

REPORT
for a
DRAINAGE STRATEGY
for the
RESIDENTIAL REDEVELOPMENT
at
ASCOT HOUSE, FINCHAMPSTEAD ROAD
WOKINGHAM RG40 2NW

For:

Klara Ascot Limited
The Townhouse
114-116 Fore Street
Hertford
Hertfordshire
SG14 1A

Prepared by:
PRP UK Limited
Park House
21-22 Warren Park Way
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Date	Revised	Revision
14/05/2021	Issued	A
30/09/2021	Extension included	B
22/10/2021	Pre development response	C
19/01/2024	Drainage report updated to suit new architect layout	D
27/02/2024	Drainage report updated	E
08/03/2024	Site Plan Updated	F

Reference: 82054-02

Tel: 0116 275 1710

Revision: F

EXECUTIVE SUMMARY

This drainage strategy has been developed for Klara Ascot Limited in support of the planning application for the proposed redevelopment of Ascot House, Finchampstead Road, Wokingham. The existing residential building is to remain containing intermediate flooring with a basement and upper ground floor in one segment of the building and the ground floor and first in the other segment. The proposal is to add 10 more apartments extending the property to a second and third floor.

This report provides a description of the best means of providing foul and surface water drainage to the development along with an assessment of the present and future foul and surface water drainage flows.

Thames Water asset records show a public sewer crossing the site within the existing hardstanding to the south of the building. A drainage survey was undertaken which showed a number of existing surface water connections from the roof and hardstanding into this public sewer. The drainage survey also found a surface water drainage system to the north of the building within the access of Kendrick Close. This received discharge from the access road and the rainwater downpipes serving the northern extremity of the building. A foul drainage system was found which discharges westwards into Thames Water manhole 9203 within Finchampstead Road.

Due to the layout of the of the existing drainage serving site, along with the incoming and outgoing pipework connecting to adjacent sites, there is no opportunity to provide cellular attenuation or a betterment on the existing surface water discharge rate at ground level. There is insufficient space available to construct cellular attenuation and restricting flows within the site boundary will cause flooding in adjacent parcels of land. The majority of the existing car park and access roadway is being retained unchanged. The retaining of the existing hardstanding along with the congested nature of the existing drainage offers little opportunity to provide treatment to the surface water runoff at ground level. It is proposed to build type C permeable paving on part of the parking bays and a raised storm planter at the front of the property. These proposed SuDS features will provide some storage and treatment to the surface water runoff and, as a result, will also provide some betterment on part of the existing surface water.

In order to ensure that the surface water drainage scheme remains effective, a sustainable drainage operation and maintenance plan specific to the site is included in this report.

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Appendix VI	Sustainable Drainage Operation and Maintenance Plan
Appendix VII	General Conditions

1. **INTRODUCTION**

- 1.1 This drainage strategy has been developed for Klara Ascot Limited in support of the planning application for the proposed extension of Ascot House, Finchampstead Road, Wokingham.
- 1.2 The site area is approximately 2483m² comprising of an existing residential building with surrounding car parking and access. The building has staged intermediate flooring with a basement and upper ground floor in one segment of the building and the ground floor and first in the other segment. The proposal is to add 10 more apartments extending the property to a second and third floor.
- 1.3 The extension proposal involves a 1.5 storey, with 3 additional units on the existing first floor, an additional 7 units on the proposed second floor which have duplex rooms within the roof space.
- 1.4 The purpose of the report is to establish best means of providing foul and surface water drainage to the development taking into account statutory requirements and the present conditions of the site. This report and its appendices, detail the proposed drainage strategy as required by Wokingham Borough Council. This report also includes a sustainable drainage operation and maintenance plan specific to the development (appendix VI).
- 1.5 An investigation of the existing drainage system has also been undertaken to determine the configuration. A layout of the existing drainage system is in appendix II.
- 1.6 The following appendices are included:

Appendix I	Site Location Plan
Appendix II	Existing Drainage Layout
Appendix III	Thames Water Sewer Asset Plans
Appendix IV	MicroDrainage Calculations
Appendix V	Proposed Drainage Strategy
Appendix VI	Sustainable Drainage Operation and Maintenance Plan
Appendix VII	General Conditions

2. THE SCOPE OF THE ASSESSMENT

2.1 The purpose of this strategy is to investigate and make recommendation as to the best way to deal with both the foul and surface water drainage from the site.

2.2 In order to achieve the above, the following have been carried out:

- Below ground drainage investigations
- Investigation into existing Thames Water sewers serving the site
- Assessment of future and present surface water flows
- Assessment of present and future foul water flows

3. EXISTING CONDITIONS AND THE LOCAL ENVIRONMENT

- 3.1 The site is located to the east of Finchampstead Road and west/south of Kendrick Close, approximately 0.4km south west Wokingham town centre.
- 3.2 The site is located at national grid reference of 481006, 168206. A site location plan is included in appendix I.
- 3.3 The site has an area of approximately 0.2483ha.
- 3.4 The area being extended consists of an existing residential building. To the north east of the existing building there is an existing access roadway (Kendrick Close) which has pedestrian access and existing car parking adjacent. To the east and south of the existing building there is also existing hardstanding which includes vehicular access off of Kendrick Close and a number of car parking spaces.
- 3.5 The immediate surrounding land uses were:

Direction	Description
North	Residential
South	Residential
East	Commercial
West	Residential

4. SITE INVESTIGATIONS

- 4.1 The British Geological Survey maps show the underlying bedrock to be London Clay formation. This coupled with nearby borehole information, indicating the surface geology here is clay, have governed that soakaways are unsuitable for this development as clay is practically impermeable.
- 4.2 Thames Water asset plans were procured which showed a public surface water system crossing the southern region of hardstanding serving the site. The sewer asset plan is located in appendix III.
- 4.3 A below ground drainage investigation was performed on the existing surface water system and foul water system serving the existing site as shown in appendix II. A surface water system was found underneath Kendrick Close which took discharge from a proportion of the northern part of the existing roof along with discharge the access roadway, adjacent parking and adjacent hardstanding. The surface water within Kendrick Close flowed from west to east in an adjacent parcel of land owned by a third party. The rest of the roof and remaining hardstanding (with parking) along the eastern and southern parts of the site discharged into the Thames Water surface water sewer at multiple locations. The existing surface water system within this region of the site also serves adjacent parcels of land.
- 4.4 An existing foul water system crossed the site from east to west which serves an adjacent parcel of land. The existing foul discharge from the site discharged into this existing system which flows westwards where it discharges into Thames Water manhole 9203 situated within Finchampstead Road.

5. ASSESSMENT OF PRESENT AND FUTURE SURFACE WATER FLOWS

- 5.1 The site area is approximately 2483m² comprising of a 3 storey building including basement with surrounding car parking and access. The building has staged intermediate flooring with a basement and upper ground floor in one segment of the building and the ground floor and first in the other segment. The building currently serves as a residential property and has an access roadway and adjacent hard standing, both of which contain car parking areas. All surface water discharge is currently unrestricted.
- 5.2 The hierarchy of surface water disposal as outlined within Building Regulations Part H
- A soakaway or infiltration system, or where not reasonably practicable
 - A surface water ditch or watercourse, or where not reasonably practicable
 - A below ground sewer
- 5.3 As the underlying bedrock here and surface geology is clay, which is practically impermeable, soakaways are unsuitable for this development.
- 5.4 There are no nearby watercourses to discharge into.
- 5.5 It is proposed to retain all of the existing gullies and reuse the existing rainwater downpipes connections from existing development. A number of new connections will be made. Rainwater connections from the building extension will be routed to the existing rainwater downpipes. A number of new gully connections will be made in the western pedestrian area, with new channel drains being constructed at the base of the accesses serving the basement properties.
- 5.6 Due to the congested nature of the site, with the existing systems serving multiple parcels of land, providing flow restrictions with accompanying attenuation at ground level is unviable for this redevelopment. There is insufficient space to construct such elements. Furthermore, the addition of flow restrictions within the redevelopment will cause flooding within the connected adjacent parcels of land.
- 5.7 As the majority of the existing hard standing area is to remain, with refurbishment as required, there is insufficient opportunity to provide treatment at ground level. It is proposed to build type C permeable paving on part of the parking bays and a raised storm planter at the front of the property. These proposed SuDS features will provide

some storage and treatment to the surface water runoff and, as a result, will also provide some betterment on the existing surface water.

- 5.8 Hydraulic calculations were performed to investigate the implications of having a type C permeable paving installed covering an area of 283.17m². One hydraulic calculation was performed with a free discharge from the part of the existing site area without the type C permeable paving. Another calculation was performed with a free discharge from the part of the site area with the type C permeable paving included. The area impermeable area contributing to the calculation is 642.8m². During a 1 in 100 year storm plus 40% for climate change, a peak discharge rate of 39.8l/s was produced without the type C permeable paving system and 22.2/s with the type C permeable paving. Therefore, a betterment of 44% was provided for the a partial area of the site during a 1 in 100 year storm plus 40% for climate change.
- 5.9 The MicroDrainage calculations can be found in appendix IV and the proposed drainage strategy presented in appendix V.
- 5.10 In the event of an exceptional rainfall event or system malfunction a consideration has been made with regards to overland flows.
- Overland flows from the access roadway and car park will flow, generally, in a south easterly direction to the south east corner of the site. The site is bound by walls, containing overland flows preventing them from entering adjacent parcels of land. As there are separate connections from the site into the Thames Water sewer and the sewer is sufficiently deep, there will be no surcharging effects in the pedestrian area caused by the overland flows in the car park.
 - The channel drain at the foot of the basement access will have two connections into the system should one connection block. There will also be 3.3m³ of storage at the base of the steps due to the 150mm upstand into the building.
 - The area from the top of the steps to the car park will flow southwards into the wall bound car parking area.
- 5.11 A pre development enquiry will be submitted to Thames Water if required.

6. ASSESSMENT OF PRESENT AND FUTURE FOUL WATER FLOWS

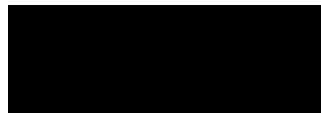
- 6.1 Presently the site is developed with a 3 storey including basement building acting as a residential property. There are limited ablutions within the building which discharge into the drainage system crossing the southern part of the site from east to west. This system discharges into Thames Water manhole 9203 situated within Finchampstead Road.
- 6.2 The vast majority of the existing foul water system is to remain in place after the redevelopment. The new drainage serving the proposed extension will discharge into the existing system at one location. The extension proposal involves a 1.5 storey, with 3 additional units on the existing first floor and an additional 7 units on the proposed second floor which have duplex rooms within the roof space.
- 6.3 A pre development enquiry will be submitted to Thames Water if required.

7. MAINTENANCE OF THE SURFACE WATER DRAINAGE SYSTEM

- 7.1 It is recognised that the existing surface water drainage system has to be maintained going forward. In this context, there will be a management structure in place to cover various communal aspects of the development which will include the drainage requirements as set out herein.
- 7.2 A sustainable drainage operation and maintenance plan specific to the site is included in appendix VI. This will be included in the O & M manuals and the health and safety file for the development.
- 7.3 It should be noted that the majority of the existing surface water drainage system serving the site will remain private and will have to be maintained by the occupier. The existing surface water public sewer crossing and serving the site is the responsibility of Thames Water.

8. CONCLUSIONS AND RECOMMENDATIONS

- 8.1 It is intended to extend the existing residential building. The proposal involves a 1.5 storey, with 3 additional units on the existing first floor and an additional 7 units on the proposed second floor which have duplex rooms within the roof space.
- 8.2 The vast majority of the existing system is to be retained with new connections being made where required.
- 8.3 The development should be allowed to proceed because:
- The foul and surface water drainage from the proposed development can be connected into the existing systems serving the site.
 - The existing foul and surface water drainage systems have ample capacity to service the proposed extension.
 - For the hard surface the type C permeable paving will provide a 44% betterment on the discharge rate during a 1 in 100 year storm plus 40% for climate change.
 - The raised storm planters are to be used at the front of the property to provide treatment and storage to part of the roof runoff, prior to discharge into the existing drainage system.
 - A sustainable drainage operation and maintenance plan specific to the site has been developed and is appended to this report.
 - Exceedance flow has been considered and demonstrated to have no adverse impact on the proposed building and surrounding sites



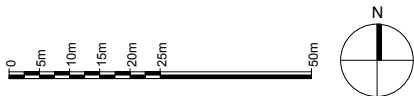
Dan Edwards
MEng CEng MICE
Director

APPENDIX I

SITE LOCATION PLAN



A Site Location Plan
S.01 1:625@A1, 1:1250@A3



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Notes
WARNING TO HOME BUYERS
Property Descriptions Act 1991
Buyers are warned that this is a working drawing and not intended to be treated as descriptive material describing in relation to any particular property or development, any of the specified matters prescribed by any order and under the above act. The contents of this drawing may be subject to change at any time and alterations and variations can occur, during the progress of the works without revision of the drawing. Consequently the layout, form, content and dimensions of the finished construction may differ materially from those shown. Not do the contents of this drawing constitute a contract, part of any contract or warranty.
THIS IS A DESIGN INTENT DRAWING. SUB-CONTRACTOR / SUPPLIERS DETAILED DRAWINGS AND SPECIFICATIONS TO BE SUBMITTED FOR DESIGN TEAM INFORMATION AND/OR COMMENT

Revisions		
A	20.07.21	Submitted for Planning.

Notes:
— SITE BOUNDARY

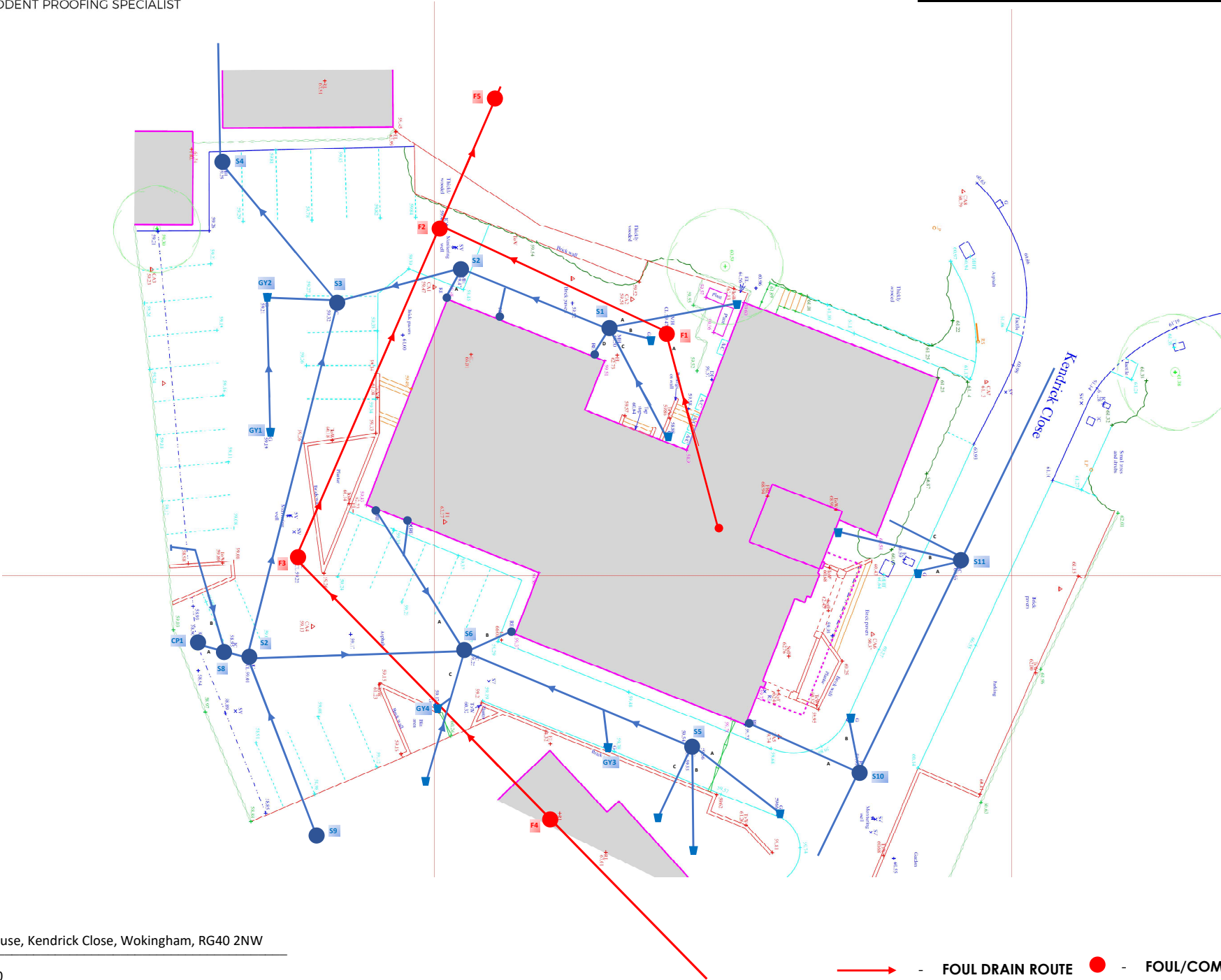


Client	Klara Ascot Limited		
Project	Ascot House		
	Finchampstead Road, Wokingham RG40 2NW		
Drawing Title	Site Location Plan		

T2S ARCHITECTURE LTD			A: Westgate Chambers, 8a Elm Park Rd, Frimley, RG40 3JA M: +44 7455 299 247 E: t2sarch@t2sarchitecture.com W: www.t2sarchitecture.com
Status	DRAFT	Drawn	TJS
Scale	1:625@A1, 1:1250@A3	Checked	TJS
Diw#	Nn.	Date	July 2021
	105_PL2_S_01	Revision	A

APPENDIX II

EXISTING DRAINAGE LAYOUT



SITE ADDRESS: Ascot House, Kendrick Close, Wokingham, RG40 2NW

DATE: 16/12/20

-  - FOUL DRAIN ROUTE
-  - STORM WATER
-  - FOUL/COMBINED MANHOLE
-  - STORM WATER MANHOLE

APPENDIX III

THAMES WATER SEWER ASSET PLANS

PRP Architects
Catherine House
Harborough Road
NORTHAMPTON
NN6 9BX

Search address supplied Cleaver Property Manangement Ltd
Ascot House
Finchampstead Road
Wokingham
RG40 2NW

Your reference 82054

Our reference ALS/ALS Standard/2021_4386107

Search date 22 March 2021

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Search address supplied: Cleaver Property Manangement Ltd, Ascot House,
Finchampstead Road, Wokingham, RG40 2NW

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

South East Water
Rocfort Road
Snodland



Kent
ME6 5AH

Tel: 0845 301 0845

www.southeastwater.co.uk.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

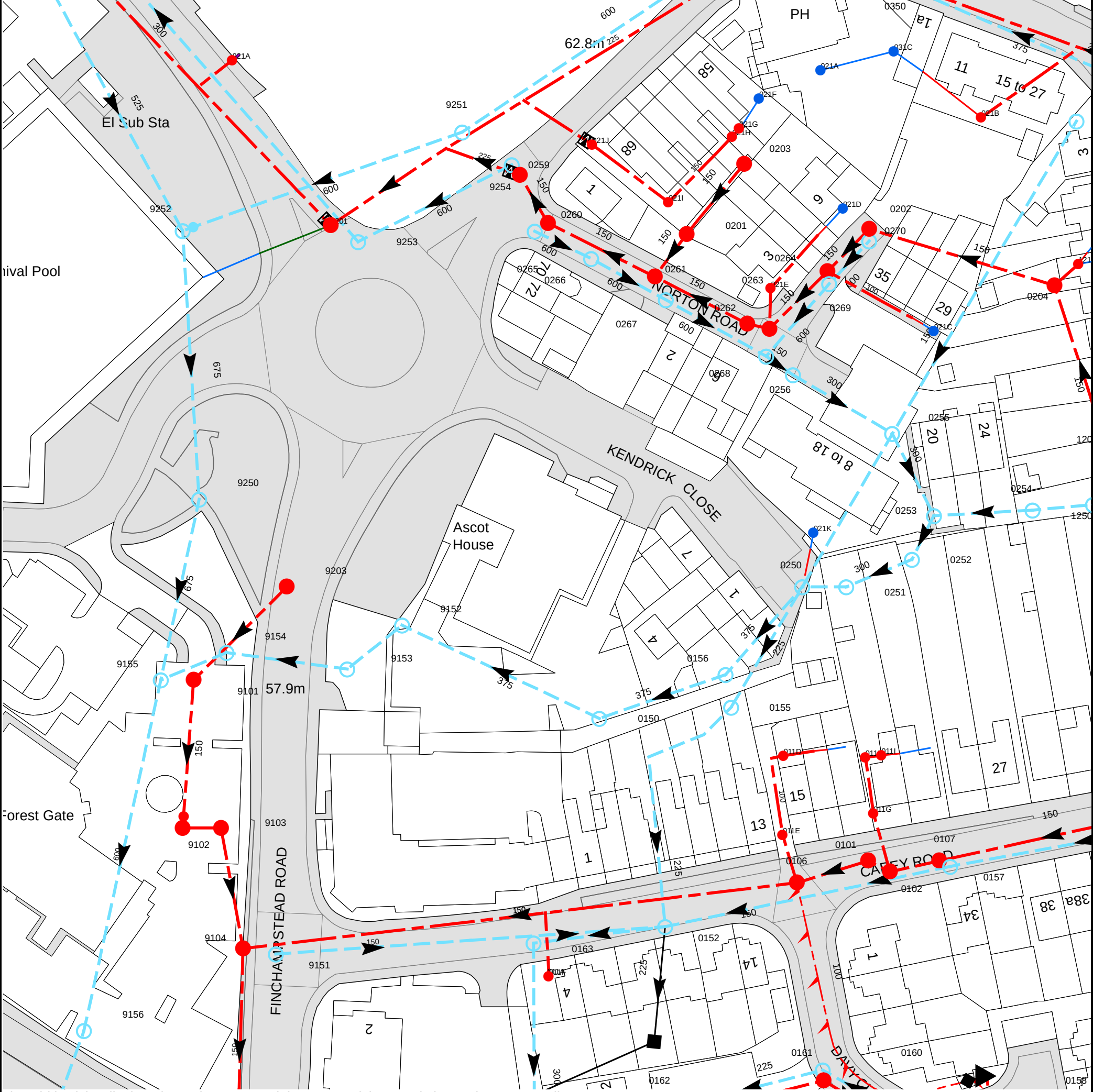
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4386107



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 481006,168211
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
021J	n/a	n/a
031C	n/a	n/a
021B	n/a	n/a
1257	n/a	n/a
0254	60.43	59.08
1250	61.5	59.45
0204	n/a	n/a
121F	n/a	n/a
0262	61.6	60.85
0268	61.49	59.89
0263	61.55	60.89
021E	n/a	n/a
011E	n/a	n/a
011D	n/a	n/a
0256	61.38	59.85
0106	56.01	54.41
0250	58.95	55.85
021K	n/a	n/a
0264	61.82	60.98
0269	61.9	59.96
021D	n/a	n/a
0251	58	56.5
011H	n/a	n/a
0101	56.37	54.59
0270	62.29	60.06
0202	62.4	61.05
011G	n/a	n/a
011I	n/a	n/a
0102	56.48	55.4
0255	60.99	58.74
0252	59.26	57.06
0253	60.79	58.27
021C	n/a	n/a
0107	56.81	55.72
0157	56.84	55.2
0161	53.67	51.49
0104	53.43	50.5
921A	n/a	n/a
9251	62.01	59.56
9254	62.03	59.48
0259	61.84	60.53
021H	n/a	n/a
021G	n/a	n/a
0203	n/a	n/a
021F	n/a	n/a
021A	n/a	n/a
9155	59.32	55.23
9252	62	57.45
9102	57.61	54.74
9101	58.95	56.05
9250	60.9	56.1
9103	56.52	54.16
9154	57.94	55.49
9104	55.56	52.95
9151	55.59	54.44
9203	58.91	56.45
9201	61.61	59.78
9153	59.21	55.66
9253	61.63	n/a
9152	59.18	55.71
0163	55.41	53.33
0265	61.85	60.1
0260	61.92	60.58
011F	n/a	n/a
0266	61.96	60.06
0150	58.96	55.8
0261	61.96	60.73
0152	55.43	53.56
0267	61.91	60.01
021I	n/a	n/a
0201	62.34	60.78
0156	58.77	55.87
0155	n/a	n/a
9156	56.28	53.18

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.		Trunk Foul
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.		Trunk Combined
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.		Bio-solids (Sludge)
	Trunk Surface Water		Proposed Thames Water Foul Sewer
	Storm Relief		Proposed Thames Water Foul Sewer
	Vent Pipe		Proposed Thames Water Foul Sewer
	Proposed Thames Surface Water Sewer		Proposed Thames Water Foul Sewer
	Gallery		Foul Rising Main
	Surface Water Rising Main		Combined Rising Main
	Sludge Rising Main		Proposed Thames Water Rising Main
	Vacuum		

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or 'D' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer		Surface Water Sewer
	Combined Sewer		Gully
	Culverted Watercourse		Proposed
			Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL's terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking	Cheque
Call 0800 009 4540 quoting your invoice number starting CBA or ADS / OSS	Account number 90478703 Sort code 60-00-01 A remittance advice must be sent to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW. or email ps.billing@thameswater.co.uk	By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number	Made payable to ' Thames Water Utilities Ltd ' Write your Thames Water account number on the back. Send to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

APPENDIX IV

MICRODRAINAGE CALCULATIONS

PRP		Page 1			
Catherine House Old Harborough Road Brixworth NN6 9BX	82054 - Ascot House 1 in 100 year storm plus 40%CC Without Permeable Paving				
Date 18/01/2024 File STORM WITHOUT TYPE C.SRCX	Designed by MFS Checked by MAS				
Micro Drainage Source Control 2020.1.3					
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	98.280	0.280	39.8	0.9	O K
30 min Summer	98.252	0.252	34.0	0.8	O K
60 min Summer	98.206	0.206	24.7	0.6	O K
120 min Summer	98.156	0.156	16.1	0.4	O K
180 min Summer	98.130	0.130	12.2	0.3	O K
240 min Summer	98.118	0.118	9.9	0.2	O K
360 min Summer	98.104	0.104	7.2	0.2	O K
480 min Summer	98.091	0.091	5.7	0.1	O K
600 min Summer	98.083	0.083	4.9	0.1	O K
720 min Summer	98.077	0.077	4.2	0.1	O K
960 min Summer	98.069	0.069	3.4	0.1	O K
1440 min Summer	98.058	0.058	2.4	0.1	O K
2160 min Summer	98.049	0.049	1.7	0.1	O K
2880 min Summer	98.044	0.044	1.4	0.1	O K
4320 min Summer	98.037	0.037	1.0	0.0	O K
5760 min Summer	98.033	0.033	0.8	0.0	O K
7200 min Summer	98.029	0.029	0.7	0.0	O K
8640 min Summer	98.026	0.026	0.6	0.0	O K
10080 min Summer	98.024	0.024	0.5	0.0	O K
15 min Winter	98.280	0.280	39.7	0.9	O K
30 min Winter	98.231	0.231	29.7	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	128.336	0.0	15.4	10	
30 min Summer	84.360	0.0	20.2	17	
60 min Summer	52.892	0.0	25.4	32	
120 min Summer	32.091	0.0	30.8	62	
180 min Summer	23.662	0.0	34.1	92	
240 min Summer	18.958	0.0	36.4	122	
360 min Summer	13.760	0.0	39.6	182	
480 min Summer	10.974	0.0	42.1	244	
600 min Summer	9.199	0.0	44.2	302	
720 min Summer	7.961	0.0	45.9	366	
960 min Summer	6.333	0.0	48.6	482	
1440 min Summer	4.580	0.0	52.8	734	
2160 min Summer	3.307	0.0	57.1	1080	
2880 min Summer	2.622	0.0	60.4	1460	
4320 min Summer	1.888	0.0	65.2	2124	
5760 min Summer	1.494	0.0	68.8	2848	
7200 min Summer	1.245	0.0	71.7	3560	
8640 min Summer	1.073	0.0	74.2	4280	
10080 min Summer	0.946	0.0	76.3	5096	
15 min Winter	128.336	0.0	17.2	10	
30 min Winter	84.360	0.0	22.7	17	
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PRP					Page 2
Catherine House Old Harborough Road Brixworth NN6 9BX		82054 - Ascot House 1 in 100 year storm plus 40%CC Without Permeable Paving			
Date 18/01/2024 File STORM WITHOUT TYPE C.SRCX		Designed by MFS Checked by MAS			
Micro Drainage		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	98.180	0.180	19.5	0.5	O K
120 min Winter	98.130	0.130	12.1	0.3	O K
180 min Winter	98.113	0.113	9.0	0.2	O K
240 min Winter	98.103	0.103	7.1	0.2	O K
360 min Winter	98.086	0.086	5.2	0.1	O K
480 min Winter	98.077	0.077	4.2	0.1	O K
600 min Winter	98.071	0.071	3.5	0.1	O K
720 min Winter	98.065	0.065	3.0	0.1	O K
960 min Winter	98.058	0.058	2.4	0.1	O K
1440 min Winter	98.049	0.049	1.7	0.1	O K
2160 min Winter	98.042	0.042	1.3	0.1	O K
2880 min Winter	98.037	0.037	1.0	0.0	O K
4320 min Winter	98.031	0.031	0.7	0.0	O K
5760 min Winter	98.027	0.027	0.6	0.0	O K
7200 min Winter	98.024	0.024	0.5	0.0	O K
8640 min Winter	98.022	0.022	0.4	0.0	O K
10080 min Winter	98.021	0.021	0.4	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	52.892	0.0	28.4	32	
120 min Winter	32.091	0.0	34.5	62	
180 min Winter	23.662	0.0	38.2	90	
240 min Winter	18.958	0.0	40.8	124	
360 min Winter	13.760	0.0	44.4	184	
480 min Winter	10.974	0.0	47.2	244	
600 min Winter	9.199	0.0	49.5	302	
720 min Winter	7.961	0.0	51.4	362	
960 min Winter	6.333	0.0	54.5	482	
1440 min Winter	4.580	0.0	59.1	728	
2160 min Winter	3.307	0.0	64.0	1064	
2880 min Winter	2.622	0.0	67.7	1468	
4320 min Winter	1.888	0.0	73.1	2156	
5760 min Winter	1.494	0.0	77.1	2800	
7200 min Winter	1.245	0.0	80.3	3632	
8640 min Winter	1.073	0.0	83.1	4288	
10080 min Winter	0.946	0.0	85.4	5000	
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PRP		Page 3
Catherine House Old Harborough Road Brixworth NN6 9BX	82054 - Ascot House 1 in 100 year storm plus 40%CC Without Permeable Paving	
Date 18/01/2024 File STORM WITHOUT TYPE C.SRCX	Designed by MFS Checked by MAS	
Micro Drainage Source Control 2020.1.3		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.700	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.064

Time (mins)	Area
From:	To: (ha)
0	4 0.064

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PRP		Page 4
Catherine House Old Harborough Road Brixworth NN6 9BX	82054 - Ascot House 1 in 100 year storm plus 40%CC Without Permeable Paving	
Date 18/01/2024 File STORM WITHOUT TYPE C.SRCX	Designed by MFS Checked by MAS	
Micro Drainage		
Source Control 2020.1.3		
Model Details Storage is Online Cover Level (m) 100.000 Pipe Structure Diameter (m) 0.225Length (m) 133.000 Slope (1:X) 100.000Invert Level (m) 98.000 Pipe Outflow Control Diameter (m) 0.225Entry Loss Coefficient 0.500 Slope (1:X) 100.0Coefficient of Contraction 0.600 Length (m) 133.000Upstream Invert Level (m) 98.000 Roughness k (mm) 0.600		
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PRP

Page 1

Catherine House
Old Harborough Road
Brixworth NN6 9BX

82054 - Ascot House
1 in 100 year storm plus 40%CC
with Permeable Paving

Date 18/01/2024
File STORM WITH TYPE C CALCU...

Designed by MFS
Checked by MAS

Micro Drainage

Source Control 2020.1.3

Micro Drainage

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 0 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	99.520	0.000	0.0	22.2	22.2	0.0	O K
30 min Summer	99.520	0.000	0.0	19.5	19.5	0.0	O K
60 min Summer	99.520	0.000	0.0	14.0	14.0	0.0	O K
120 min Summer	99.520	0.000	0.0	9.1	9.1	0.0	O K
180 min Summer	99.520	0.000	0.0	6.9	6.9	0.0	O K
240 min Summer	99.520	0.000	0.0	5.6	5.6	0.0	O K
360 min Summer	99.520	0.000	0.0	4.0	4.0	0.0	O K
480 min Summer	99.520	0.000	0.0	3.2	3.2	0.0	O K
600 min Summer	99.520	0.000	0.0	2.7	2.7	0.0	O K
720 min Summer	99.520	0.000	0.0	2.3	2.3	0.0	O K
960 min Summer	99.520	0.000	0.0	1.9	1.9	0.0	O K
1440 min Summer	99.520	0.000	0.0	1.3	1.3	0.0	O K
2160 min Summer	99.520	0.000	0.0	1.0	1.0	0.0	O K
2880 min Summer	99.520	0.000	0.0	0.8	0.8	0.0	O K
4320 min Summer	99.520	0.000	0.0	0.5	0.5	0.0	O K
5760 min Summer	99.520	0.000	0.0	0.4	0.4	0.0	O K
7200 min Summer	99.520	0.000	0.0	0.4	0.4	0.0	O K
8640 min Summer	99.520	0.000	0.0	0.3	0.3	0.0	O K
10080 min Summer	99.520	0.000	0.0	0.3	0.3	0.0	O K
15 min Winter	99.520	0.000	0.0	22.2	22.2	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	128.336	0.0	7.2	0
30 min Summer	84.360	0.0	10.0	0
60 min Summer	52.892	0.0	12.8	0
120 min Summer	32.091	0.0	15.8	0
180 min Summer	23.662	0.0	17.6	0
240 min Summer	18.958	0.0	18.9	0
360 min Summer	13.760	0.0	20.7	0
480 min Summer	10.974	0.0	22.0	0
600 min Summer	9.199	0.0	23.1	0
720 min Summer	7.961	0.0	24.0	0
960 min Summer	6.333	0.0	25.4	0
1440 min Summer	4.580	0.0	27.4	0
2160 min Summer	3.307	0.0	29.5	0
2880 min Summer	2.622	0.0	30.9	0
4320 min Summer	1.888	0.0	32.7	0
5760 min Summer	1.494	0.0	33.9	0
7200 min Summer	1.245	0.0	34.7	0
8640 min Summer	1.073	0.0	35.2	0
10080 min Summer	0.946	0.0	35.5	0
15 min Winter	128.336	0.0	8.3	0

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PRP		Page 2					
Catherine House Old Harborough Road Brixworth NN6 9BX	82054 - Ascot House 1 in 100 year storm plus 40%CC with Permeable Paving						
Date 18/01/2024 File STORM WITH TYPE C CALCU...	Designed by MFS Checked by MAS						
Micro Drainage Source Control 2020.1.3							
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	99.520	0.000	0.0	16.8	16.8	0.0	O K
60 min Winter	99.520	0.000	0.0	11.0	11.0	0.0	O K
120 min Winter	99.520	0.000	0.0	6.8	6.8	0.0	O K
180 min Winter	99.520	0.000	0.0	5.0	5.0	0.0	O K
240 min Winter	99.520	0.000	0.0	4.0	4.0	0.0	O K
360 min Winter	99.520	0.000	0.0	2.9	2.9	0.0	O K
480 min Winter	99.520	0.000	0.0	2.3	2.3	0.0	O K
600 min Winter	99.520	0.000	0.0	1.9	1.9	0.0	O K
720 min Winter	99.520	0.000	0.0	1.7	1.7	0.0	O K
960 min Winter	99.520	0.000	0.0	1.3	1.3	0.0	O K
1440 min Winter	99.520	0.000	0.0	1.0	1.0	0.0	O K
2160 min Winter	99.520	0.000	0.0	0.7	0.7	0.0	O K
2880 min Winter	99.520	0.000	0.0	0.5	0.5	0.0	O K
4320 min Winter	99.520	0.000	0.0	0.4	0.4	0.0	O K
5760 min Winter	99.520	0.000	0.0	0.3	0.3	0.0	O K
7200 min Winter	99.520	0.000	0.0	0.3	0.3	0.0	O K
8640 min Winter	99.520	0.000	0.0	0.2	0.2	0.0	O K
10080 min Winter	99.520	0.000	0.0	0.2	0.2	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	84.360	0.0	11.3	0			
60 min Winter	52.892	0.0	14.5	0			
120 min Winter	32.091	0.0	17.9	0			
180 min Winter	23.662	0.0	19.9	0			
240 min Winter	18.958	0.0	21.4	0			
360 min Winter	13.760	0.0	23.3	0			
480 min Winter	10.974	0.0	24.8	0			
600 min Winter	9.199	0.0	26.0	0			
720 min Winter	7.961	0.0	27.0	0			
960 min Winter	6.333	0.0	28.7	0			
1440 min Winter	4.580	0.0	31.0	0			
2160 min Winter	3.307	0.0	33.3	0			
2880 min Winter	2.622	0.0	35.0	0			
4320 min Winter	1.888	0.0	37.2	0			
5760 min Winter	1.494	0.0	38.6	0			
7200 min Winter	1.245	0.0	39.6	0			
8640 min Winter	1.073	0.0	40.3	0			
10080 min Winter	0.946	0.0	40.8	0			
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PRP		Page 4																																								
Catherine House Old Harborough Road Brixworth NN6 9BX	82054 - Ascot House 1 in 100 year storm plus 40%CC with Permeable Paving																																									
Date 18/01/2024 File STORM WITH TYPE C CALCU...	Designed by MFS Checked by MAS																																									
Micro Drainage Source Control 2020.1.3																																										
<u>Model Details</u> Storage is Online Cover Level (m) 100.000 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> <td>Width (m)</td> <td>10.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>28.3</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>78.6</td> <td>Slope (1:X)</td> <td>80.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>99.520</td> <td>Cap Volume Depth (m)</td> <td>0.350</td> </tr> </table> <u>Pipe Outflow Control</u> <table> <tr> <td>Diameter (m)</td> <td>0.225</td> <td>Entry Loss Coefficient</td> <td>0.500</td> </tr> <tr> <td>Slope (1:X)</td> <td>100.0</td> <td>Coefficient of Contraction</td> <td>0.600</td> </tr> <tr> <td>Length (m)</td> <td>133.000</td> <td>Upstream Invert Level (m)</td> <td>97.930</td> </tr> <tr> <td>Roughness k (mm)</td> <td>0.600</td> <td></td> <td></td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0	Membrane Percolation (mm/hr)	1000	Length (m)	28.3	Max Percolation (l/s)	78.6	Slope (1:X)	80.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	99.520	Cap Volume Depth (m)	0.350	Diameter (m)	0.225	Entry Loss Coefficient	0.500	Slope (1:X)	100.0	Coefficient of Contraction	0.600	Length (m)	133.000	Upstream Invert Level (m)	97.930	Roughness k (mm)	0.600		
Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0																																							
Membrane Percolation (mm/hr)	1000	Length (m)	28.3																																							
Max Percolation (l/s)	78.6	Slope (1:X)	80.0																																							
Safety Factor	2.0	Depression Storage (mm)	5																																							
Porosity	0.30	Evaporation (mm/day)	3																																							
Invert Level (m)	99.520	Cap Volume Depth (m)	0.350																																							
Diameter (m)	0.225	Entry Loss Coefficient	0.500																																							
Slope (1:X)	100.0	Coefficient of Contraction	0.600																																							
Length (m)	133.000	Upstream Invert Level (m)	97.930																																							
Roughness k (mm)	0.600																																									
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APPENDIX V

PROPOSED DRAINAGE STRATEGY

Surface Water Drainage

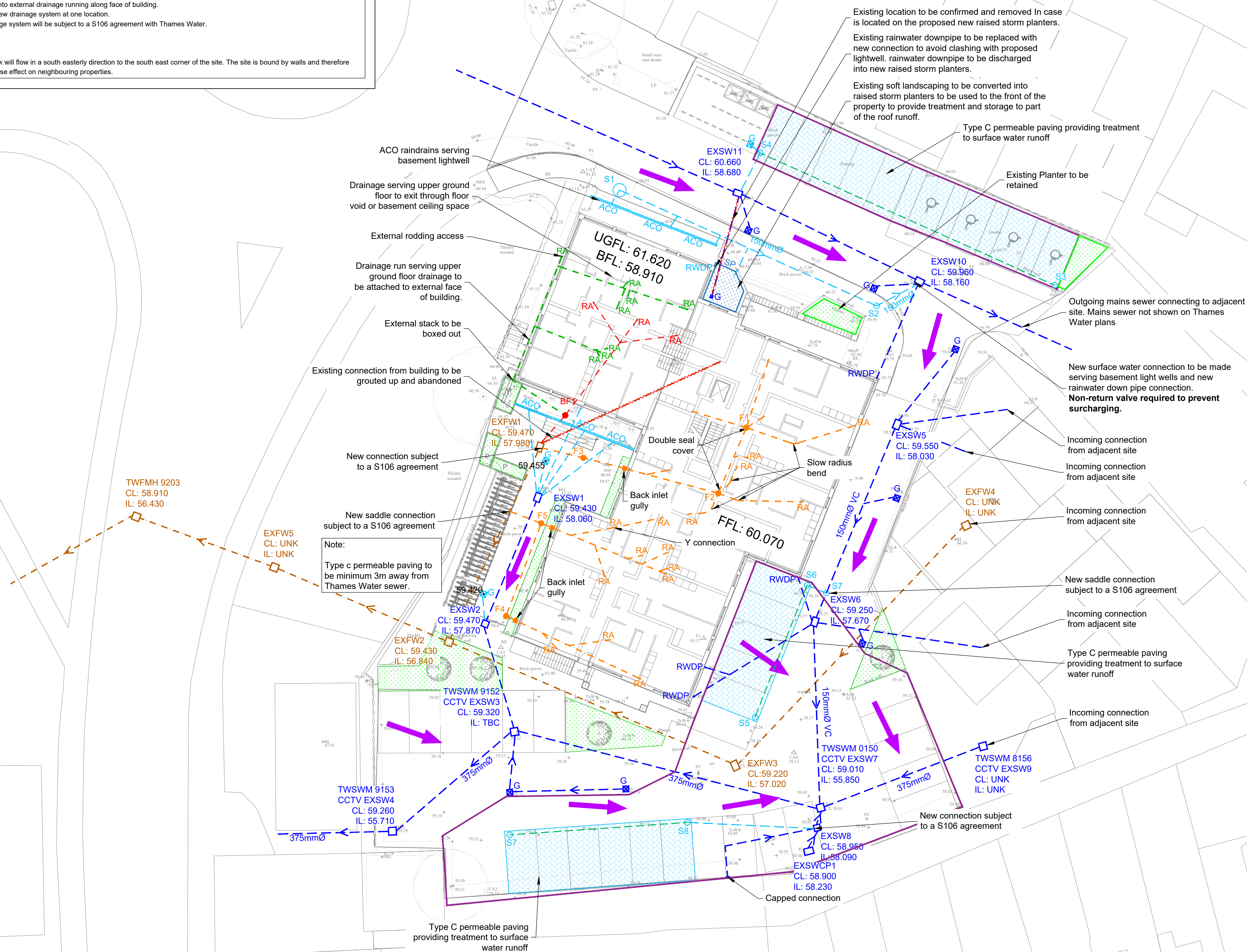
- It is proposed to use type c permeable paving at part of the new parking bays. This system will provide some storage and driveway and parking areas.
- The raised storm planters to be used to the front of the property to provide treatment and storage to part of the roof runoff
- New connections being made into the existing drainage system will be subject to a S106 agreement with Thames Water.

Foul Water Drainage

- The vast majority of the existing foul water drainage system serving the site is to remain post redevelopment.
- The new foul drainage system at ground floor will connect into the existing drainage system at two locations.
- Drainage from the upper ground floor will discharge into external drainage running along face of building.
- Drainage from the basement will discharge into the new drainage system at one location.
- New connections being made into the existing drainage system will be subject to a S106 agreement with Thames Water

Flood Exceedance

- Overland flows from the access roadway and car park will flow in a south easterly direction to the south east corner of the site. The site is bound by walls and therefore overland flows will be contained, not having an adverse effect on neighbouring properties.



	Existing surface water drainage sewer
	Existing Surface Water Gully
	Existing Foul Water Drainage Sewer
	New Surface Water
	New gully / Gully
	ACO / Channel Drain
	Perforated Pipe
	New Foul Drainage Serving Ground Floor
	New Foul Drainage Basement Floor
	Upper ground floor drainage to external works
	Abandon
	Rodding Access
	Back Inlet Gully
	Raised Storm Planter
	Soft landscaping
	Type C Permeable Pavement
	Existing impermeable boundary contributing to Type C permeable pavement
BFL: 88.888	Basement Floor Level
FFL: 88.888	First Floor Level
UGFL: 88.888	Upper Ground Floor Level
88.888^o	New External Level
	Flood Exceedance Area

Note:
The purple line is the boundary of the existing impermeable area contributing on the type c which 642.8m²

The hazards noted below are in addition to the normal hazards and risks faced by a competent contractor when dealing with the types of works detailed on this drawing.

CONSTRUCTION RISKS:

- Deep Trenches
- Striking unforeseen Services
- Leptospirosis

MAINTENANCE / CLEANING RISKS

- Leptospirosis

Notes:

1. DO NOT SCALE FROM THIS DRAWING.
2. All dimensions are in millimetres Unless Noted Otherwise (u.n.o.)
3. Drawing is to be read in conjunction with all relevant architect's drawings. Any inconsistencies should be reported to PRP immediately.
4. All levels and dimensions are to be checked on site before any work commences.
5. The Health and Safety at Work act is to be complied with at all times. Attention is drawn to the wearing of hard hats, reflectorised clothing, and the use of any other required safety equipment.

Drainage:

1. Invert levels of existing manholes to be checked on site prior to commencing any drainage works.
2. For positions of all rainwater pipes & foul outlets refer to Architect's drawings.
3. All joints between precast manhole components shall have a minimum uncompressed thickness of 10mm of proprietary bitumen or resin mastik sealant.
4. Stairs & fire ladders, if provided, are to be laid at gradients of between 1:10 & 1:80
5. All in-situ concrete shall be minimum grade GEN3.
6. Precast concrete cover & reducing slabs to be heavy duty reinforced concrete to BS 5911.
7. Manhole covers & frames shall be manufactured in cast iron or ductile iron & shall comply with requirements of BS EN 124 & shall be kite marked or equivalent.
8. All completed work shall be suitably protected from damage by construction work. Damaged drainage will not be accepted. It is recommended that no heavy loading or underground work is permitted above or near open drainage, and that dumpers, trucks, forklifts or other heavy vehicles are not driven along or near pipe runs.

P9	08/03/2024	Site plan updated	MFS/ DF
P8	19/01/2024	Site plan updated and drainage updated to suit and as clouded	MFS/ DF
P7	16/12/2021	Flood exceedance arrows included	AGS/ DF
P6	29/09/2021	Vertical and horizontal extensions included allowing for the introduction of a brown roof system	AGS/ DF
Rev	Date	Description	By / Ch



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engineering excellence | creating advantage

Client:
JW Hughes

Architect:
Twenty First Architecture Ltd

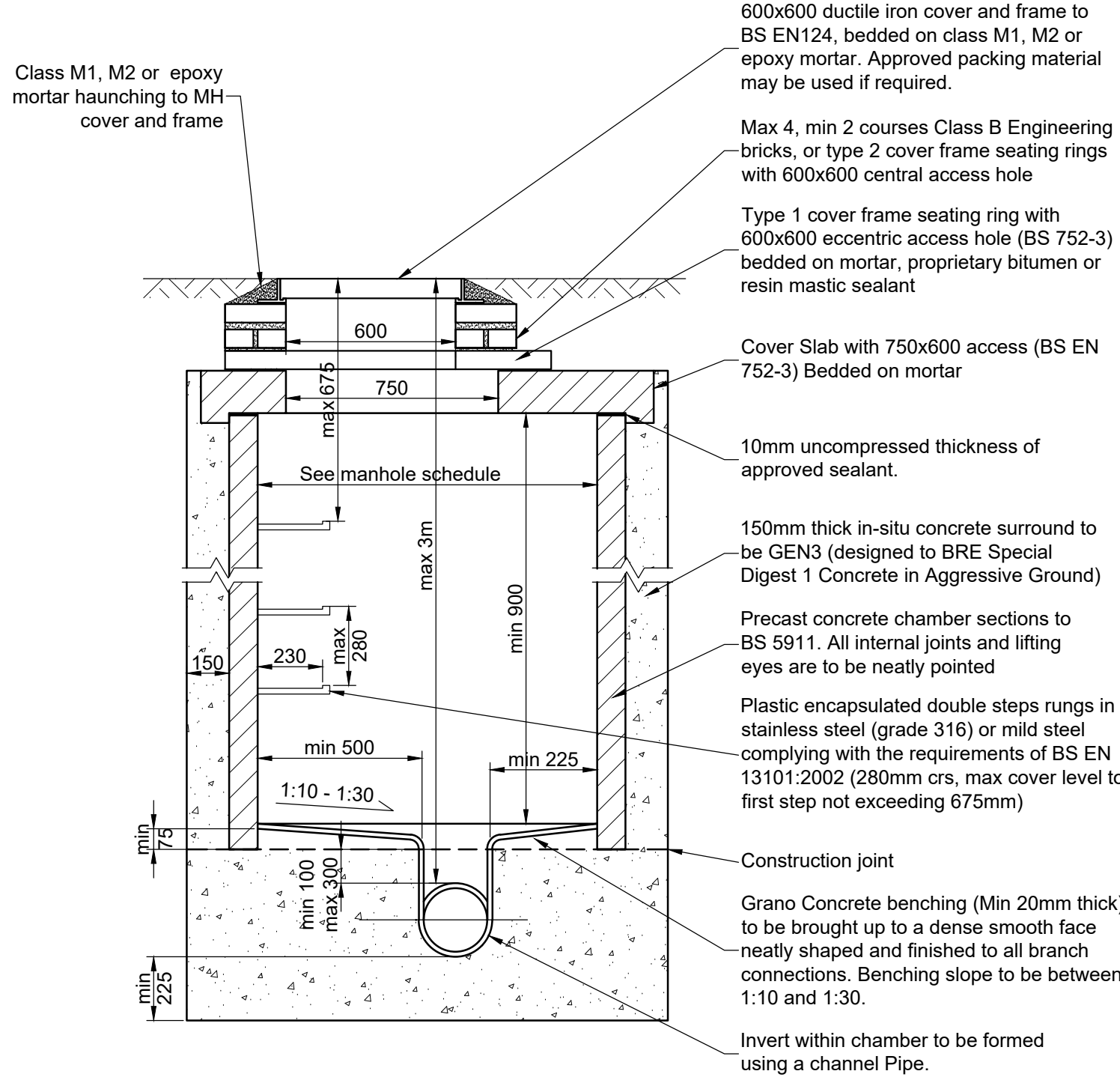
Project:
Ascot House
Finchampstead Road
Wokingham, RG40 2NW

Title: Drainage Strategy

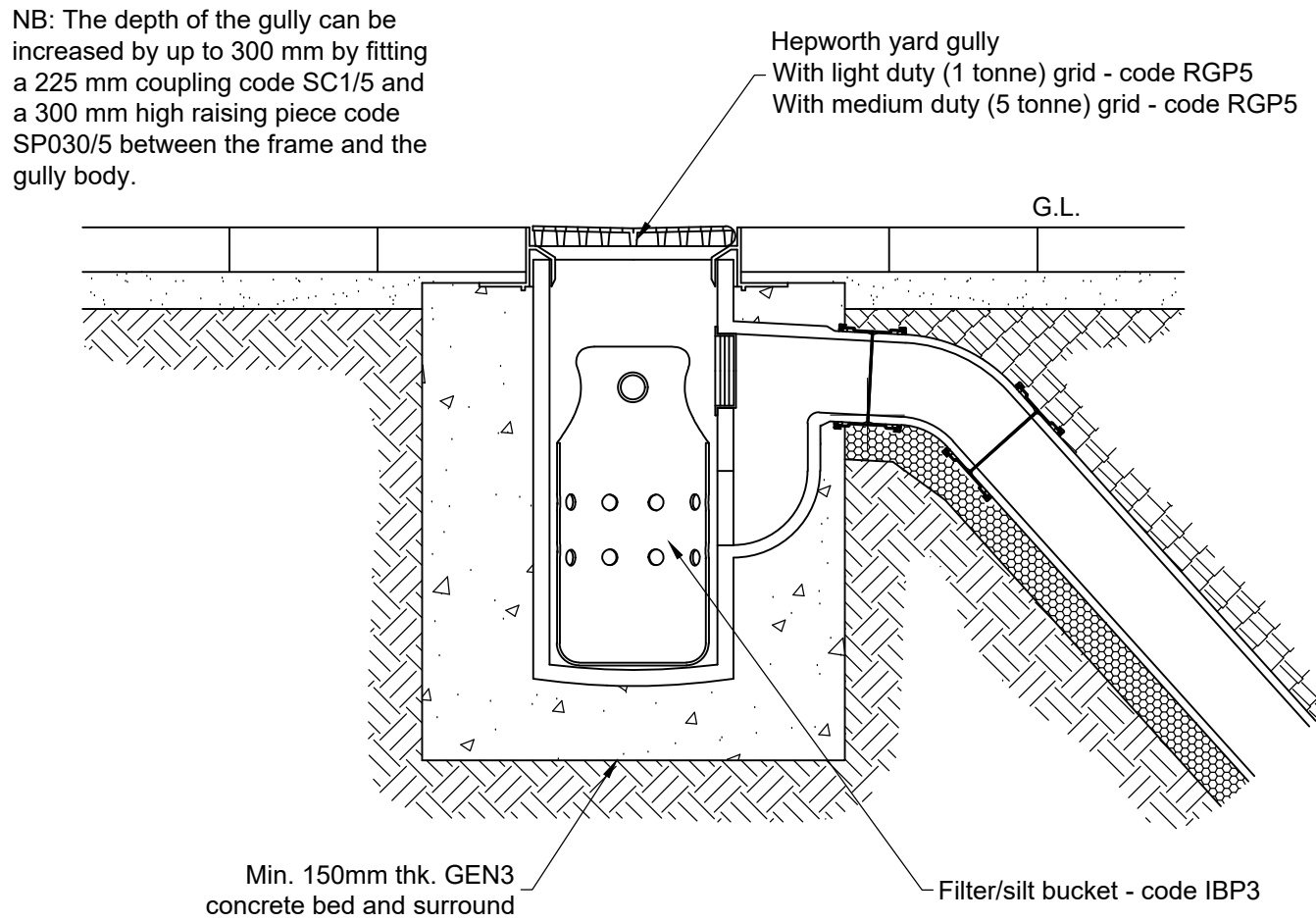
Status:

PRELIMINARY

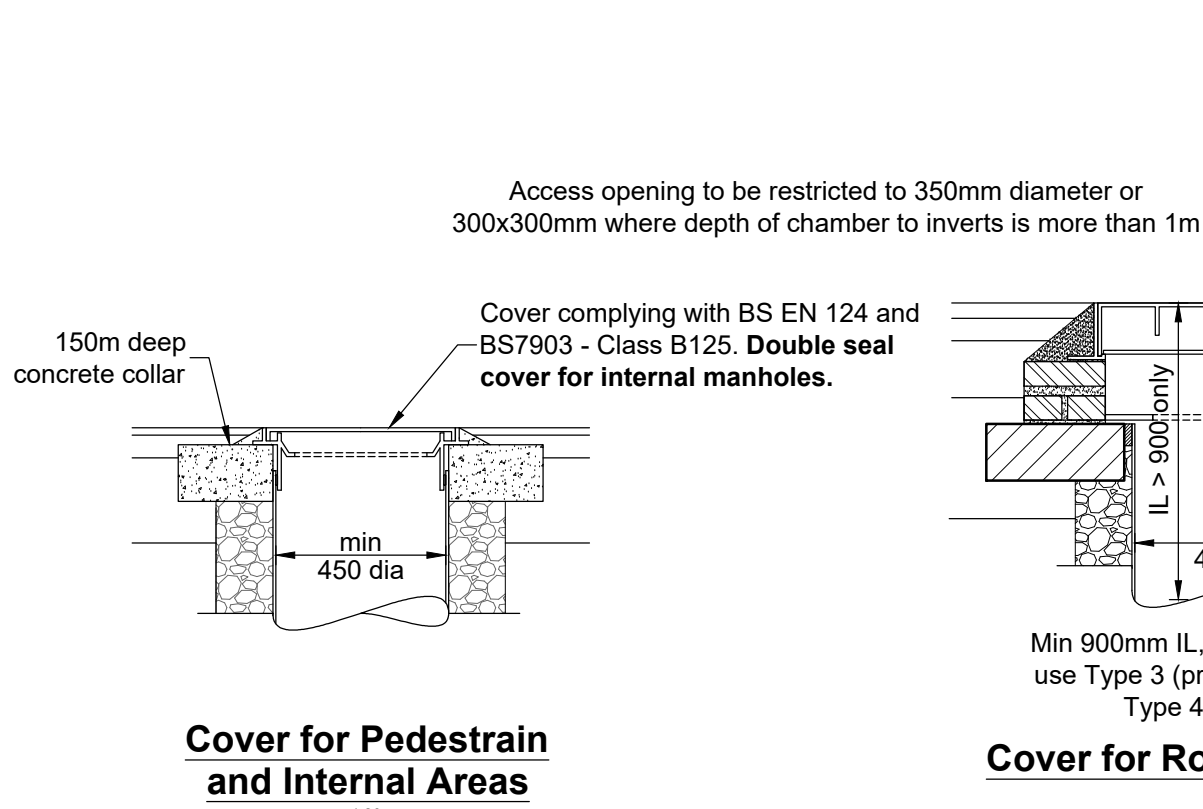
Engineer:	AGS	Date:	May 2021	
Drawn:	AGS	Scales @ A1: 1:200		
Checked:	DE			
Project No:	82054	Drg No:	101	Rev: P9



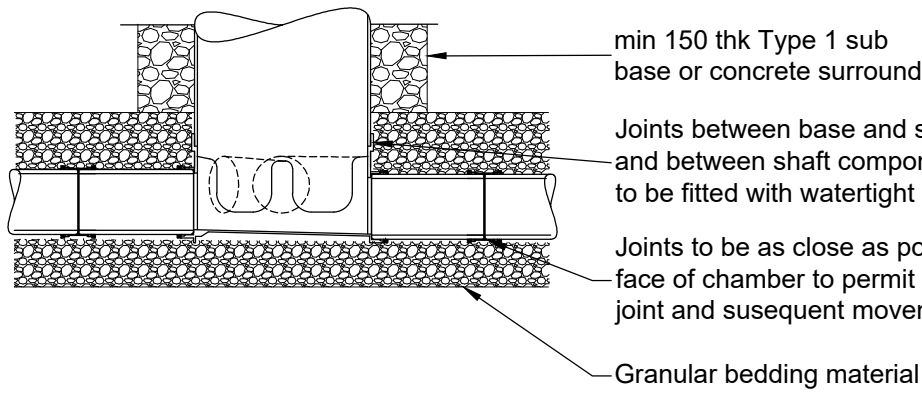
Typical Manhole Detail
Sewers for Adoption 6th Edition
Type B - Depth to soffit 1.5 - 3m



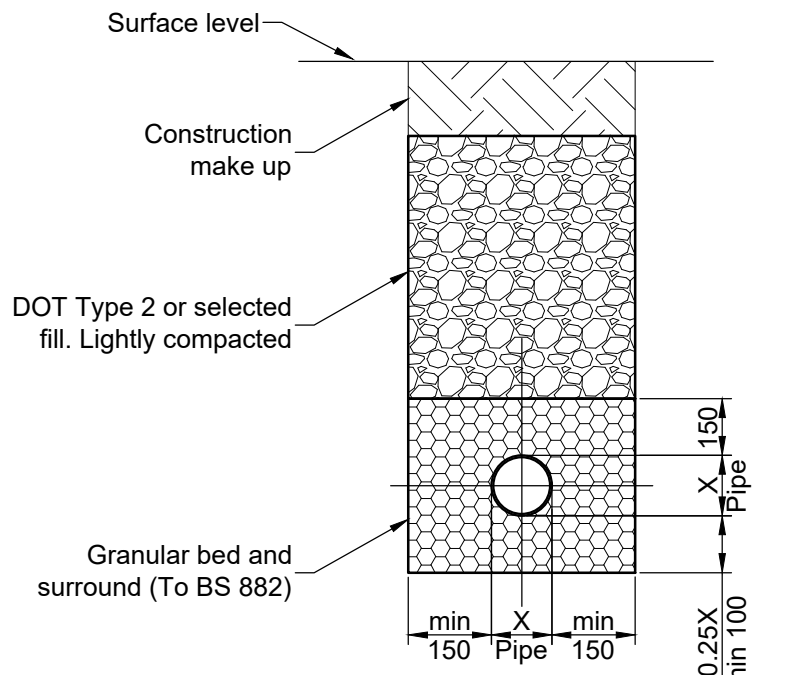
Typical Yard Gully Detail



Cover for Pedestrian
and Internal Areas

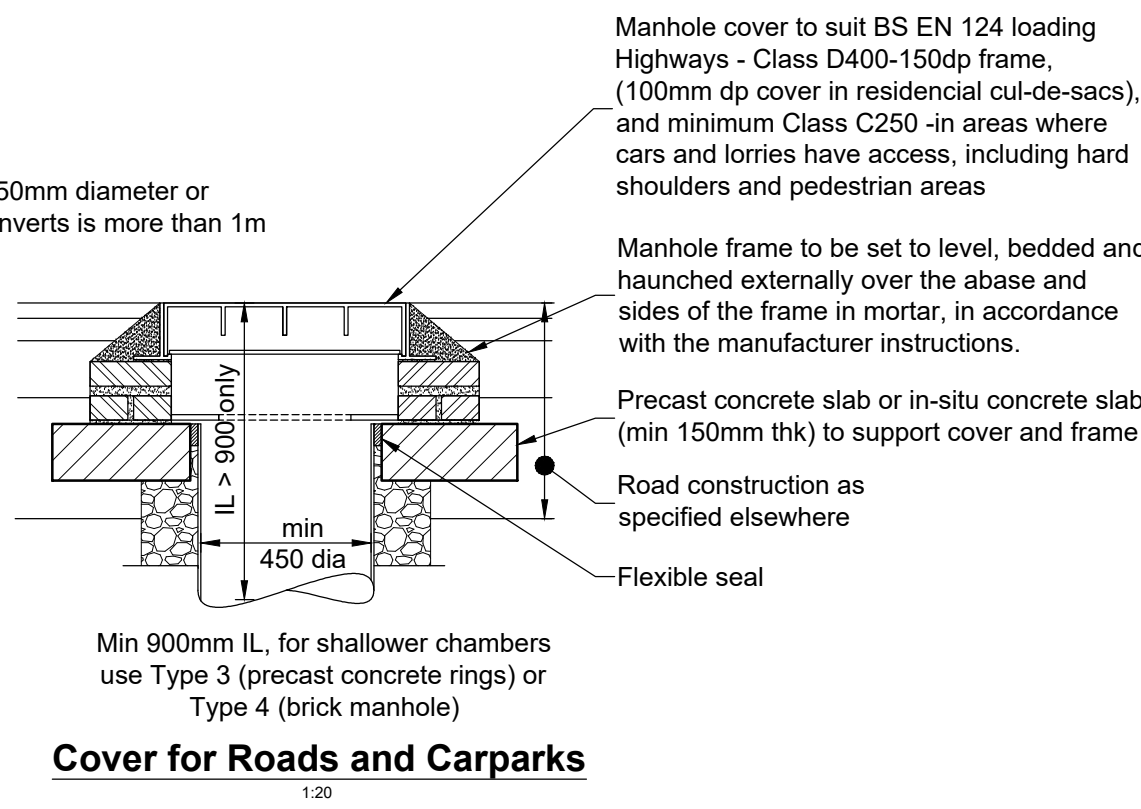


Polypropylene Inspection Chamber (PPIC) Detail

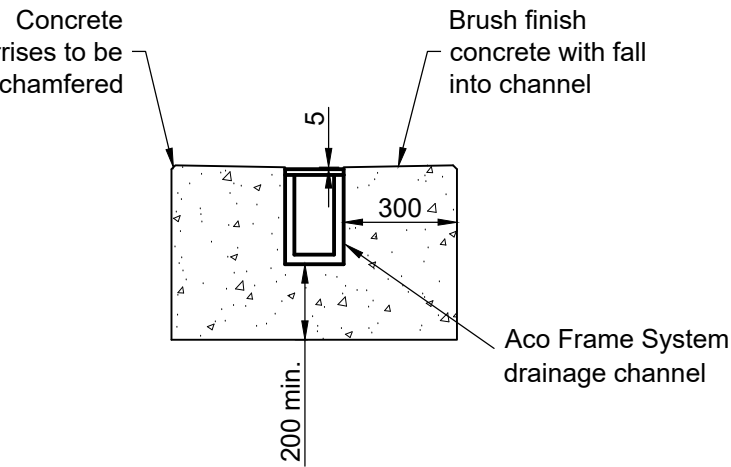


Typical Pipe Bedding With
Granular Bed and Surround

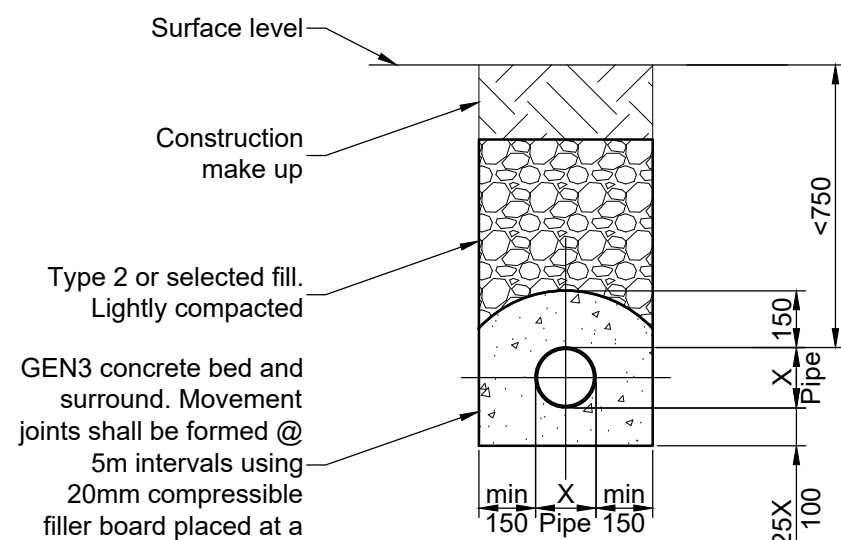
Granular bed and surround to be used where concrete bed and surround are not required.



Cover for Roads and Carparks

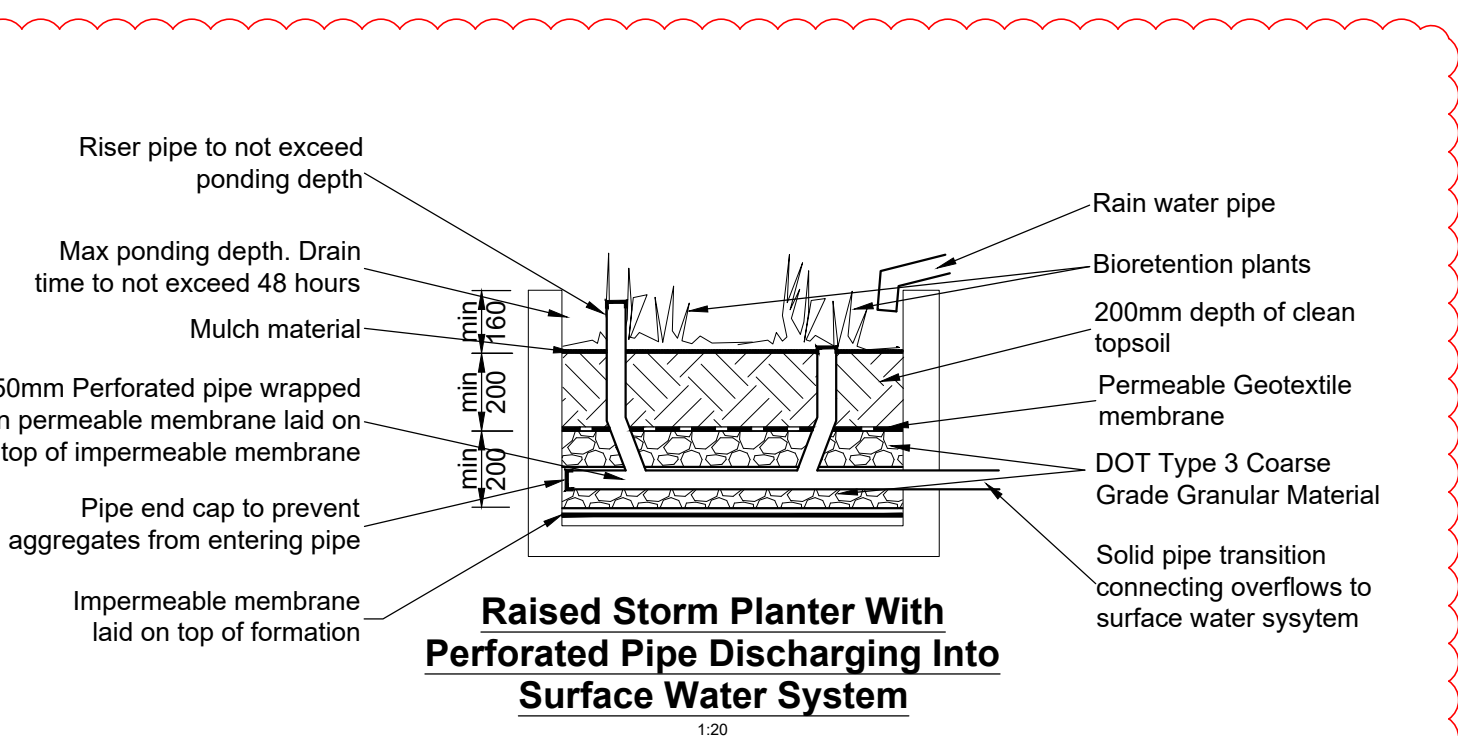


Typical Section Through
ACO/Channel Drain

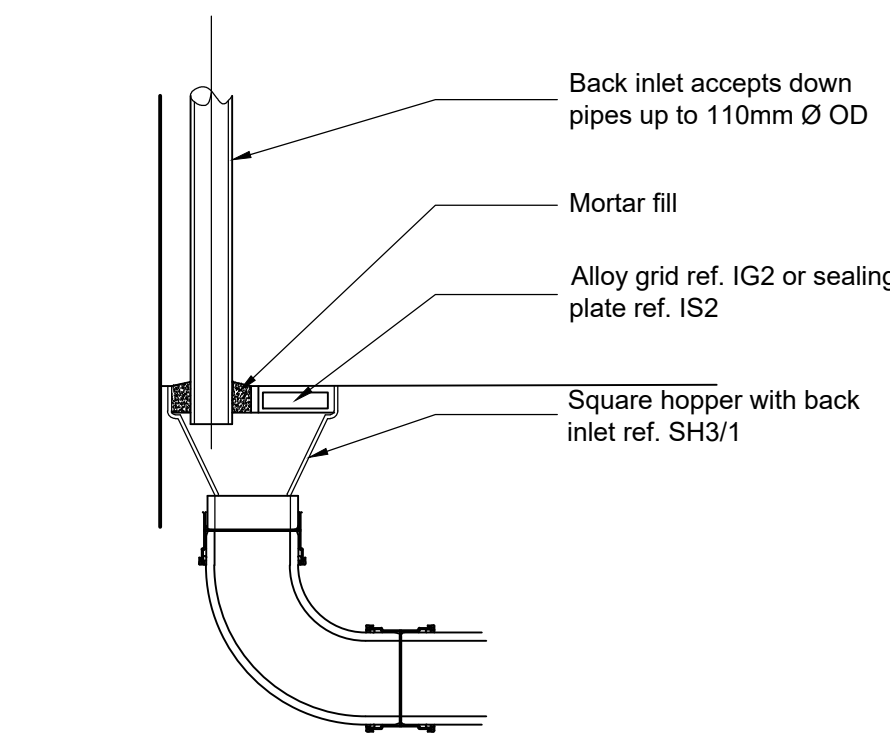


Typical Pipe Bedding With
Concrete Bed and Surround

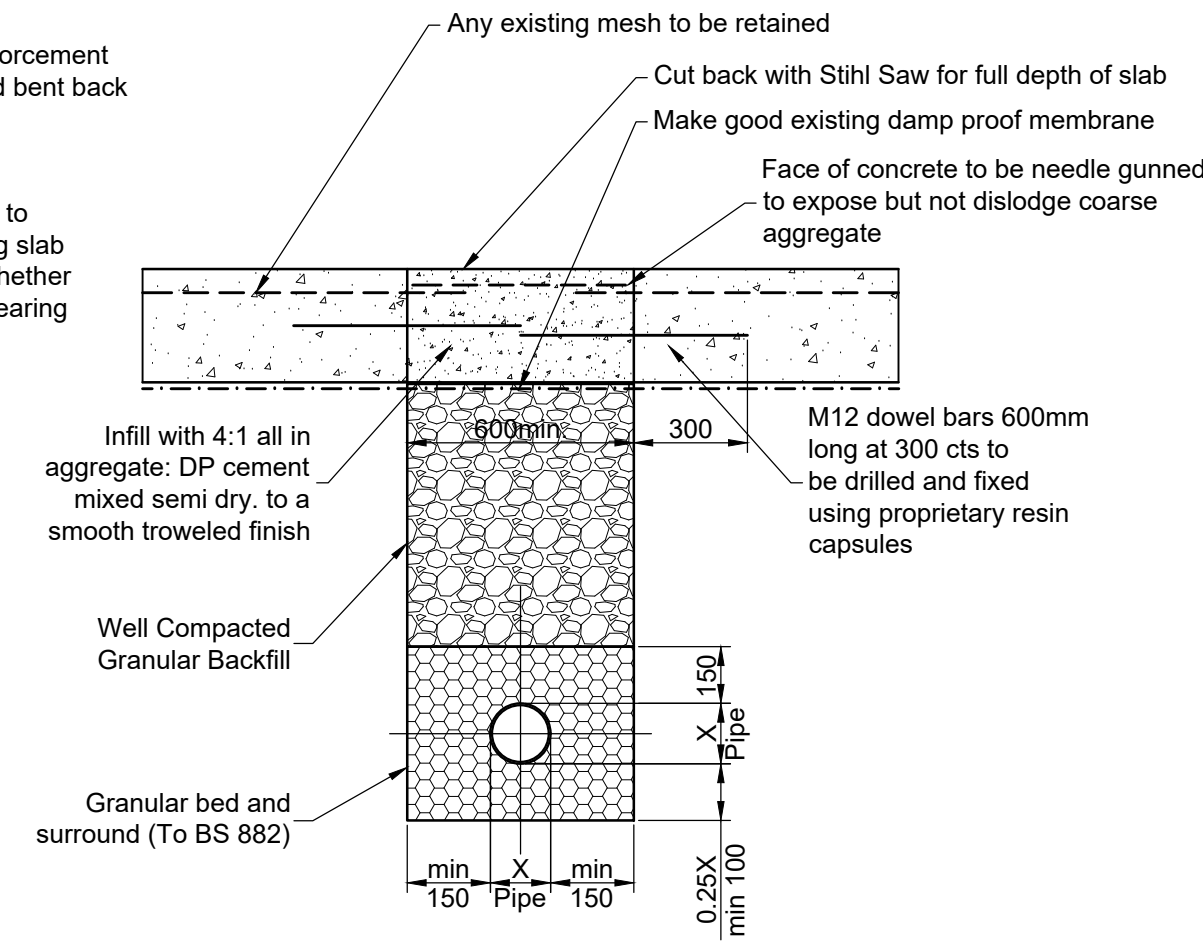
GEN3 concrete bed and surround to be used under paved areas where the depth between the finished construction level and the Barrel of the drain is less than 750mm.



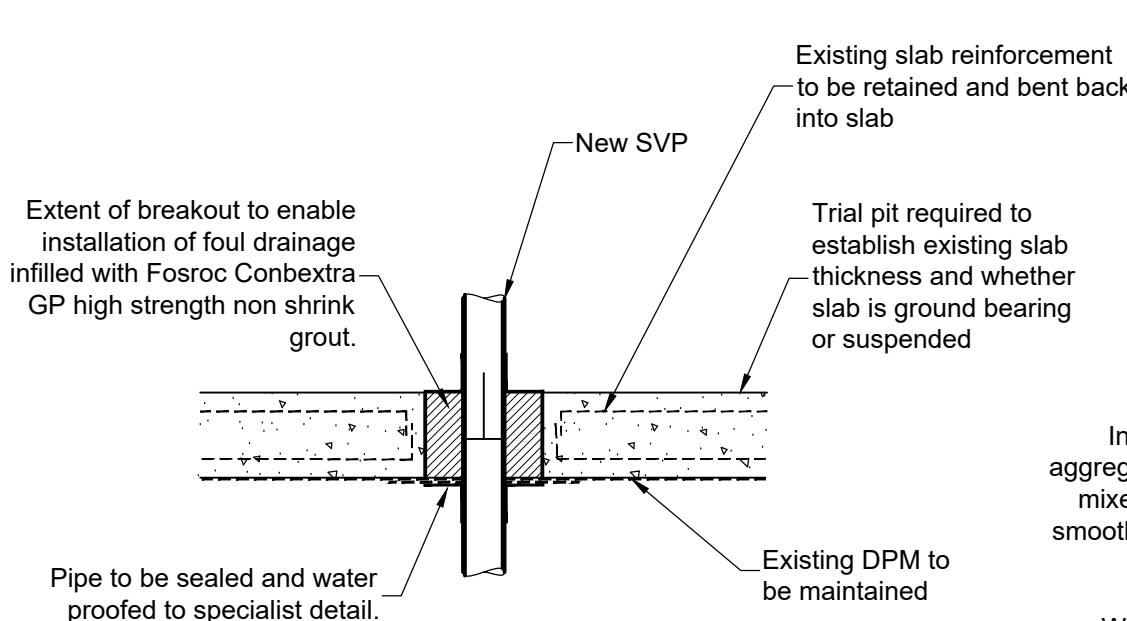
Raised Storm Planter With
Perforated Pipe Discharging Into
Surface Water System



Back Inlet Gully Detail



Typical Section Showing Floor
Works Above Pipework



Indicative Slab Break-Out
Remediation Detail for SVP

SAFETY, HEALTH & ENVIRONMENTAL HAZARD INFORMATION BOX.



The hazards noted below are in addition to the normal hazards and risks faced by a competent contractor when dealing with the types of works detailed on this drawing.

CONSTRUCTION RISKS:

- Deep Trenches
- Striking unforeseen Services
- Leptospirosis

MAINTENANCE / CLEANING RISKS:

- Leptospirosis

Notes:

1. DO NOT SCALE FROM THIS DRAWING.
2. All dimensions are in millimetres Unless Noted Otherwise (u.n.o.)
3. Drawing is to be read in conjunction with all relevant architect's drawings. Any inconsistencies should be reported to PRP immediately.
4. All levels and dimensions are to be checked on site before any work commences.
5. The Health and Safety at Work act is to be complied with at all times. Attention is drawn to the wearing of hard hats, reflectorised clothing, and the use of any other required safety equipment.

Drainage:

1. Invert levels of existing manholes to be checked on site prior to commencing any drainage works.
2. For positions of all rainwater pipes & foul outlets refer to Architect's drawings.
3. All joints between precast manhole components shall have a minimum uncompressed thickness of 10mm of proprietary bitumen or resin mastic sealant.
4. Storm & foul branch connections are to be laid at gradients of between 1:10 & 1:80
5. All in-situ concrete shall be minimum grade GEN3.
6. Precast concrete cover & reducing slabs to be heavy duty reinforced concrete to BS 5911.
7. Manhole covers & frames shall be manufactured in cast iron or ductile iron & shall comply with requirements of BS EN 124 & shall be kite marked or equivalent.
8. All completed work shall be suitably protected from damage by construction work. Damaged drainage will not be accepted. It is recommended that no heavy loading or underground work is permitted above or near unprotected drainage, and that dumpers, trucks, fork lifts or other heavy vehicles are not driven along or near pipe runs.

P3	19/01/2024	Raised storm planter added	MFS/ DE
P2	02/09/2021	Back inlet gully detail amended	AGS/ DE
P1	27/08/2021	Issued for comments	AGS/ DE
Rev	Date	Description	By / Chk



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Client:
JW Hughes

Architect:
Twenty First Architecture Ltd

Project:
Ascot House
Finchampstead Road
Wokingham, RG40 2NW

Title:
Drainage Construction Detail

Status:
PRELIMINARY

Engineer:	AGS	Date:	August 2021
Drawn:	AGS	Scales @ A 1:	As Shown
Checked:	DE		
Project No:	82054	Drg No:	102
		Rev:	P3

APPENDIX VI

SUSTAINABLE DRAINAGE OPERATION AND MAINTENANCE PLAN

Maintenance Schedule - All maintenance to be carried out in accordance with CIRIA 753

SuDS Feature	Maintenance Schedule	Required Action	Typical Frequency
Permeable paving	Monitoring	Monitor inpection chambers	Annually
	Monitoring	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitoring	Inspect for evidence of poor operation and/ or weed growth - if required, take remedial action	Three monthly, 48 hours after large storms in first six months
	Monitoring	Initial inspection	Monthly for three months after installation
	Remedial action	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)
	Remedial action	Remedial works 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
	Remedial action	Remediate and landscaping which through vegetation maintenance or soil slip has raised to within 50mm of the level of the paving	As required
	Occassional maintenance	Stabilise and mow contributing adjacent areas	As required
	Occassional maintenance	Removal of weed 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
	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 manufacturers recommendations - pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect most sediment
Manhole & Rodding Eye	Routine maintenance	Inspect manholes and remove any silt or debris from base and ensure that they are clean.	Six monthly
		Jet pipework to remove debris/silt from rodding eye	As required
Storm Planter	Monitoring	Inspect and document presence of wildlife	Annually or as required
		Inspect/check all inlets, outlets and overflows to ensure that they are in good condition and operating as designed.	Monthly
	Occassional maintenance	Repair/rehabilitate inlets, outlets, overflows and vents.	As required
		Remove nuisance and invasive vegetation	Annually or as required
		Re-mulch and re-seed to repair erosion	Six monthly
		Scarify and spike topsoil to prevent compaction and inprove infiltration	As required
		Check for poor vegetation growth, prune and trim dying shrubs	Six monthly
	Regular maintenance	Remove litter debris from catchment surface	Monthly
		Mulching	Monthly
		Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then six monthly or after heavy rainfall
Gully	Routine maintenance	Inspect gullies. Remove any silt or debris from base and ensure that are clean.	Six monthly
		Jet pipework to remove debris/silt	As required
Soft Landscaping	Regular maintenance	Replace any plants, to mainain planting density	As required
		Remove litter and surface debris and weeds	Quarterly
	Regular inspections	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly

APPENDIX VII**GENERAL CONDITIONS**

1. This report has been prepared and written specifically for the Client named in the introduction and is exclusively for his/her/their benefit. No reliance may be placed in the contents of this report by any third party except with the express agreement of the original Client and the written agreement of PRP. Such written agreement may require the payment of an additional fee.
2. The Recommendations section of this report only provides an overview of the guidance and should not be specifically relied upon in their own right but should be considered in relation to the whole report and the development described in this report.
3. This report has been prepared and written in the context of the proposals for the development of the site as stated by the Client and will not be valid in a differing context. Furthermore, new information, improved practices, or legislation may necessitate alterations to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of this report, it should be referred to us for re-assessment.
4. Any assessments made in this report are based on the ground conditions and as revealed by the test pits and boreholes undertaken by others and where appropriate other relevant data which may have been obtained for the site. The sources of such information are detailed in this report and while PRP use only such sources as are believed to be reliable, PRP will not be liable for the authenticity or reliability of information obtained from others.
5. Where data has been provided or is made available to PRP and this has been used in the report, it has been assumed that the information is correct. No responsibility can be accepted by PRP for inaccuracies within the data supplied.
6. The copyright in this report and other related plans and documents prepared by PRP is owned by them and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete copies of the report may however be made and distributed by the Client as an expedient in dealing with matters related to its commission.
7. This report has been prepared solely for the client's purposes in obtaining planning permission related to the proposed development indicated in the report.