff would have to pass through a full retention separator. The requirement for this will be reviewed during detailed design for Phase 4 and 5, as it may be feasible to remove this feature and provide hydrocarbon removal using other techniques.

- 8.6 There is a surface water connection from Phase 4 and 5 into the Phase 2 and 3 network to the north east of Block A2. In the planning application layout a small section to the north of Phase 4 and 5 was shown to drain into the same network as Block A2, and this has been replicated in the updated layout. As the layout and impermeable areas in Phase 4 and 5 may be subject to change, it is necessary to place a restriction on this spur, as the Block A2 network would not be able to facilitate an unrestricted flow from it. As such, the Phase 2 and 3 drainage layout includes a 5l/s restriction to this connection, and also an estimated attenuation volume has been provided to restrict the flows to this rate, assuming the same drained area is applied to the connection as in the planning application.
- 8.7 It is anticipated that there will be only two condition discharges for the site, for Blocks A1 and A2, and for Blocks B1 and B2. However, these will both follow the strategy laid out and approved within the planning application.

9.0 Maintenance

- 9.1 The Maintenance Strategy found in Appendix E contains the following components:-
- Person / organisation etc. responsible for the maintenance.
 - Type of Maintenance – Nature of task and frequency of activity.
 - Ad-hoc maintenance – Details of what action will be taken in an emergency and who will be responsible.
 - Details of response time for emergency and non-emergency works
- 9.2 The frequency of maintenance tasks outlined in the strategy will be conducted for the first annual maintenance assessment period and reviewed accordingly to determine a more effective long term strategy tailored to suit the specific needs of the site.
- 9.3 All onsite drainage will remain private as it will be located beneath private areas. However, new manholes constructed on the Thames Water network will need to be constructed to an adoptable standard and put up for adoption.

10.0 Conclusion

- 10.1 The site is located to the south of Weldale Street in Reading, and is bounded by Chatham Street to the south, Caversham Road to the east, and housing to the west. The postcode for the site is RG1 7BZ, and the centre of the site has an approximate grid reference of SU 71022 73616.
- 10.2 The proposed development is for the construction of two multi-storey residential buildings, split into two phases. These consist of Blocks A1 and A2, and B1 and B2.
- 10.3 There are existing Thames Water surface water sewers both north and south of the site; the southern sewer will require a diversion as part of the second phase of this development, and a build over agreement may be required for the first phase if there are works to the southern boundary within the easement. There is an existing adopted foul sewer running north of the site on Weldale Street.
- 10.4 Whilst infiltration drainage features would appear to be feasible on site in terms of the infiltration rate of the underlying soil, the presence of hydrocarbon contamination in the soil will likely preclude their use; this is to prevent mobilisation of contaminants into groundwater.
- 10.5 The surface water drainage is proposed to be segregated for each block, with Block A1's drainage utilising an existing discharge to the north west of the site, and the system for Block A2 connecting into the Thames Water network north of the site via a new manhole to be constructed within the highway. The surface water discharge rates have been agreed with Thames Water, and it is proposed to provide betterment on the existing discharge rates by 50%.
- 10.6 It is proposed to drain the western car park into a permeable pavement within the parking spaces; this will provide some filtration of surface water runoff, and also interception storage which will reduce the amount of runoff entering the network during low intensity, high frequency rainfall events. The total depth of the system should be 650mm, which will provide enough attenuation to meet the 17l/s discharge requirement.
- 10.7 The network for Block A2 is proposed to utilise geocellular storage units to provide enough attenuation to meet the required 5l/s discharge rate. Prior to the tanks, silt traps should be installed in inspection chambers to prevent the silting up of the tanks, in addition trapped gullies should be used within the central parking area.

- 10.8 As part of the planning permission for the site, a drainage strategy for the entire site was approved. The overall drainage strategy for the wider site has been replicated within the design for Phase 2 and 3, with all off-site discharge points, discharge rates and SuDS features remaining the same.
- 10.9 There is a surface water connection from Phase 4 and 5 into the Block A2 network and a discharge rate restriction has been placed on this as the Block A2 network cannot facilitate an unrestricted flow in this spur.
- 10.10 The foul drainage network is proposed to service both blocks, before discharging into an existing connection into the Thames Water system on the eastern portion of the site.

Appendix A

Topographical Survey

Appendix B

Existing Drainage Survey



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Topographical Survey Key

1. Bench Mark	2. Level Point	3. Spot Height	4. Contour Line
5. Boundary Line	6. Boundary Pole	7. Boundary Pole	8. Boundary Pole
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97. Boundary Pole	98. Boundary Pole	99. Boundary Pole	100. Boundary Pole

Sub Surface Key

1. 100mm PVC	2. 150mm PVC	3. 200mm PVC	4. 250mm PVC
5. 300mm PVC	6. 350mm PVC	7. 400mm PVC	8. 450mm PVC
9. 500mm PVC	10. 550mm PVC	11. 600mm PVC	12. 650mm PVC
13. 700mm PVC	14. 750mm PVC	15. 800mm PVC	16. 850mm PVC
17. 900mm PVC	18. 950mm PVC	19. 1000mm PVC	20. 1050mm PVC
21. 1100mm PVC	22. 1150mm PVC	23. 1200mm PVC	24. 1250mm PVC
25. 1300mm PVC	26. 1350mm PVC	27. 1400mm PVC	28. 1450mm PVC
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45. 2300mm PVC	46. 2350mm PVC	47. 2400mm PVC	48. 2450mm PVC
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Notes
1. Drawing is to be used in accordance with the following notes and conditions.
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Layout

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Agreement
On behalf of the client, I agree to the terms and conditions of the agreement and to the use of the drawing for the purpose for which it was intended.

Project Information

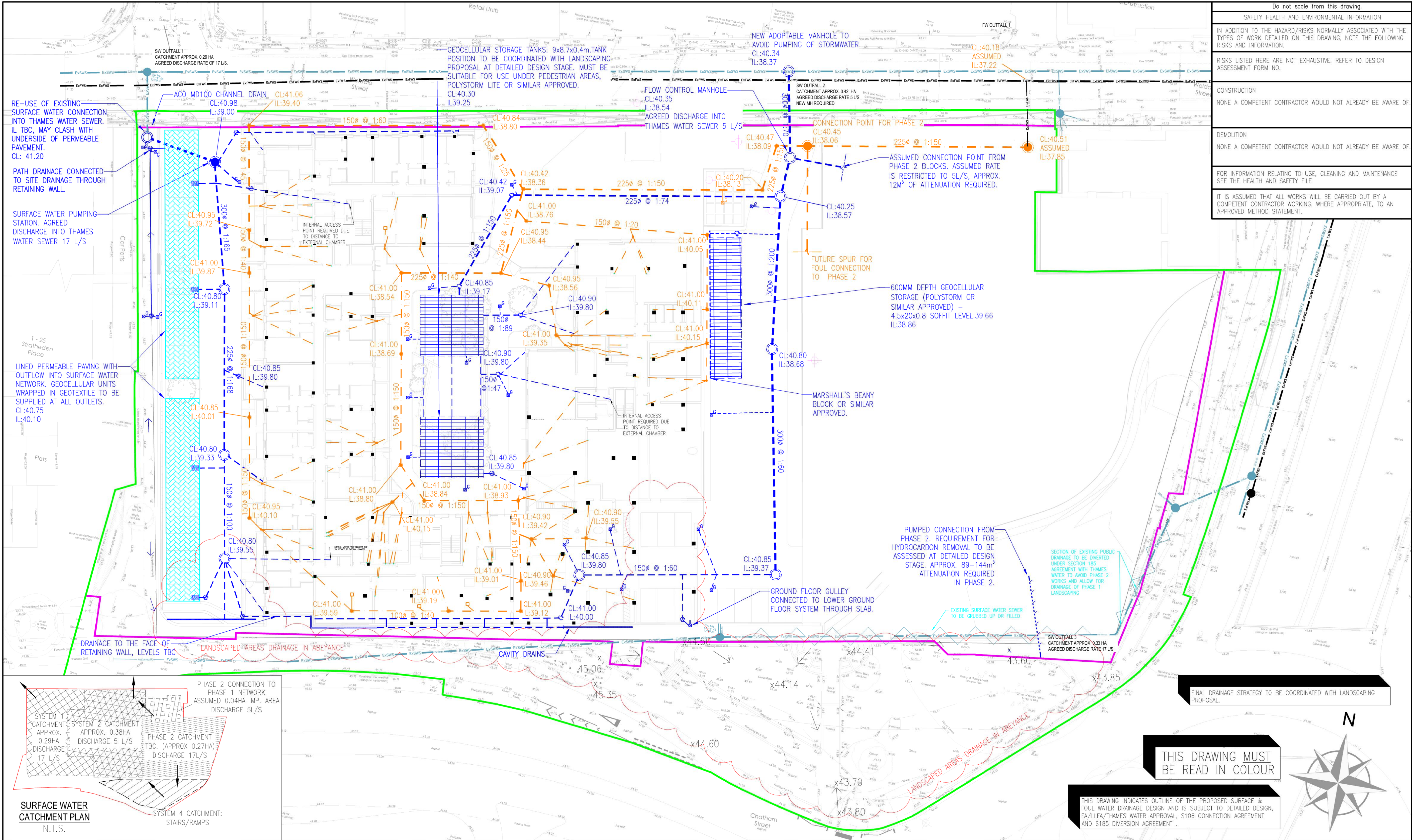
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Project Date	15/01/2021
Project Status	Complete

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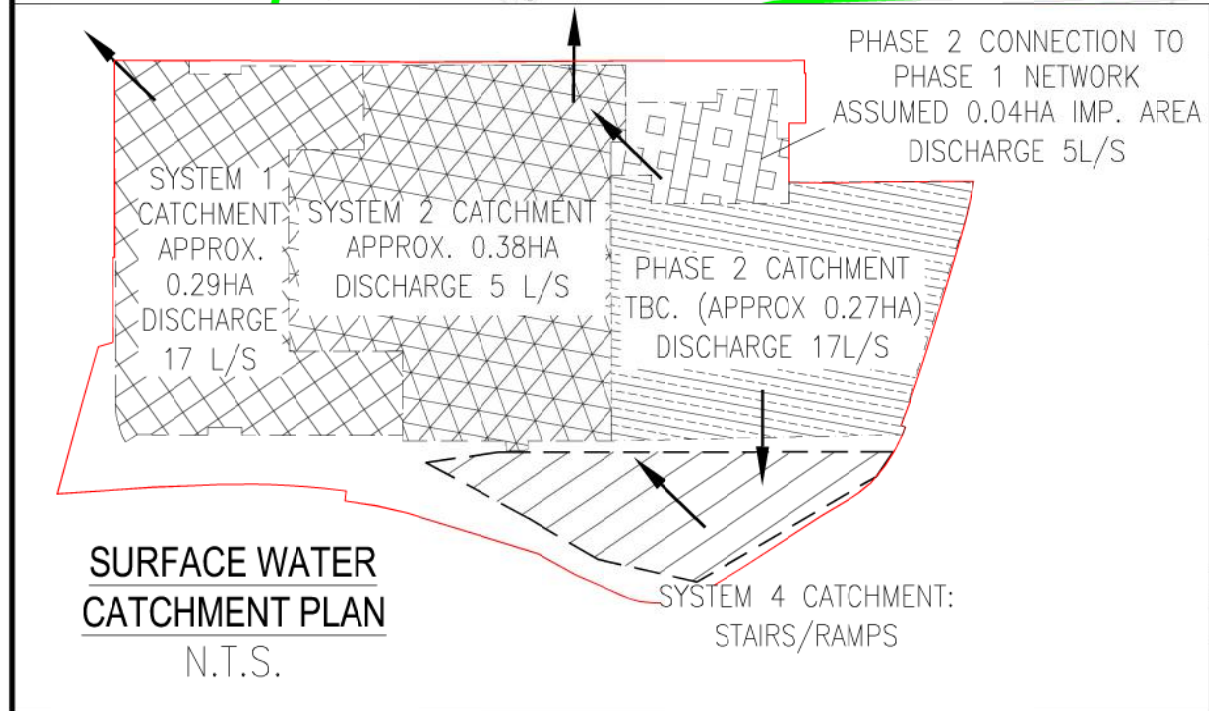
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Project Engineer	WILDALE STREET, READING
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Project Features	WILDALE STREET, READING
Project Elements	WILDALE STREET, READING
Project Components	WILDALE STREET, READING
Project Parts	WILDALE STREET, READING
Project Pieces	WILDALE STREET, READING
Project Sections	WILDALE STREET, READING
Project Details	WILDALE STREET, READING
Project Information	WILDALE STREET, READING
Project Data	WILDALE STREET, READING
Project Facts	WILDALE STREET, READING
Project Figures	WILDALE STREET, READING
Project Tables	WILDALE STREET, READING
Project Lists	WILDALE STREET, READING
Project Sets	WILDALE STREET, READING
Project Groups	WILDALE STREET, READING
Project Categories	WILDALE STREET, READING
Project Tags	WILDALE STREET, READING
Project Keywords	WILDALE STREET, READING
Project Metadata	WILDALE STREET, READING
Project Properties	WILDALE STREET, READING
Project Attributes	WILDALE STREET, READING
Project Characteristics	WILDALE STREET, READING
Project Features	WILDALE STREET, READING
Project Elements	WILDALE STREET, READING
Project Components	WILDALE STREET, READING
Project Parts	WILDALE STREET, READING
Project Pieces	WILDALE STREET, READING
Project Sections	WILDALE STREET, READING

Appendix C

Proposed Drainage Layout



Do not scale from this drawing.
SAFETY HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.
RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.
CONSTRUCTION
NONE A COMPETENT CONTRACTOR WOULD NOT ALREADY BE AWARE OF.
DEVOLUTION
NONE A COMPETENT CONTRACTOR WOULD NOT ALREADY BE AWARE OF.
FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.



Rev.	Date	Description	Drawn	Checked	Approved
J	17/09/19	SITE BACKGROUND AMENDED, CARPARKING REMOVED.	PMJ	LT	
I	03/09/19	FOUL DRAINAGE UPDATED TO LATEST SVP LOCATIONS.	MH	MF	NS
H	15/07/19	AMENDED TO PLANNING CONSULTANTS COMMENTS	MH	MF	NS
G	31/05/19	PHASE 2 CONNECTION POINT NOTES ADDED.	MDF	NS	MH
F	17/05/19	ATTENUATION FEATURES AMENDED, SYSTEM 2 DISCHARGE POINT MOVED.	MDF	NS	MH
E	01/06/17	UPDATED IN LINE WITH COMMENTS FROM READING BOROUGH COUNCIL	PM	AZ	MT
D	24/01/17	UPDATED TO SUIT THE LATEST SITE PLAN	AZ	MJT	MJT
C	13/01/17	UPDATED TO SUIT THE LATEST SITE PLAN	VL	AZ	MJT

- Notes:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ASSOCIATED FAIRHURST DRAWINGS, ARCHITECTS LAYOUTS, TOPOGRAPHICAL SURVEY & CCTV SURVEY FOR THIS PROJECT.
 - THIS STRATEGY IS BASED ON SURFACE WATER DISCHARGE INTO EXISTING THAMES WATER SEWER.
 - SURFACE AND FOUL WATER DISCHARGE RATES WERE APPROVED BY THAMES WATER WATER IN THEIR CORRESPONDENCE DATED 27.10.2016 (TW REF. DS6023454).
 - RWPs AND SVPs SHOWN INDICATIVELY ONLY AND TO BE CONFIRMED.
 - IN ORDER TO MINIMISE ATTENUATION REQUIRED IT HAS BEEN ASSUMED THAT THE ENTIRETY OF BLOCK A1 CAN DRAIN INTO THE WESTERN SYSTEM, AND BLOCK A2 TO THE EAST, THIS MAY REQUIRE THE AMENDMENT OF RWP POSITIONS.
 - LEVELS SHOWN ARE INDICATIVE AND SUBJECT TO DETAILED DESIGN.
 - SITE LAYOUT BASED ON AWW DRAWING 3622-0199_CC ISSUED 15.05.2019.
 - SUBJECT TO TECHNICAL APPROVAL, ANY WORKS CARRIED OUT BEFORE TECHNICAL APPROVAL IS OBTAINED IS DONE SO AT RISK.

Legend:	
— SITE BOUNDARY	— GEOCELLULAR STORAGE
- - - PRIVATE SURFACE WATER SEWER	— TANKED PERMEABLE PAVING
- - - PRIVATE FOUL WATER SEWER	— TANKED PERMEABLE PAVING ABOVE GEOCELLULAR STORAGE, SEPARATED BY GEOTEXTILE
- - - PRIVATE SURFACE WATER RISING MAIN	— ACO CHANNEL DRAIN (OR SIMILAR APPROVED) C/W SILT BOX
- - - PRIVATE FOUL WATER RISING MAIN	— AREA DRAINED FROM GROUND FLOOR LEVEL
○ SURFACE WATER MANHOLE	— INDICATES CHAMBER TO BE RAISED AND CO-ORDINATED WITH PHASE 2 WORKS
○ FOUL WATER MANHOLE	— INDICATIVE PHASE 2 PRIVATE SURFACE WATER SEWER
○ ROAD GULLY / YARD GULLY	— INDICATIVE PHASE 2 PRIVATE FOUL WATER SEWER
○ SURFACE WATER PERMEABLE PAVING DIFFUSER	

Project Title:	WELDALE STREET – PHASE 1 READING		
Drawing Title:	DRAINAGE LAYOUT– LOWER GROUND FLOOR		

FAIRHURST			
Clifton Heights, Triangle West, Clifton, BRISTOL, BS6 1LJ Tel: 0117 925 0259 Fax: 0844 381 4412			
Scale at A1:	1:250	Status:	PRELIMINARY
Drawn:	AZ	Checked:	MJT
Date:	01/08/16	Date:	28/07/16
Drawing No.:	112990/0210	Revision:	J

Appendix D

Phasing Plan

Notes

This drawing may be scaled for the purposes of Planning Applications, Law, Registry and for legal plans where this scale bar is used, and where it is verified that the drawing is an original or an accurate copy. It may not be scaled for construction purposes.

Always refer to figured dimensions. All dimensions are to be checked on completion.

Discrepancies and/or ambiguities between this drawing and information given elsewhere must be reported immediately to this office for clarification before proceeding. All drawings are to be read in conjunction with the specifications. All works to be carried out in accordance with latest British Standards / Code of Practice.

Note: Completion of public highways land will be coordinated to facilitate and be conducive to the completion of adjacent blocks.



C	18/10/17	JC	Mew and courtyard phasing added	MAS
B	16/10/17	JC	public and private realm areas included in phasing diagram	MAS
A	02/10/17	JC	Issued for Planning	MAS
Rev	Date	Int	Notes	Chkd

Client _____

Drawing Originator

AWW inspired environments

London - 7 Birch Lane, London, EC3V 9BW
Bristol - Ringvate House, Bristol, BS1 6LS
Plymouth - East Quay House, Plymouth, PL4 0HN

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REBA Chartered Practice www.aww-uk.com

Project Title
Weldale Street, Reading
Site Coordinated

Drawing Title
Phasing Plan

Scale 1:200	Sheet A0	Drawn JC	Checked MAS	Date 01/10/17
Status Planning			Project No. 3622	
Drawing Reference			Drawing No. 0250	Revision C

Appendix E

Maintenance Strategy

Permeable Paving (Independent Management Company)

Maintenance Frequency	Action Required	Maintenance Frequency
Regular Maintenance	Refer to manufacturer specification for details of specific maintenance requirements	Defined by manufacturer
	Inspect permeable paving outfalls to ensure functioning correctly	3 months as required
	Brush surface regularly remove sweepings away from paving blocks	3 months or as required
Occasional Maintenance	Vacuum surface and brush and re-grit where necessary to prevent silt blockage and enhance design life	6 month or as required
	Remove weeds and plant growth in gaps between paving	As required
Remedial Works	Monitor effectiveness i.e. note if water fails to infiltrate immediately upon contact as the reinstatement of pavement if jet washing and suction cleaning does not restore it	As required
Following all significant events	Inspect and carry out essential maintenance works as required to return feature to full working order	As required

Underground Drainage and Chambers (Management Company)

Maintenance Frequency	Action Required	Maintenance Frequency
Regular Maintenance	Cleaning gutters and any filters on downpipe	Every 6 months or as required
	Remove sediment, debris etc. from manhole chambers, catchpits and inspection chambers	Annually or as required
Occasional Maintenance	CCTV Survey to check pipe alignment, cracks, joint displacements and root ingress for repair	Every 10 years
Remedial Works	Full replacement of the structure if permanently silted or structural failure	As required
Ad-hoc	If blockage/flooding reported utilise jetting/rodding practices to remove obstruction within 24 hours of report.	As required
Following all significant events	Inspect and carry out essential maintenance works to return feature to full working order	As required

Flow Control Chamber (Independent Management Company)

Maintenance Frequency	Action Required	Maintenance Frequency
Regular / Occasional Maintenance	Inspect and identify any areas within the flow control are operating correctly	Monthly or as required
	Remove sediment build up within chamber	Monthly or as required
	Review manufacturer specification for additional maintenance requirements	Monthly or as required
Remedial Works	Blockages of structure- attempt to jet out however consider replacing unit if this does not work	As required
Following all significant events	Inspect and carry out essential maintenance works as required to return feature to full working order	As required

Note – at detailed design stage a specific management strategy based on the final proposals will need to review the above and amend as necessary.

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