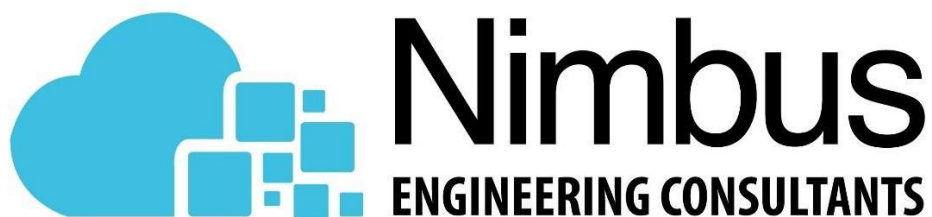


SuDS REPORT FOR
WARREN CREEK, THE WARREN,
CAVERSHAM, RG4 7TQ

DOCUMENT NUMBER.: C3710-R1-REV-A

PREPARED BY



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1. INTRODUCTION

1.1 Appointment

Nimbus Engineering Consultants Limited have been appointed to provide a solution for the management of Surface Water runoff and to ensure that there is no risk of flooding caused by the proposed erection of a new, detached house.

Reading Borough Council has imposed the following planning condition, relating to surface water:

“ Condition 9 states

No development, barring any demolition works down to existing ground levels only, shall commence on site until a Sustainable Drainage Strategy and associated detailed design, management and maintenance plan of surface water drainage for the site using SuDS methods has been submitted to and approved in writing by the Local Planning Authority. The plan shall include:

- a) a timetable for its implementation, and*
- b) 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.*

Prior to first occupation of the development hereby permitted, the sustainable drainage scheme for the site has been completed in accordance with the approved details. The sustainable drainage scheme shall be managed and maintained thereafter in accordance with the agreed management and maintenance plan.

Reason: To reduce the risk of flooding onsite or elsewhere in accordance with Policy EN18 of the Reading Borough Local Plan 2019.”

1.2 Objectives

This report will address the concerns raised by the Borough and provide details on a suitable Sustainable Urban Drainage System (SuDS) in order to reduce the surface water runoff leaving the site and show that the proposed development will not increase Flood Risk at the site, or elsewhere.

1.3 Limitations

The general limitations of this report are:

- A number of data and information sources have been used to prepare this report. Whilst Nimbus Engineering believes them to be trustworthy, Nimbus Engineering is unable to guarantee the accuracy of data and information that has been provided by others;
- This report has been prepared using the best data and information that was available at the time of writing. There is the potential for further information or data to become available, leading to changes in the conclusions drawn by this report, for which Nimbus Engineering cannot be held responsible.

2. GEOLOGY OF THE AREA

According to the British Geological Survey (BGS), the superficial deposits at the site are Alluvium, consisting of Clay, Silt, Sand and Gravel, as shown in Figure 1, below. The bedrock in the area is of the Seaford and Newford Chalk Formations, as shown in Figure 2.

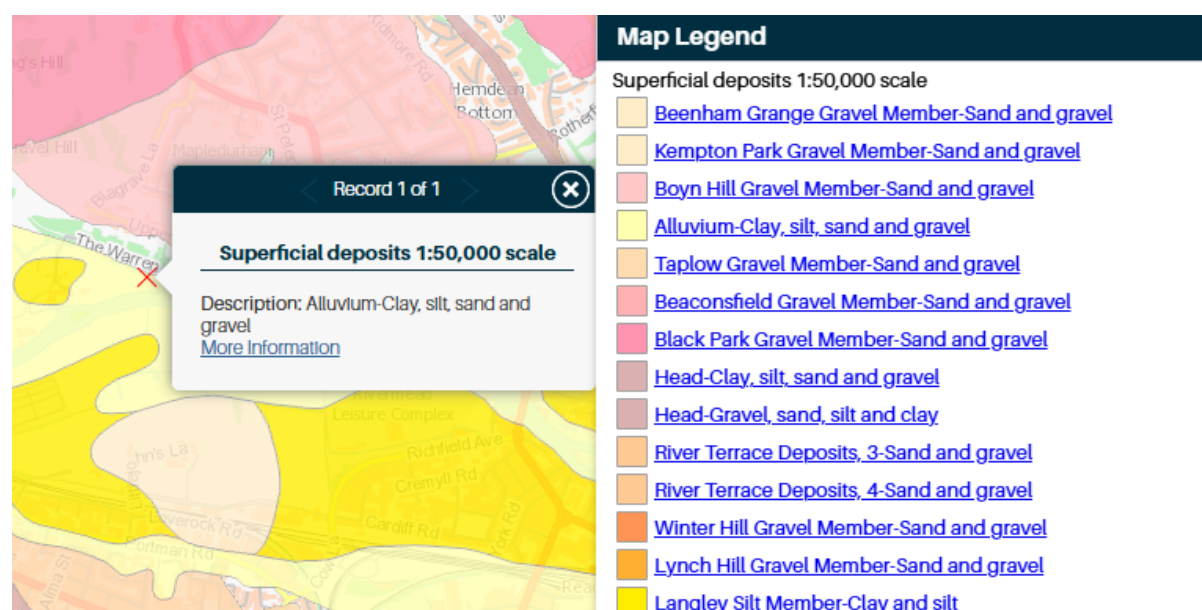


Figure 1- Superficial deposits at the site. (Source: British Geological Society Website (Contains British Geological Survey materials © URKI [2026]. Base mapping is provided by ESRI)).

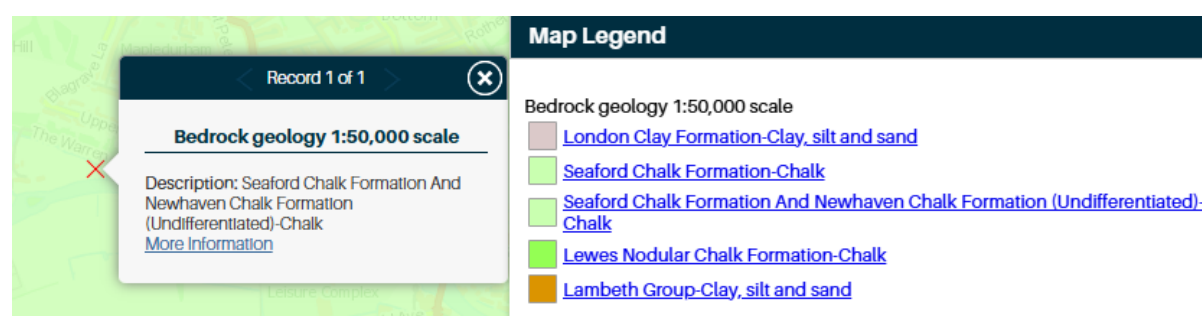


Figure 2- Bedrock at the site. (Source: British Geological Society Website (Contains British Geological Survey materials © URKI [2026]. Base mapping is provided by ESRI))

3. SUSTAINABLE URBAN DRAINAGE SYSTEMS

Surface water arising from a developed site should, as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.

Reducing the rate of surface water discharge from urban sites is one of the most effective ways of reducing and managing flood risk.

Traditional piped surface water systems work by removing surface water from our developments as quickly as possible, however this can cause various adverse impacts:

- Increased downstream flooding, and sudden rises in flow rates and water levels in local water courses.
- Reduction in groundwater levels and dry weather flows in watercourses.
- Reduce amenity and adversely affect biodiversity due to the surface water runoff containing contaminants such as oil, organic matter and toxic materials.

SuDS are defined as a sequence of management principles and control structures designed to drain surface water in a more sustainable fashion than conventional piped drainage techniques. SuDS should utilise the natural landscape of an area which as well as slowing down the rate of runoff provides a number of environmental, ecological and social benefits.

These include:

- Protection and enhancement of water quality. As well as providing on-site attenuation, SuDS treat the water, resulting in an improved quality of water leaving the site. This is achieved when the water passes through fine soils and the roots of specially selected plants. Pollutants washed off the hard landscaping by rainfall will be safely removed before the water reaches the natural receiving water course.
- A sympathetic approach to the environmental setting by providing opportunities to create habitats for flora and fauna in urban watercourses and open spaces.
- Meeting the amenity and social needs of the local community and residents in the creation of attractive green spaces.

The various types of SuDS include:

Permeable paving	
Soakaways;	
Swales and basins;	
Bioretention/ rain gardens;	
Green roofs and rainwater re-use;	

Preferably a combination of these techniques should be used as part of the surface water management train, and it is important for all stakeholders, such as developers, architects, landscape architects and engineers to work in order to determine a feasible solution.

The SuDS management train is shown below, and this has been followed when proposing the proposed Sustainable Urban Drainage Systems for this site.

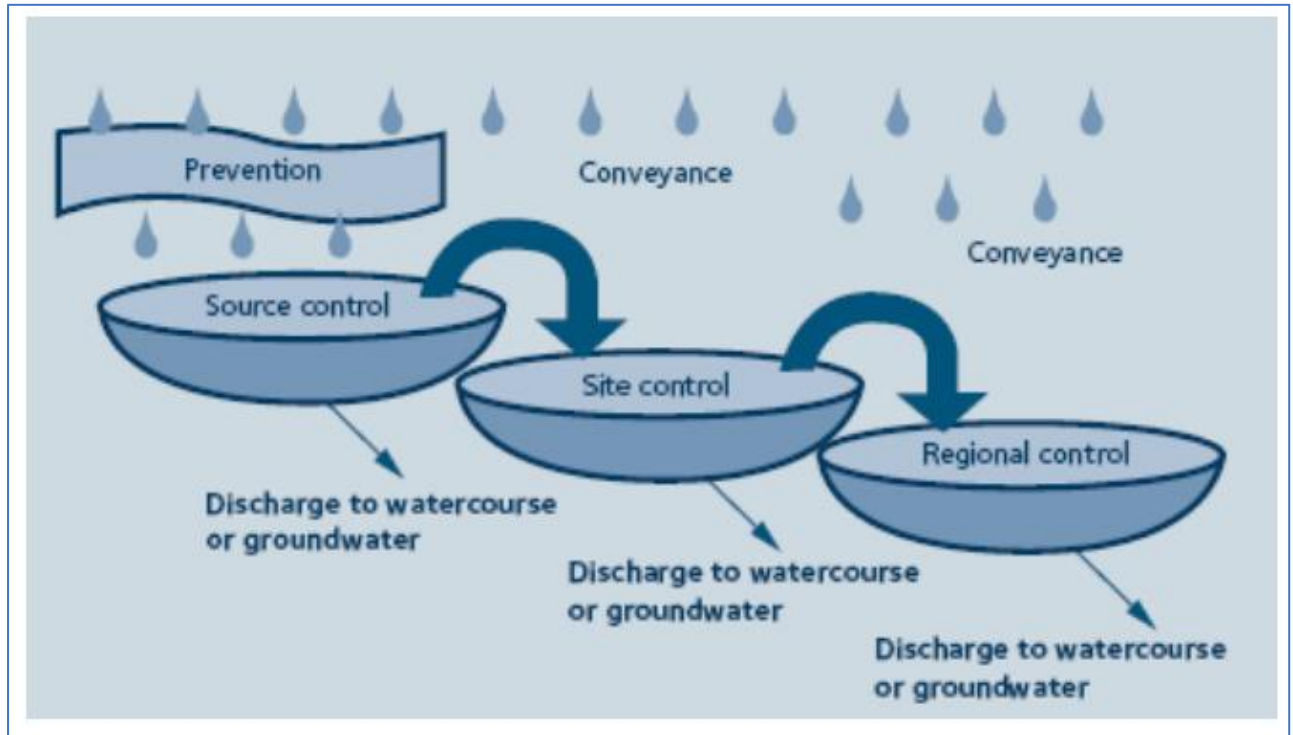


Figure 3 – SuDS Management Train

4. SuDS PROPOSALS FOR DEVELOPMENT

In accordance with the CIRIA SuDS Manual C753, the SuDS hierarchy has been considered in relation to the site-specific constraints and its surroundings. Table 1 below outlines the hierarchical approach considered for the development adjacent to Warren Creek, The Warren, Caversham, RG4 7TQ.

Sustainable Drainage Proposal	Description	Constraints/Comments	Appropriate
Rainwater Use as a Resource	Use of rainwater runoff for reuse, e.g. Rainwater harvesting tanks, Blue Roofs for irrigation	Two wall mounted rainwater harvesting tanks will be provided for the proposed dwelling. Locations can be seen in the plans provided in Appendix A.	Yes
Rainwater Full Infiltration to Ground (Source Control)	Infiltration devices and/or soakaways. Surface water runoff stored on site and gradually percolating into receiving ground	Due to the geological makeup of the ground, infiltration was deemed unfeasible on this site.	No
Rainwater Partial Infiltration to Ground (Source Control)	Installation of permeable/porous surfacing	All new hardstanding areas will be formed of porous surfacing, to deal with the surface water runoff from low storm events.	Yes
Rainwater attenuation in green infrastructure features for gradual release	The onsite storage of all surface water runoff which can then be gradually conveyed to a nearby watercourse, sewer or infiltration into the ground. Forms of green infrastructure features: Green Roofs, Raingardens, Ponds, Swales, Detention basins, Infiltration Trenches and raingarden planters	Green or sedum roofing was deemed unfeasible due to the proposed pitched roofs of the dwelling.	No

Rainwater discharge direct to a watercourse	All surface water runoff on site discharged at a restricted rate to a nearby watercourse	The remaining surface water runoff will be attenuated and discharged at a restricted rate of 1l/s to the adjacent river.	Yes
Controlled rainwater discharge to a surface water sewer or drain	All surface water runoff on site discharged at a restricted rate to a nearby surface water sewer or drain, all rainwater runoff stored in below ground attenuation features. E.g. oversized pipes or geo-cellular tanks	N/A	N/A
Controlled rainwater discharge to a combined sewer	All surface water runoff on site discharged at a restricted rate to a nearby combined sewer all rainwater runoff stored in below ground attenuation features. E.g. oversized pipes or geo-cellular tanks	N/A	N/A

Table 1: SuDS Control Measures for Development

The SuDS proposal for this site involves conveying the surface water runoff from roofs to the proposed outfall via down pipes and conveying to two rainwater harvesting tanks and an underground attenuation tank, before discharge to the adjacent watercourse.

5. PROPOSED SOLUTION

NPPF states that any proposed SuDS solution is to be proportionate to the nature and scale of the development.

In order to ensure that the SuDS management train has been considered fully, we have proposed two rainwater harvesting tanks, located on the western side of the proposed dwelling, to promote rainwater reuse. The locations of these can be found in the plans provided within Appendix A.

Additionally, all proposed hardstanding areas will be formed of porous surfacing, underlain by a hydrocarbon removing geotextile membrane in any access road and carparking areas, with the surface water runoff from any sloped areas to be caught by slot drains.

The preferred method of dealing with remaining surface water from the above SuDS components would be to treat and deal with it at source using infiltration techniques. However, due to the geological makeup of the soils this are not possible.

Therefore, the remaining surface water runoff from the site will be conveyed to a below ground, crate-style attenuation tank, at least 5m x 2.5m x 0.4m in size to store 4.75m³ of surface water, designed for a 1 in 100 Year Storm Event +45% Climate Chance Allowance. The proposed SuDS solution is shown in drawing C3710-01 in Appendix A.

The surface water runoff will then be discharged at a restricted flow rate of 1l/s to the nearby watercourse. The proposed discharge rate is higher than the existing site's greenfield rate, in order to avoid blockages, as per the previously accepted Flood Risk Assessment & SuDS Report.

To ensure a feasible solution was proposed, a hydraulic model was built using Infodrainage to simulate rainfall events for a 1 in 100-year storm event, with a 45% allowance for climate change, plus 10% for urban creep. The results of the hydraulic model can be found in Appendix B.

We believe the above solution is proportionate to the nature and scale of the development, with as much of the surface water runoff to be treated at source as possible, and any overflows from these SuDS components being dealt with, which represents a 98% reduction in surface water run off for the 1 in 100 year storm event.

6. TIMESCALE AND MAINTENANCE OF WORKS

All drainage works shall be completed prior to first occupation and there shall be no adoption of any of the drainage works within the site, the homeowners will be responsible to oversee the long-term maintenance of the drains. The following outline maintenance strategy sets out recommended timescales for maintenance of the proposed drainage works, in line with CIRIA SuDS Design Guide. A management and maintenance plan drawing has also been included in Appendix A.

- Regular inspection will comprise the inspection and cleaning of catchment, gutters, filters and tanks to reduce the likelihood of contamination, this is recommended to be carried out every 3 to 6 months.
- The catch pit chamber to the attenuation should be checked and emptied regularly to ensure there is no silting up of the system.

The following table outlines the maintenance requirements for the rainwater harvesting tank:

Maintenance schedule	Required action	Typical Frequency
Regular maintenance	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdraw devices, overflow areas, pumps, filters	Annually (and following poor performance)
	Cleaning of tank, inlets, outlets, gutters. Withdrawal devices and roof drain filters of silts and other debris	Annually (and following poor performance)
Occasional maintenance	Cleaning and/ or replacement of any filters	Three monthly (or as required)
Remedial actions	Repair of overflow erosion damage or damage to tank	As required
	Pump repairs	As required

Table 2: Operation and maintenance requirement for RWH systems.

The following table outlines the maintenance requirements for the proposed attenuation tank:

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockages by sediment, algae or other matter: remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/ rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Table 3: Operation and maintenance requirements for attenuation tanks.

The following table outlines the maintenance requirements for the flow control chamber:

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect from surface and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then 6 monthly intervals
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Orifice plates within plastic chambers or vortex controls to be jetted from the surface after heavy rainfall events to remove any debris or silt	As required
	Empty catchpits upstream of SuDS features to ensure no debris is passed downstream	3 months or as required
Remedial actions*	In the event of a blockage, a vortex flow control can be removed from the chamber via the lifting cabled located at the access, this will be cleaned at surface level and reinstalled into its original location	As required
	In the event of a blockage, the orifice plate should be jetted from surface, and if blockage is not cleared the orifice plate can be removed by removing fixing bolts. These fixing bolts should be checked and replaced if needed.	As required
Monitoring	Following installation it is important that any extraneous materials i.e. building materials: granular backfill, in-situ pour concrete etc are removed from the unit and the new flow control chamber is fully jetted down	Upon installation
	Inspect/check chamber channel for any debris or silt build-up. Upstream chambers should be checked at the same time as these monitoring works to ensure network is operating at full capacity.	Annually

Table 4: Operation and maintenance requirement for flow control chambers

*All Remedial Works should be carried out by a competent and certified contractor, with no access to chambers or removal of parts to be undertaken by homeowners

If upstream network of flow control chamber is regularly maintained, little maintenance is required within the chamber as there are no moving parts

7. CONCLUSIONS

The purpose of this report, and associated calculations and drawings, is to present a SuDS solution to satisfy Reading Borough Council that the proposed development will not increase surface water flows and hence, increase flood risk at the site or elsewhere.

As requested, SuDS have been incorporated into this design, in the form of:

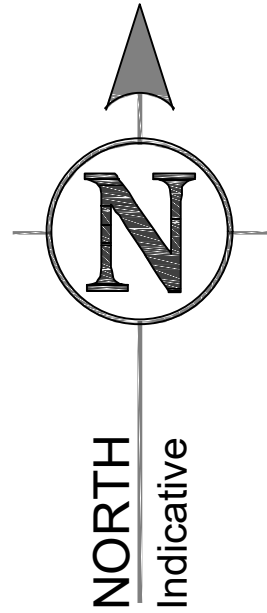
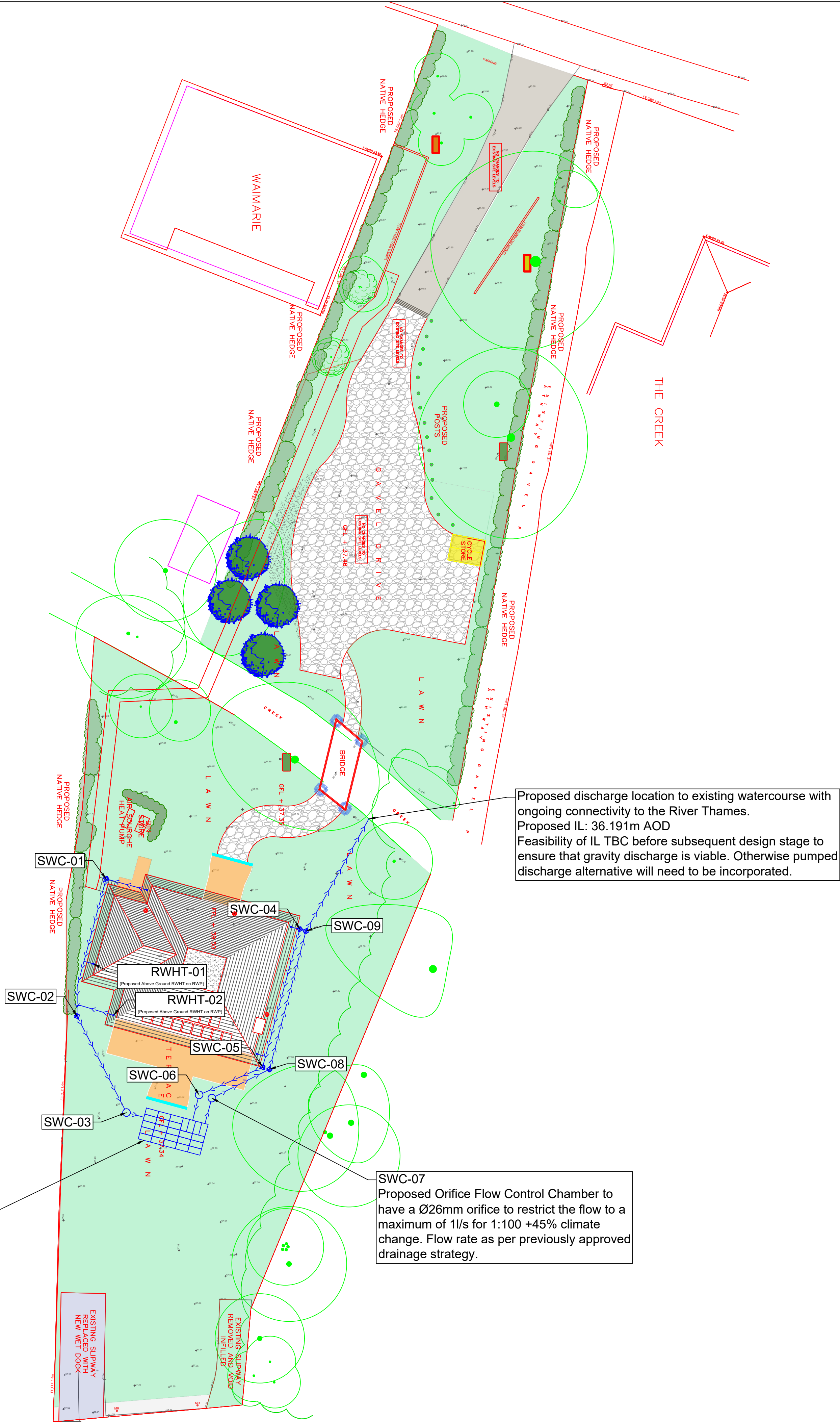
- Two rainwater harvesting tanks;
- Porous surfacing on all new hardstanding areas, with slot drains to collect the runoff from any sloped areas;
- An underground, crate-style attenuation tank sized for the 1:100+45% CC & 10% UC allowances.

The proposed development will ensure all surface water run off is dealt with onsite and, therefore, reduces flood risk at the site and elsewhere.

APPENDIX A – DRAWINGS

SCHEDULE OF SURFACE WATER CHAMBERS *COVER LEVELS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION					
NAME	TYPE	DIAMETER (m)	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH (m)
SWC-01	IC	0.450	37.420	36.920	0.500
SWC-02	IC	0.450	37.350	36.550	0.800
SWC-03	CP	0.600	37.330	36.400	0.930
SWC-04	IC	0.450	37.380	36.880	0.500
SWC-05	IC	0.450	37.360	36.560	0.800
SWC-06	CP	0.600	37.280	36.393	0.887
SWC-07	FCC	0.600	37.280	36.371	0.909
SWC-08	IC	0.450	37.360	36.326	1.034
SWC-09	IC	0.450	37.380	36.257	1.123

SCHEDULE OF SURFACE WATER PIPES				
PIPE NAME	START AND END STRUCTURE	DIAMETER (m)	LENGTH (m)	GRADIENT
SWP-01	SWC-01 to SWC-02	0.150	10.415	1:30
SWP-02	SWC-02 to SWC-03	0.150	8.960	1:60
SWP-03	SWC-03 to Att. Tank	0.150	1.966	1:100
SWP-04	SWC-04 to SWC-05	0.150	10.249	1:30
SWP-05	SWC-05 to SWC-06	0.150	6.870	1:40
SWP-06	SWC-06 to Att. Tank	0.150	1.275	1:100
SWP-07	Att. Tank to SWC-07	0.150	1.260	1:140
SWP-08	SWC-07 to SWC-08	0.150	6.730	1:150
SWP-09	SWC-08 to SWC-09	0.150	10.282	1:150
SWP-10	SWC-09 to Outlet	0.150	9.900	1:150



DRAWING TO BE PRINTED IN COLOUR.

KEY:

- Proposed Permeable Paving
- Proposed Site Boundary
- SW Inspection / Catchpit Chambers
- Surface Water UPVC Pipes
- Indicative Channel Drain Position
- Proposed Attenuation Tank

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PROJECT:
Warren Creek, The Warren, Caversham, RG4 7TQ

TITLE:
SuDS & SW Layout & Location Plan

CLIENT:
Mr Rob Arnold

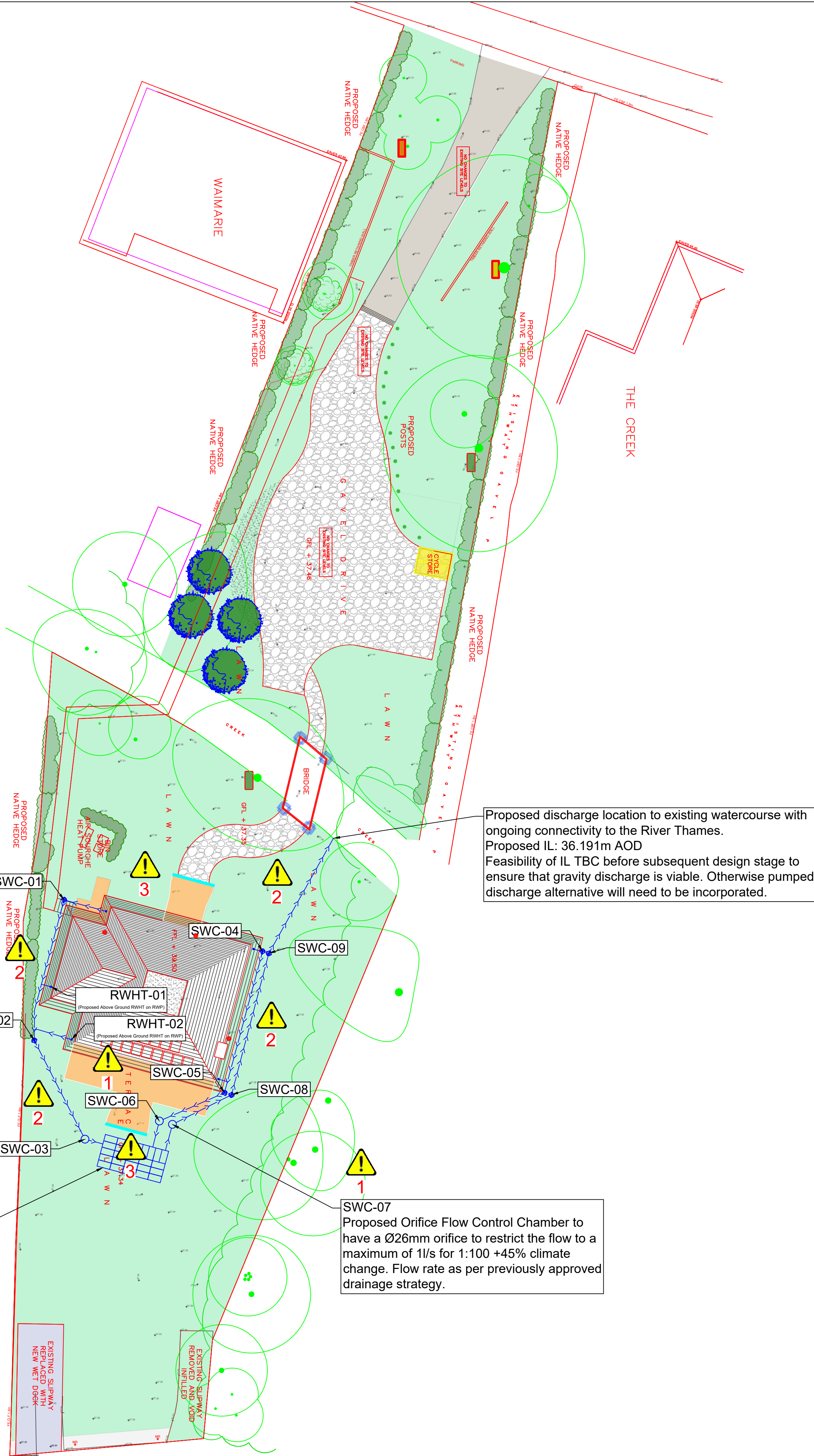
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DRN BY: M.HAM	SCALE: 1:200	DRAWING NUMBER: C3710-01	REV: A
DATE: 24-02-26	SIZE: A1		

MAINTENANCE REQUIREMENTS FOR ALL DRAINAGE FEATURES WITHIN DEVELOPMENT

MANAGEMENT COMPANY WILL BE FORMED AND BE RESPONSIBLE FOR ALL DRAINAGE FEATURES

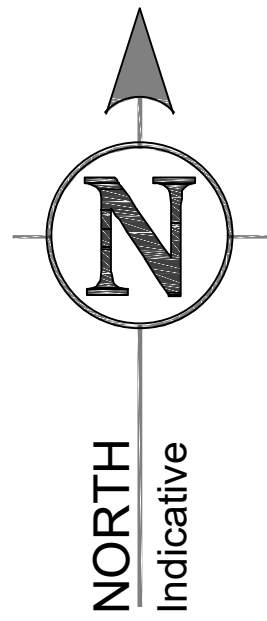
IDENTIFIER	MAINTENANCE REQUIREMENTS & REMEDIAL ACTIONS
1. CATCHPITS AND FLOW CONTROL CHAMBERS	CATCHPIT CHAMBERS ARE TO BE INSPECTED AND EMPTIED EVERY 3 MONTHS, ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO ENSURE THE SYSTEM DOES NOT CLOG UP WITH SILT OR GET BLOCKED.
2. DRAINAGE RUNS	ANY DEFORMED OR DAMAGED PIPEWORK IS TO BE IDENTIFIED BY A DRAINAGE/CCTV SURVEY AND IS TO BE REPLACED BY APPOINTED MANAGEMENT COMPANY.
3. CHANNEL DRAINS	CHANNEL DRAINS ARE TO BE INSPECTED AND ANY DEBRIS OR LITTER REMOVED EVERY 3 MONTHS OF AFTER A HEAVY RAINFALL EVENT TO ENSURE THERE ARE NO BLOCKAGES.
4. ATTENUATION TANK	INSPECT AND IDENTIFY ANY AREAS THAT ARE NOT OPERATING CORRECTLY MONTHLY FOR 3 MONTHS THEN ANNUALLY. IF REQUIRED, TAKE REMEDIAL ACTION. AS REQUIRED REPAIR/REHABILITATE INLETS/OUTLETS. EVERY 5 YEARS SURVEY INSIDE OF TANK FOR SEDIMENT BUILD-UP AND REMOVE IF NECESSARY ANNUALLY INSPECT SILT ACCUMULATION RATES.



Surface Water Underground Attenuation Tank from Polystorm Deep or similar approved product to be at least 5.0mx2.5mx0.4m deep with 95% void ratio to provide minimum 4.75m³ of net storage to avoid any flooding for 1:100 storm event +45% Climate Change.
CL: 37.280m AOD
Top of tank: 36.780m AOD
IL of tank: 36.380m AOD
Supplier of tank to provide structural and floatation calculations and contractor to follow their recommendations regarding storing, handling and installation.
Attenuation tank to be wrapped on sides and on bottom with welded impermeable membrane and on top to have geotextile to allow infiltration from the permeable pavement. Buildup on top of attenuation tank to be made from suitable granular material to allow infiltration.

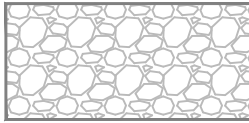
SWC-07
Proposed Orifice Flow Control Chamber to have a Ø26mm orifice to restrict the flow to a maximum of 1l/s for 1:100 +45% climate change. Flow rate as per previously approved drainage strategy.

Proposed discharge location to existing watercourse with ongoing connectivity to the River Thames.
Proposed IL: 36.191m AOD
Feasibility of IL TBC before subsequent design stage to ensure that gravity discharge is viable. Otherwise pumped discharge alternative will need to be incorporated.



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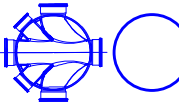
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Proposed Permeable Paving



Proposed Site Boundary



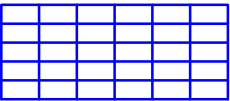
SW Inspection / Catchpit Chambers



Surface Water UPVC Pipes



Indicative Channel Drain Position



Proposed Attenuation Tank

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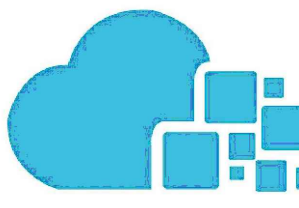
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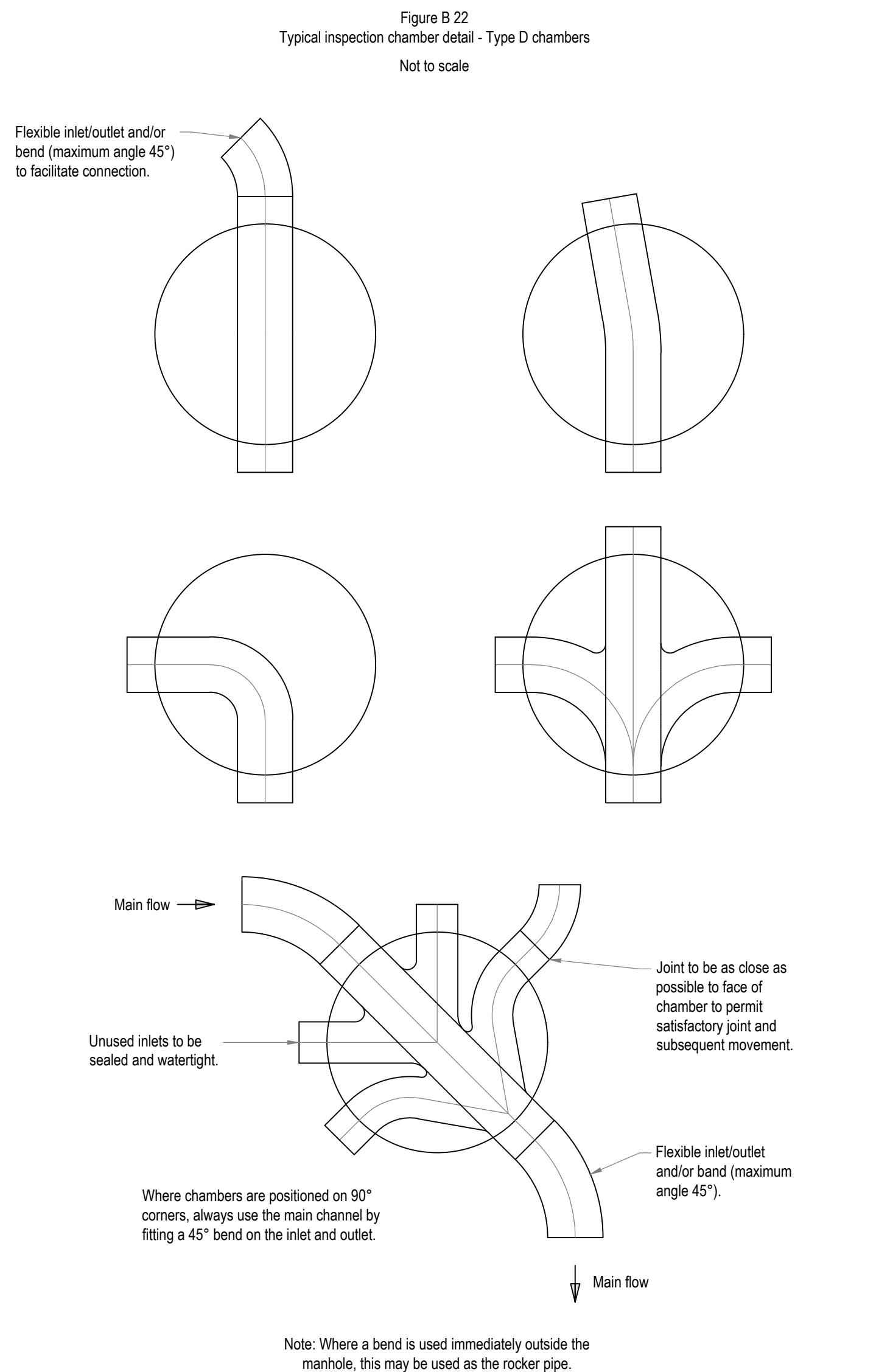
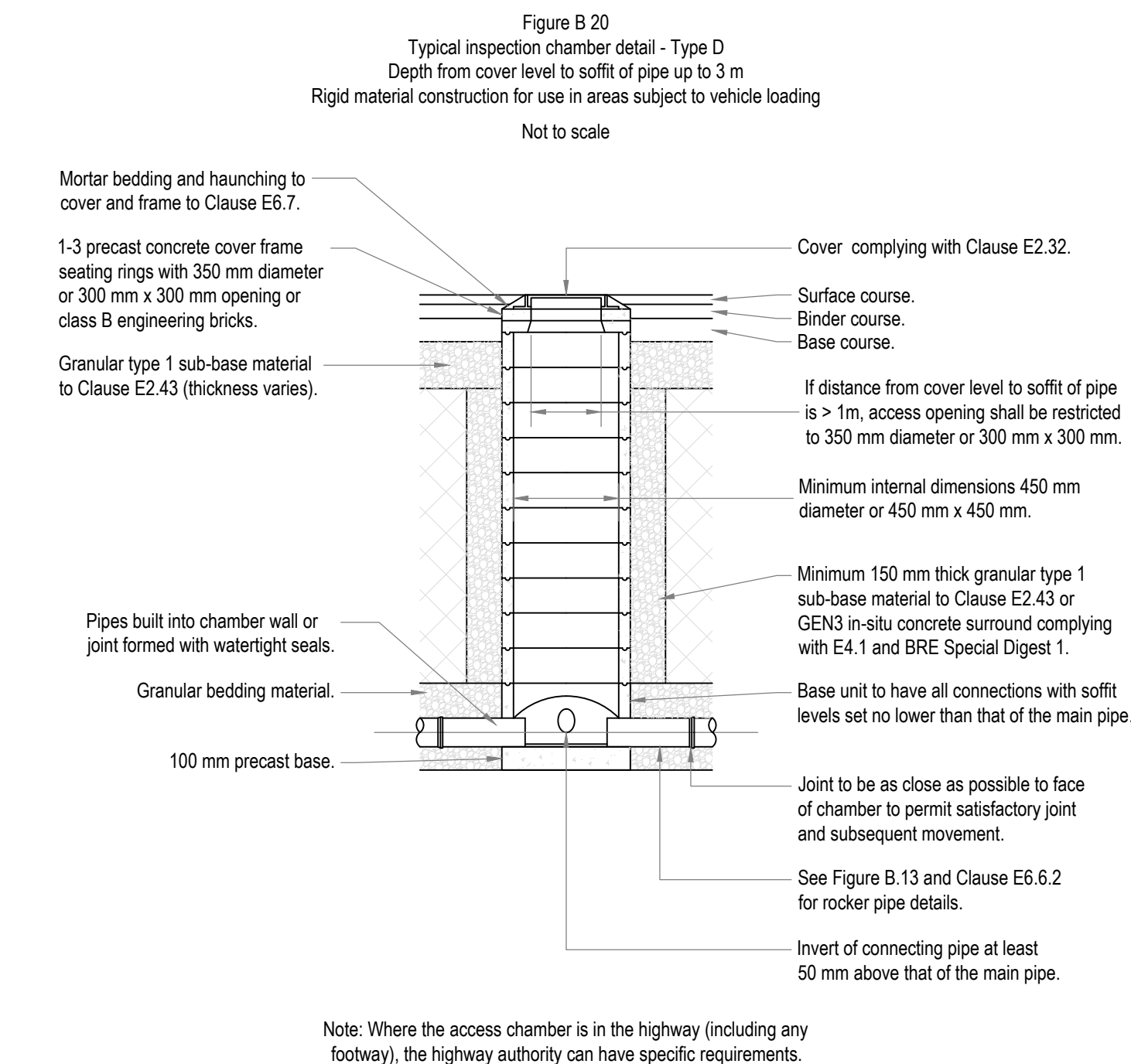
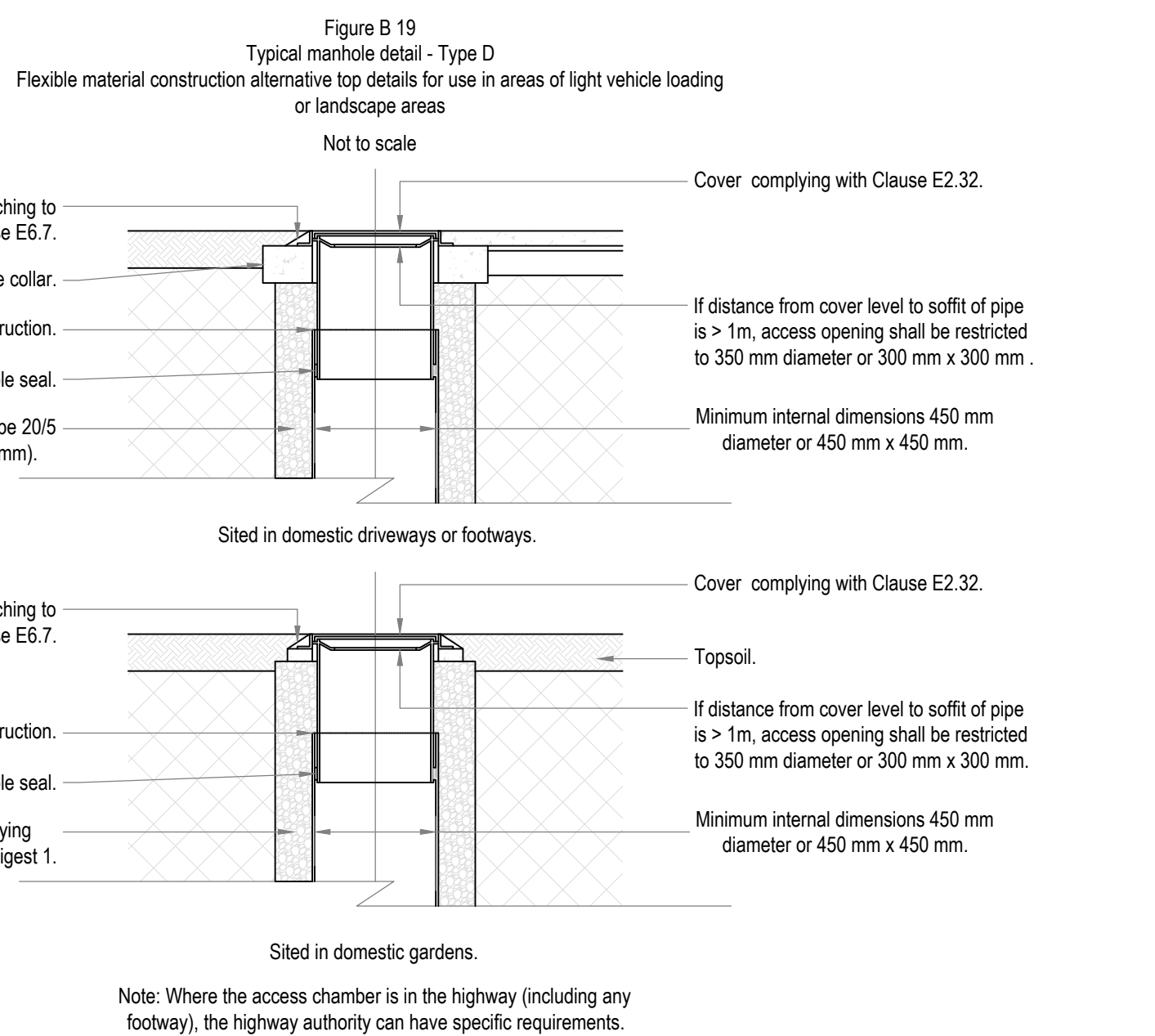
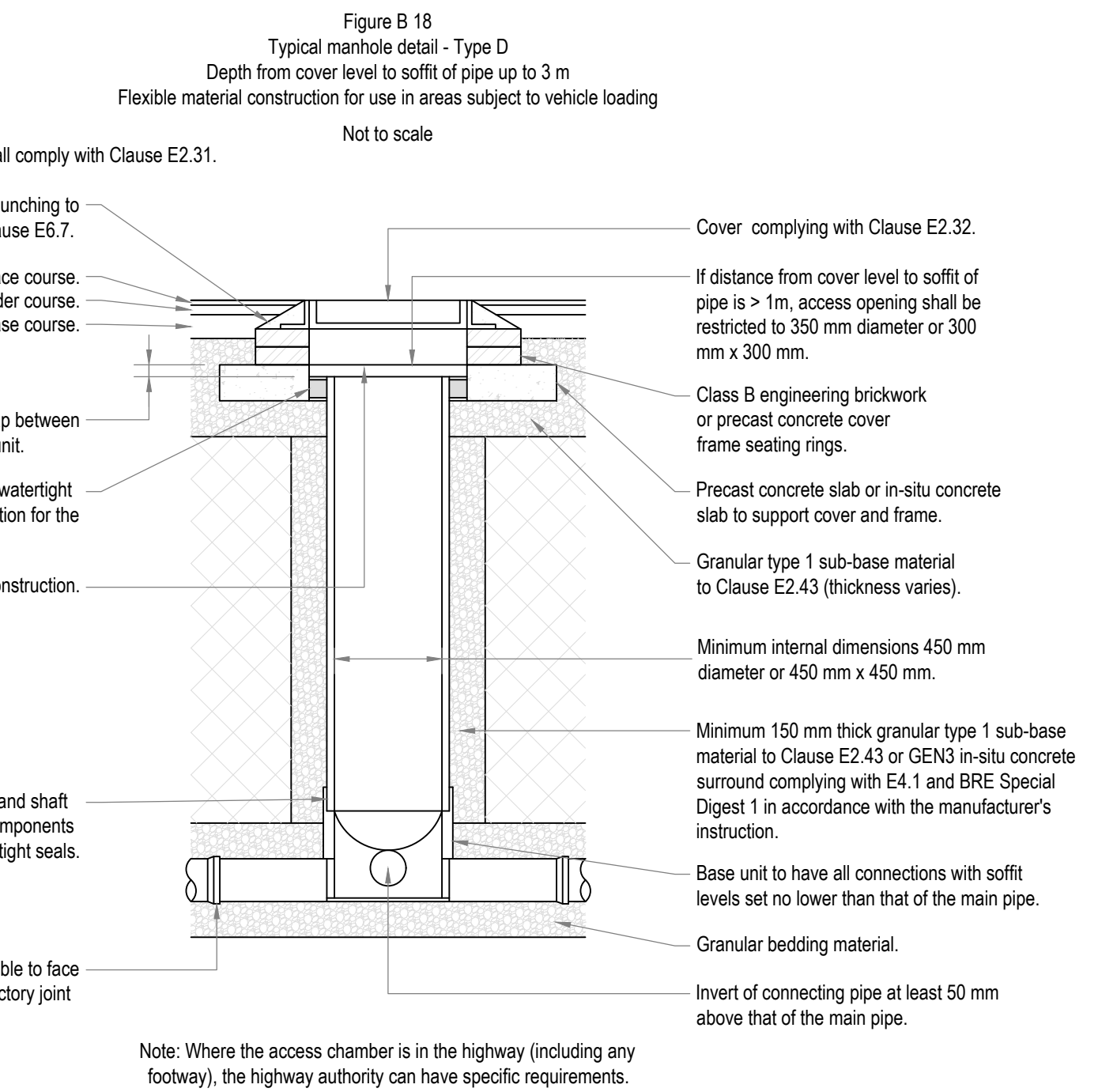
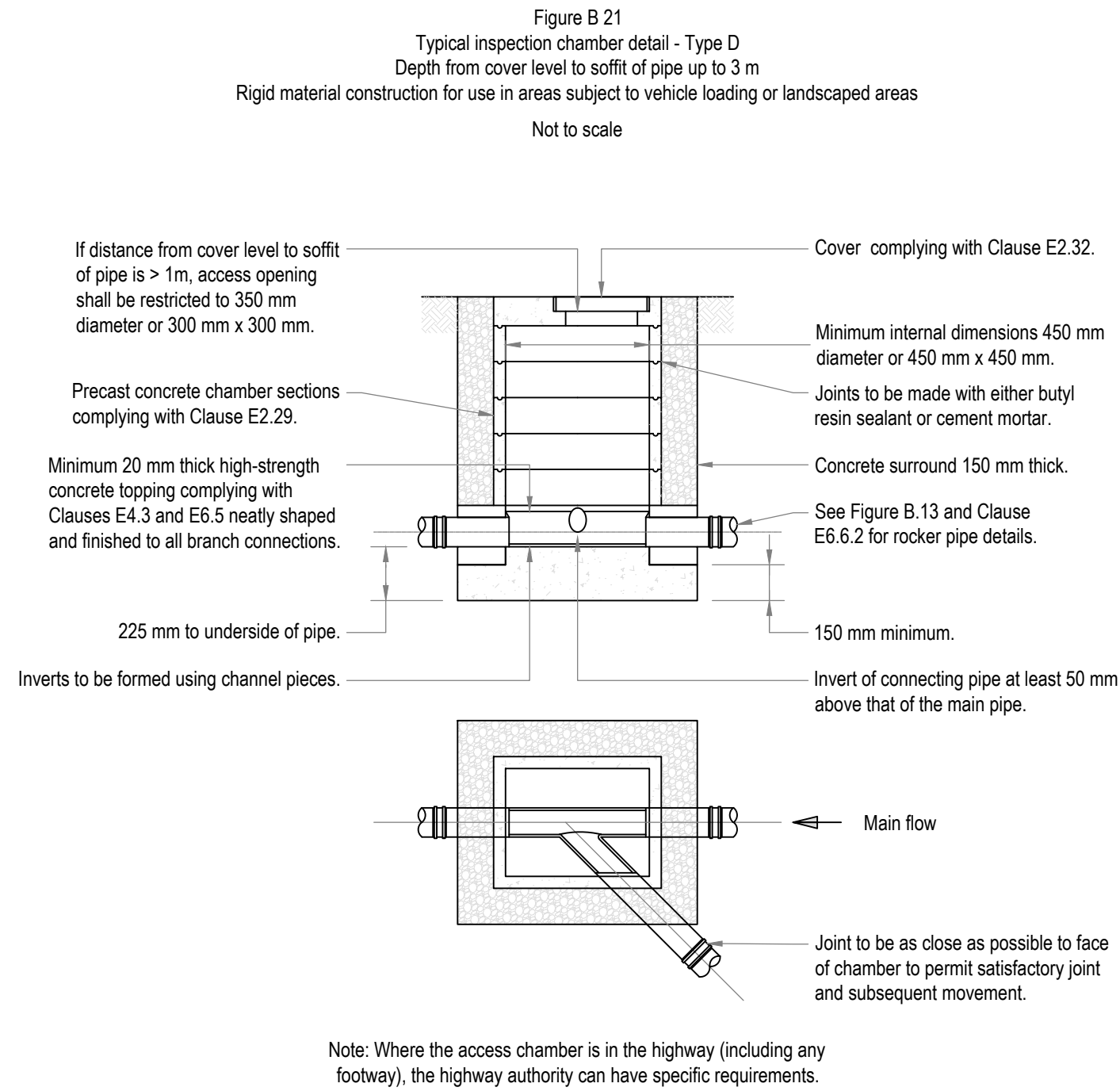
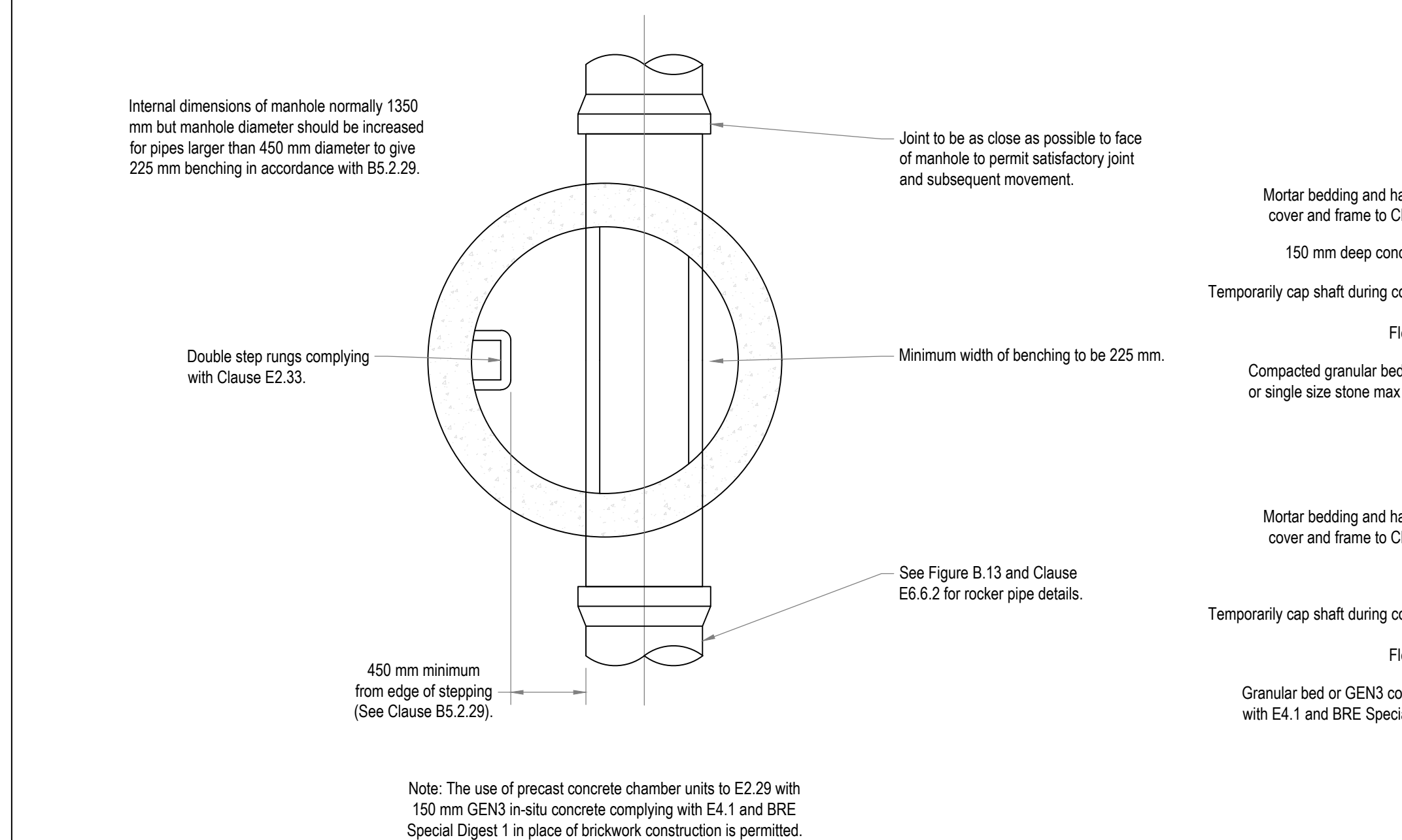
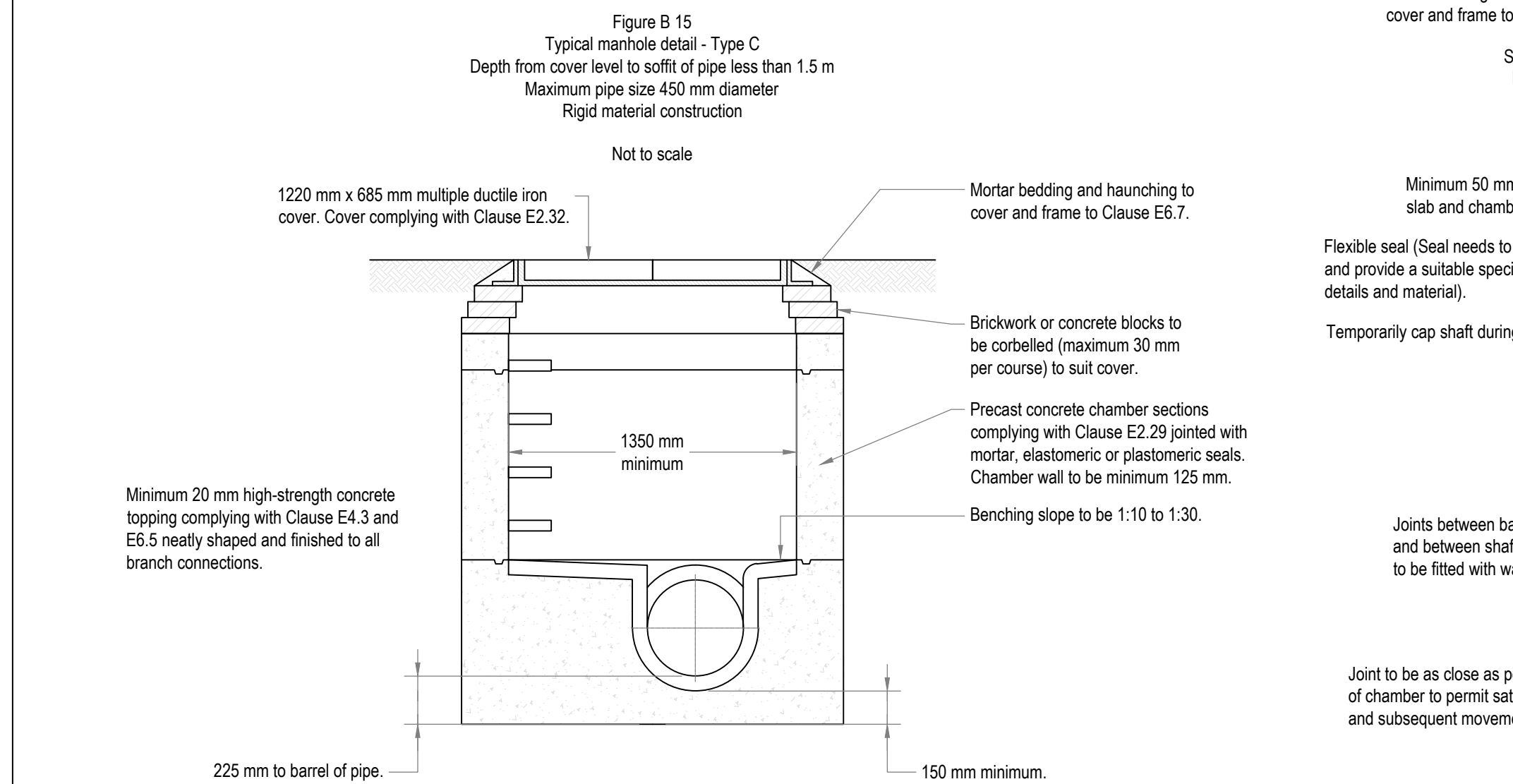
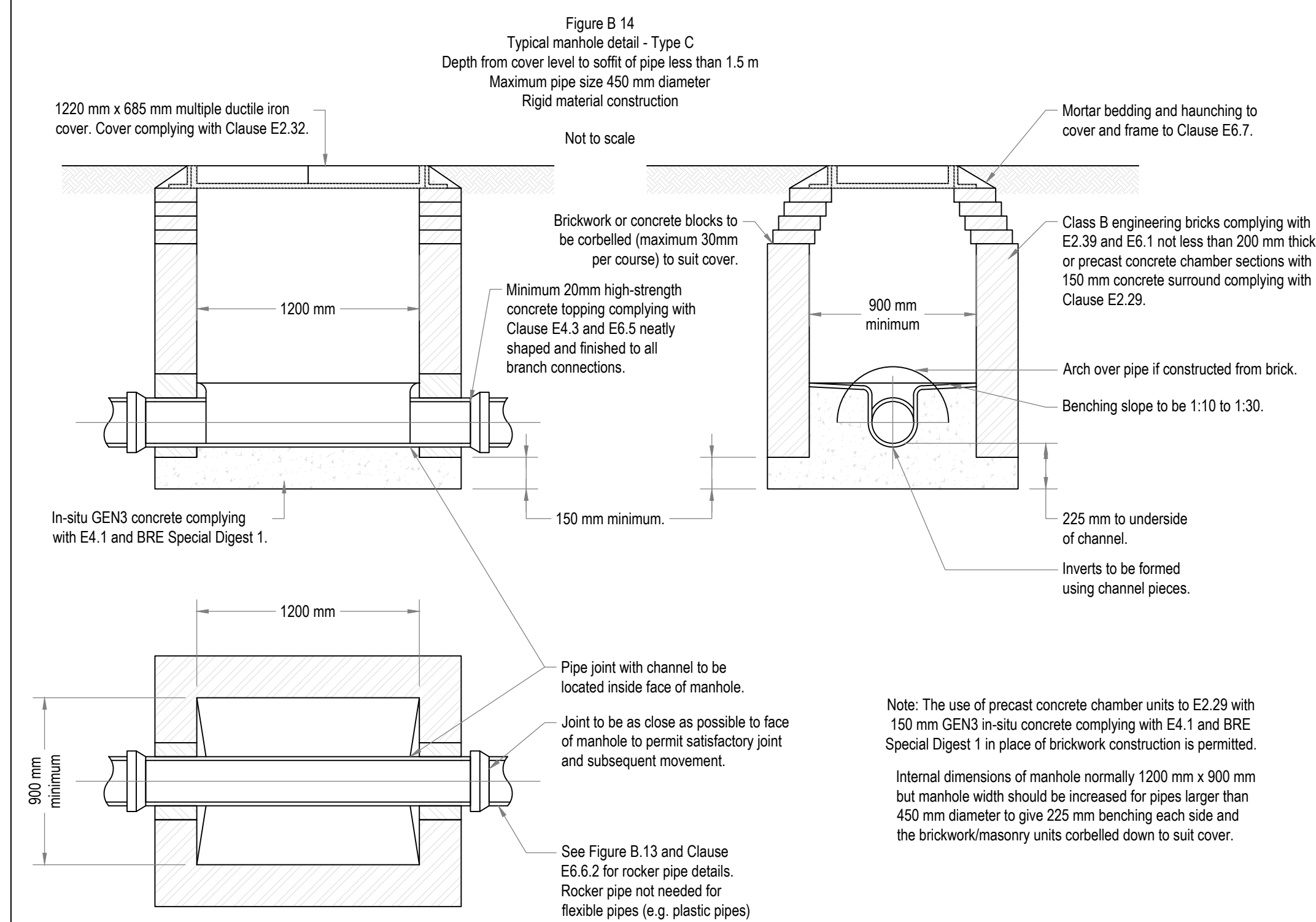
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Warren Creek, The Warren, Caversham, RG4 7TQ

TITLE:
SuDS Management & Maintenance Plan

CLIENT:
Mr Rob Arnold

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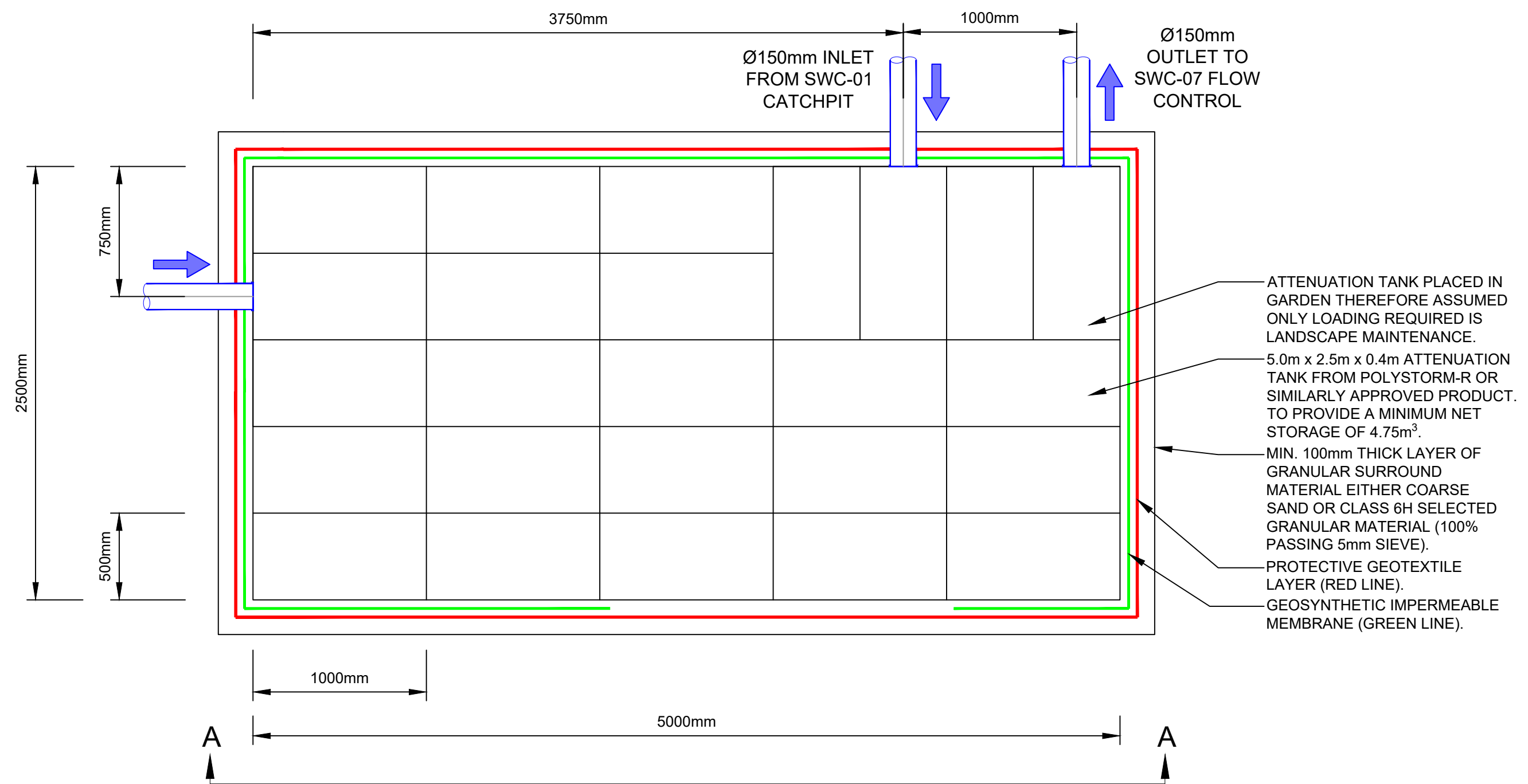
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Warren Creek, The Warren, Caversham, RG4 7TQ

TITLE:
Standard Drainage Details - Sheet 01 of 03

CLIENT:
Mr Rob Arnold

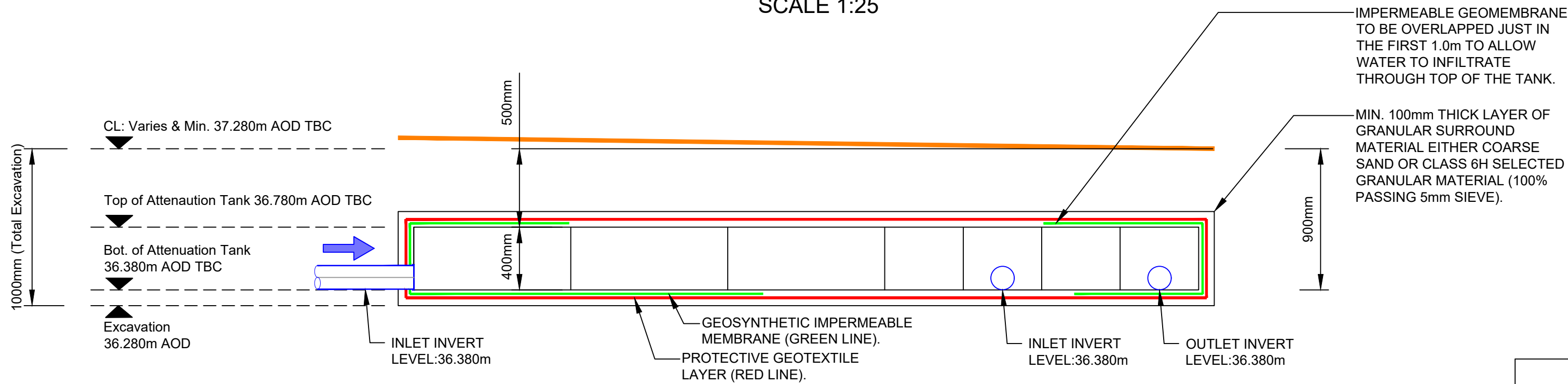
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PROPOSED ATTENUATION TANK - PLAN VIEW

SCALE 1:25

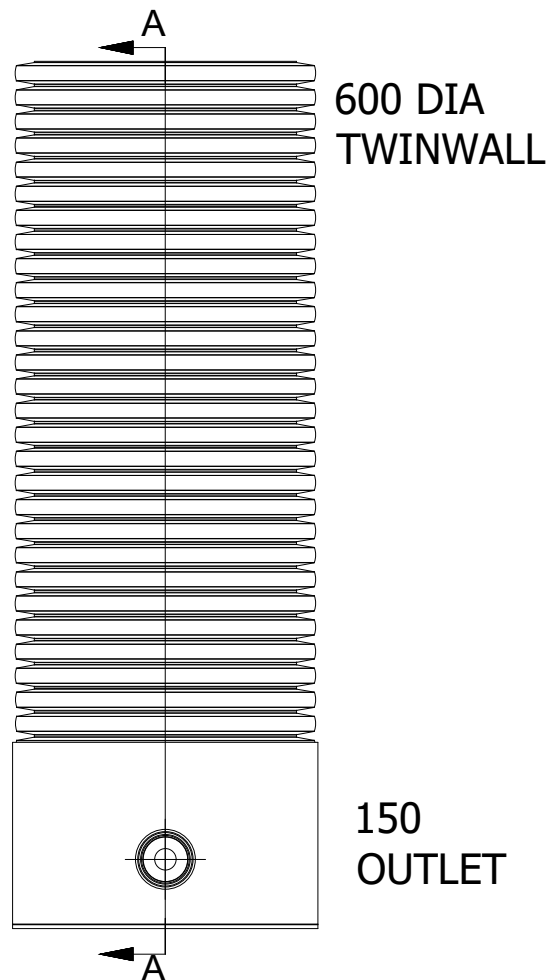


PROPOSED ATTENUATION TANK - SECTION A-A

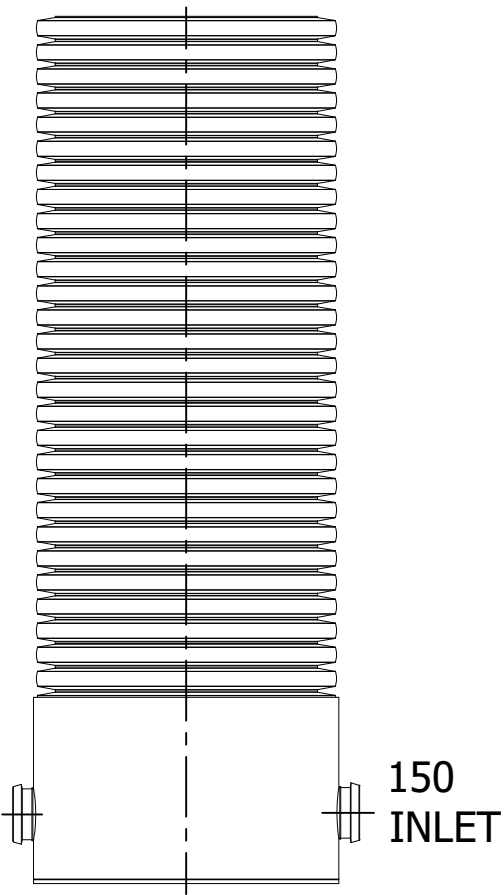
SCALE 1:25

POLYSTORM CELLS
Product Code: PSM1, PSM1A & PSM2

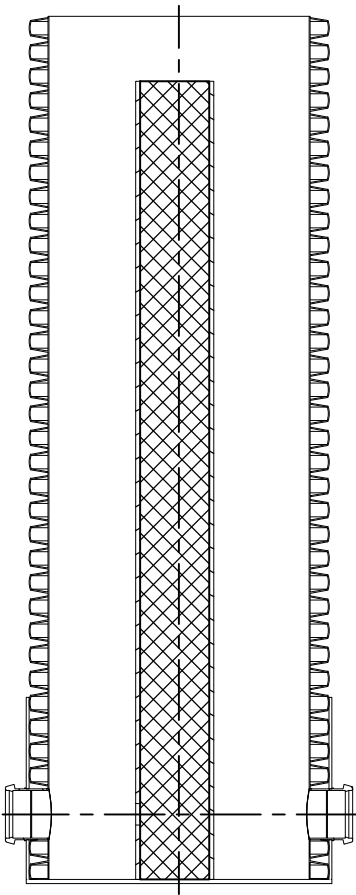
POLYSTORM TABLE									
NAME	CODE	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	A (mm)	VERTICAL STRENGTH (kN/m²)	LATERAL STRENGTH (kN/m²)	COLOUR	MATERIAL
Polystorm	PSM1	1000	500	400	25	440	63	Grey	Prime Polypropylene
Polystorm - R	PSM1A	1000	500	400	25	610	63	Black	Recycled Polypropylene
Polystorm Lite	PSM2	1000	500	400	25	200	40	Black	Recycled Polypropylene



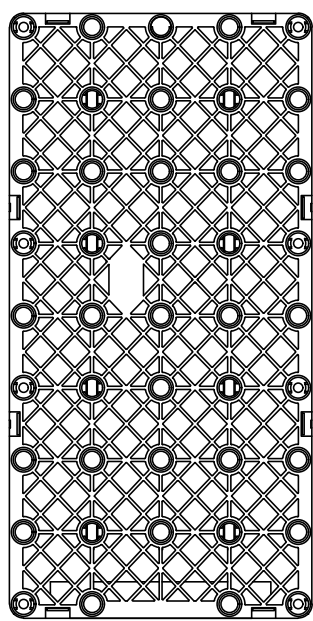
REQUIRED Ø26mm ORIFICE
OUTFLOW SET TO
DISCHARGE AT MAX 1.0l/s
FOR 1:100 YEARS + 45%CC



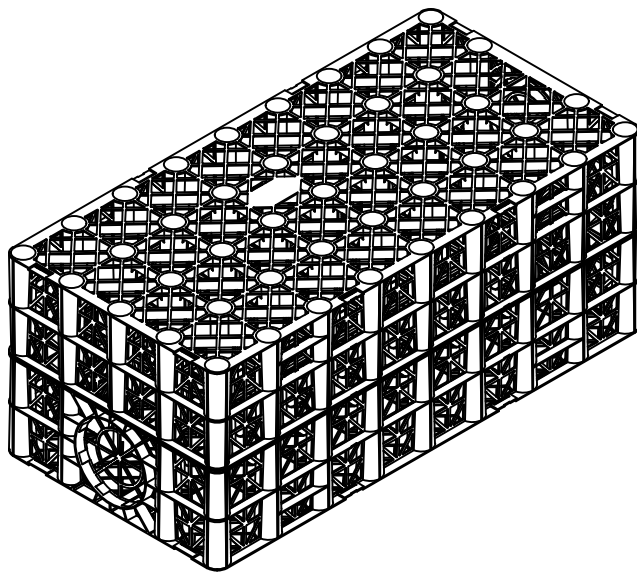
INLET / OUTLET OPTIONS
160 (en1401)
150 TWINWALL



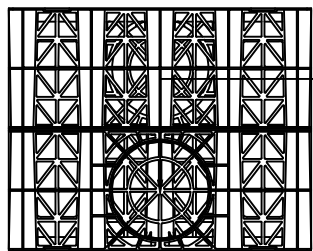
SECTION A-A



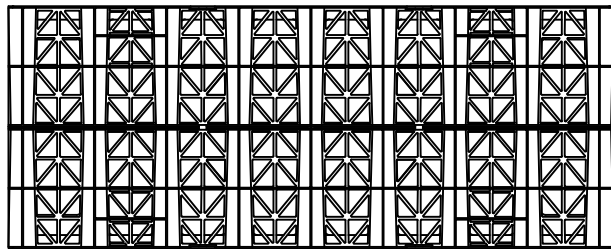
PLAN VIEW
NOT TO SCALE



ISOMETRIC VIEW
NOT TO SCALE



END ELEVATION
NOT TO SCALE



SIDE ELEVATION
NOT TO SCALE

NOT FOR CONSTRUCTION

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REV	DATE	DRAWN	DESCRIPTION	CHECK	APPR.
A	24-02-26	M.HAM	For Information.	SL	SL

PROJECT:
Warren Creek, The Warren, Caversham, RG4 7TQ

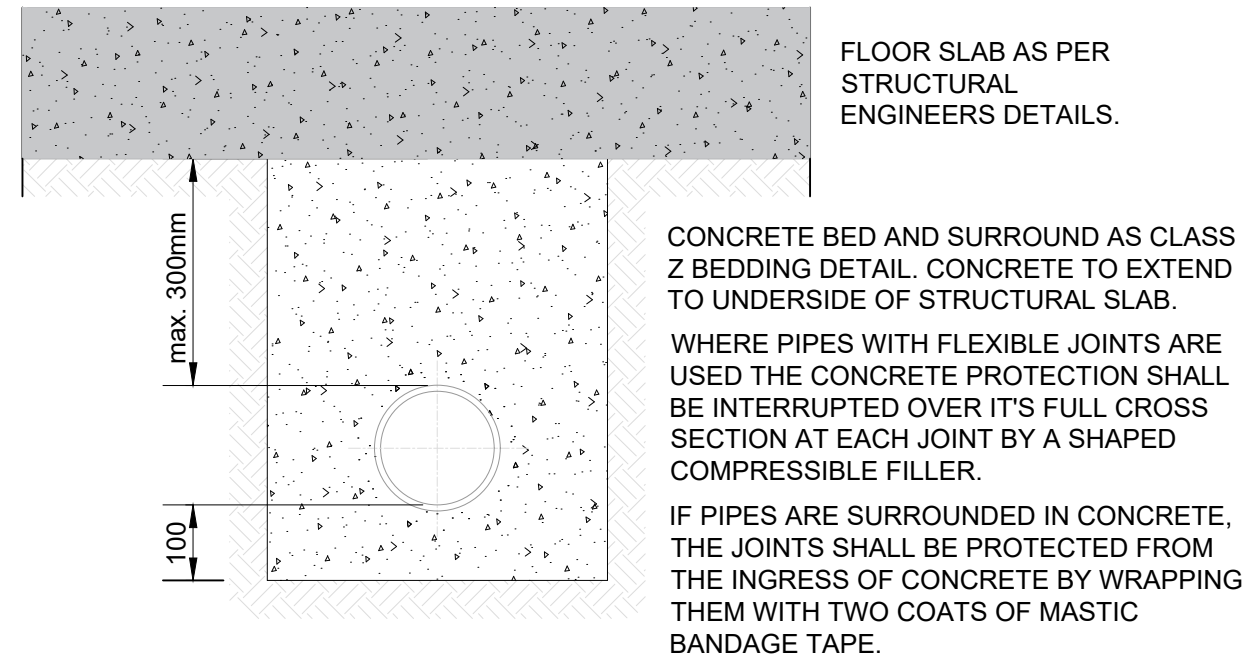
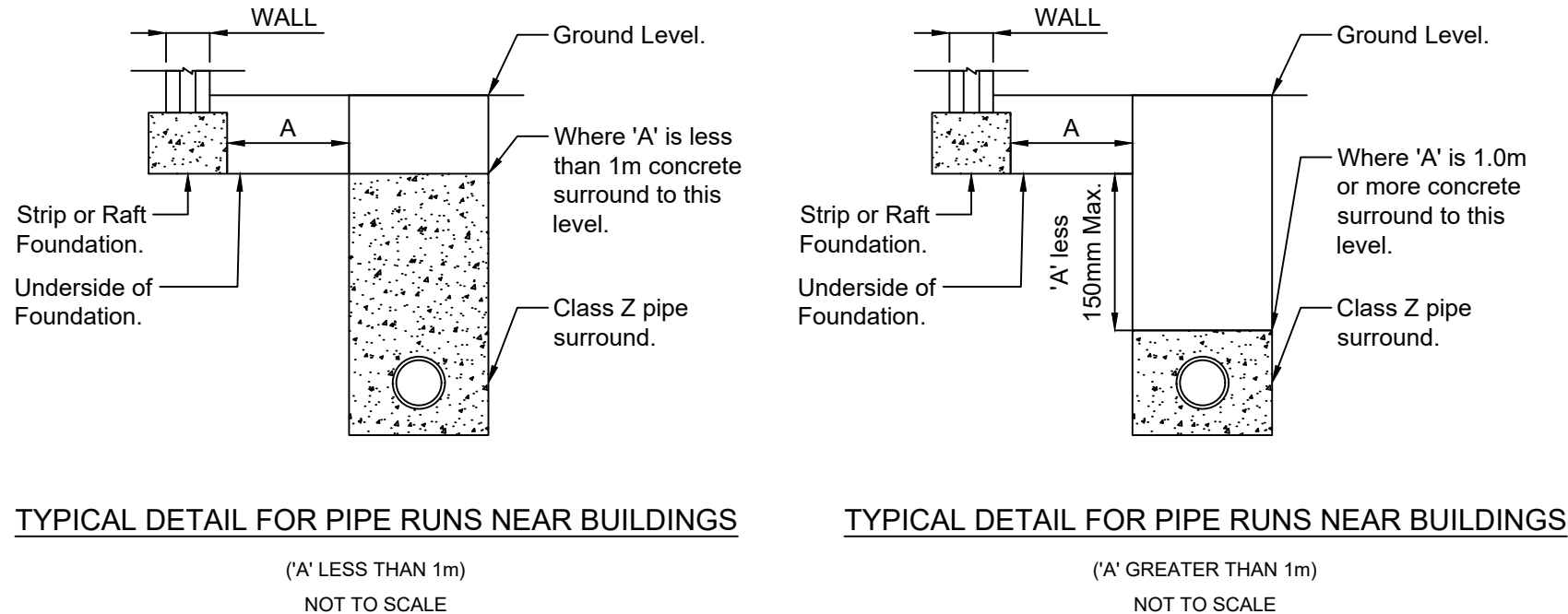
TITLE:
Standard Drainage Details - Sheet 02 of 03

CLIENT:
Mr Rob Arnold

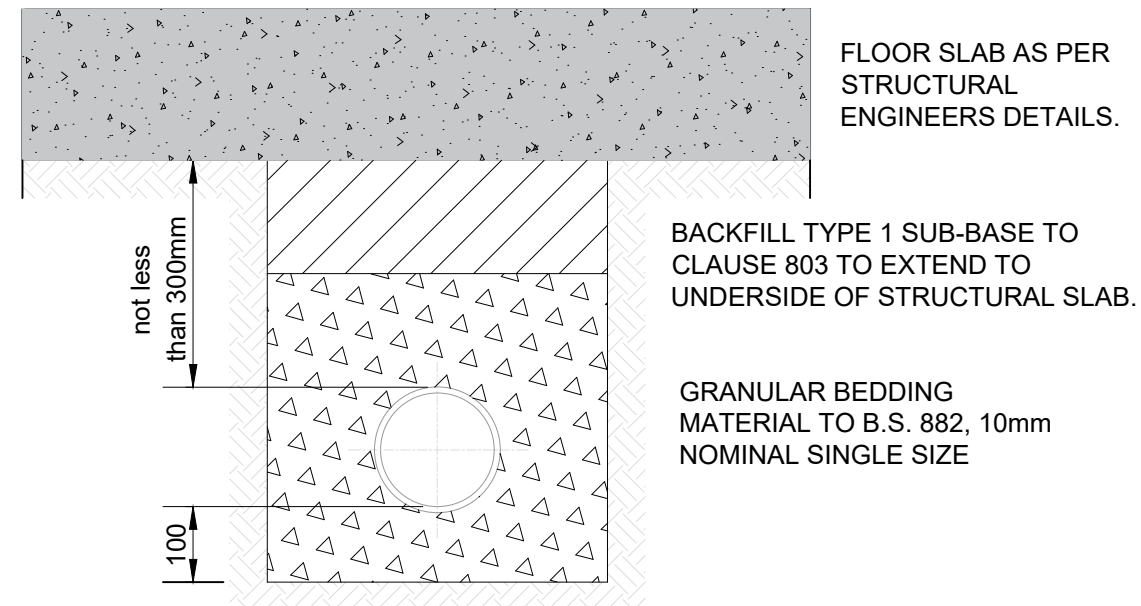
Nimbus
ENGINEERING CONSULTANTS
www.nimbusengineering.co.uk
info@nimbusengineering.co.uk

CHECKED BY: S.L.	DATE: 24-02-26	APPROVED BY: S.L.	DATE: 24-02-26
DRN BY: M.HAM	SCALE: 1:200	DRAWING NUMBER: C3710-04	REV: A
DATE: 24-02-26	SIZE: A1		

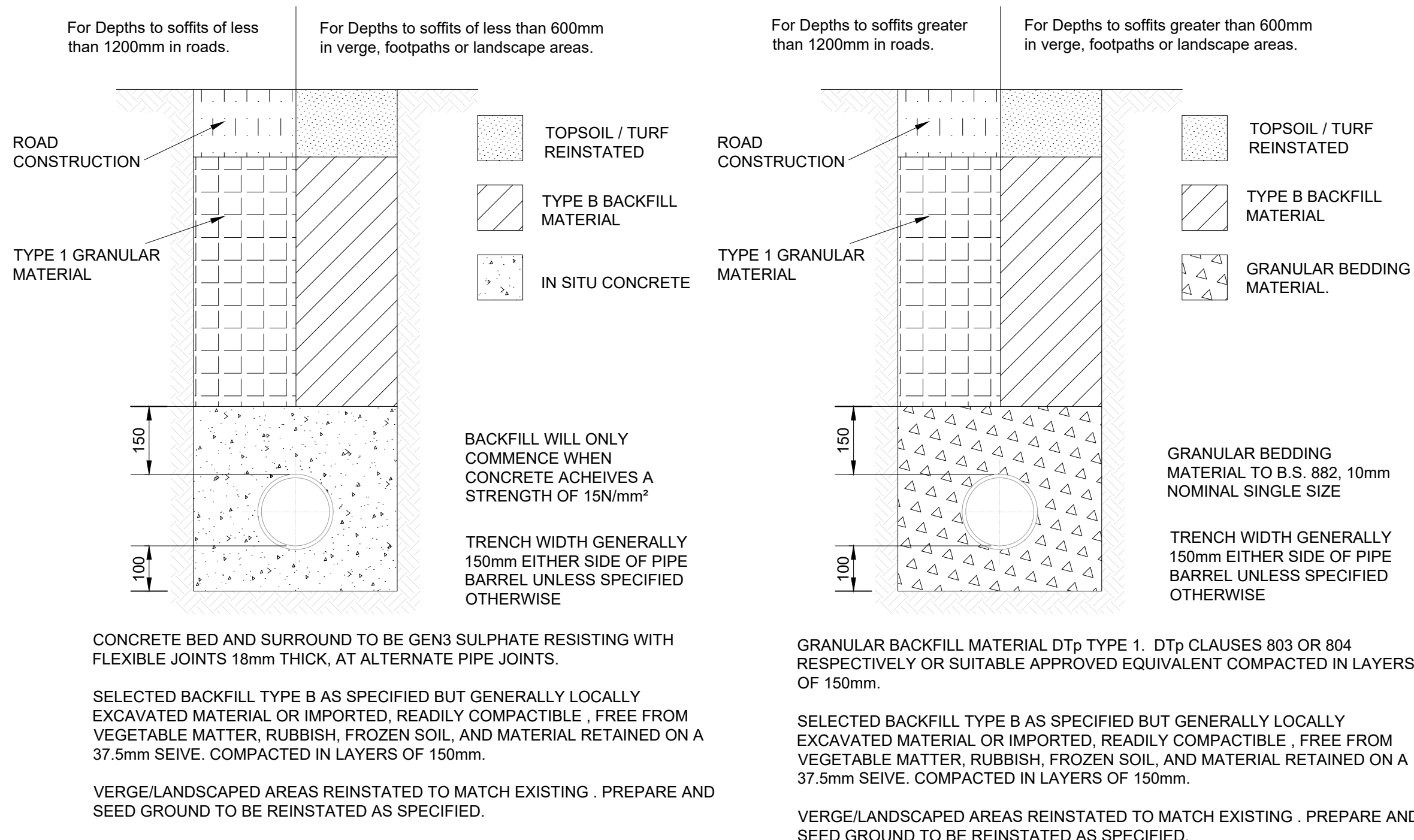
TRENCH BEDDING AND FILL MATERIALS								
GRANULAR BEDDING TYPE A								
TYPE	USE FOR NOMINAL PIPE (DIA.)	% PASSING BY MASS BS 410 SIEVE SIZES (mm)						
		63	37.5	20	14	10	5	2.36
A40	>1350	100	85-100	0-25	—	0-5	—	—
A20	600-1350	—	100	85-100	—	0-25	0-5	—
A14	300-525	—	—	100	85-100	0-50	0-10	—
A10	<300	—	—	—	100	85-100	0-25	0-5



DRAINS UNDER BUILDINGS
NOT TO SCALE

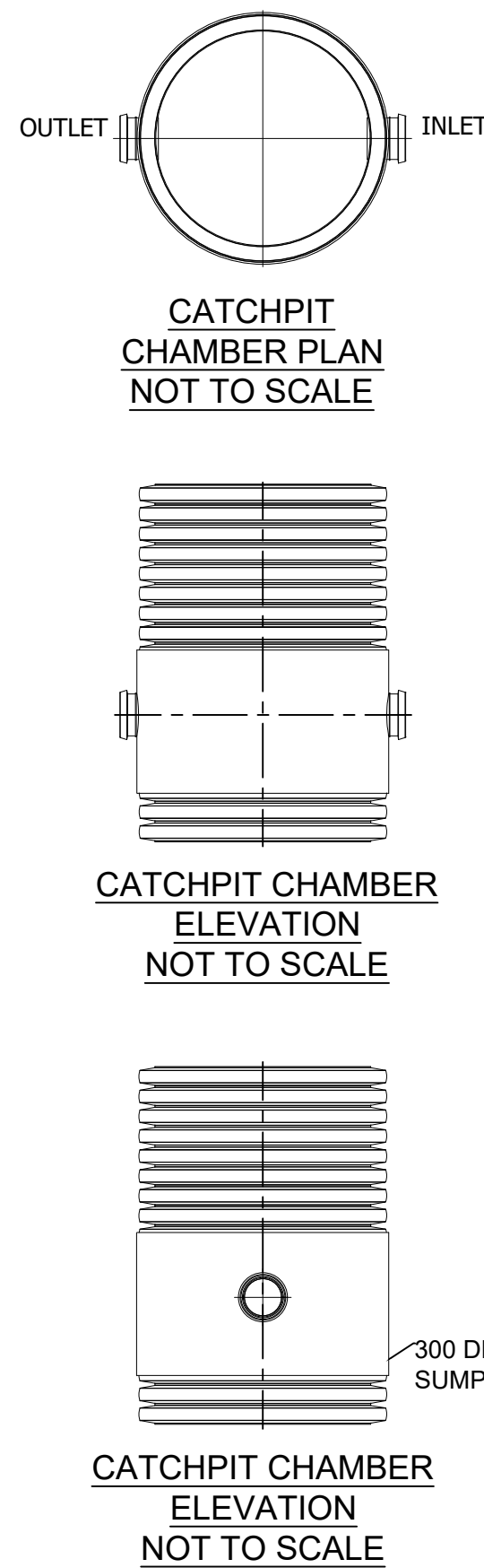


DRAINS UNDER BUILDINGS
NOT TO SCALE

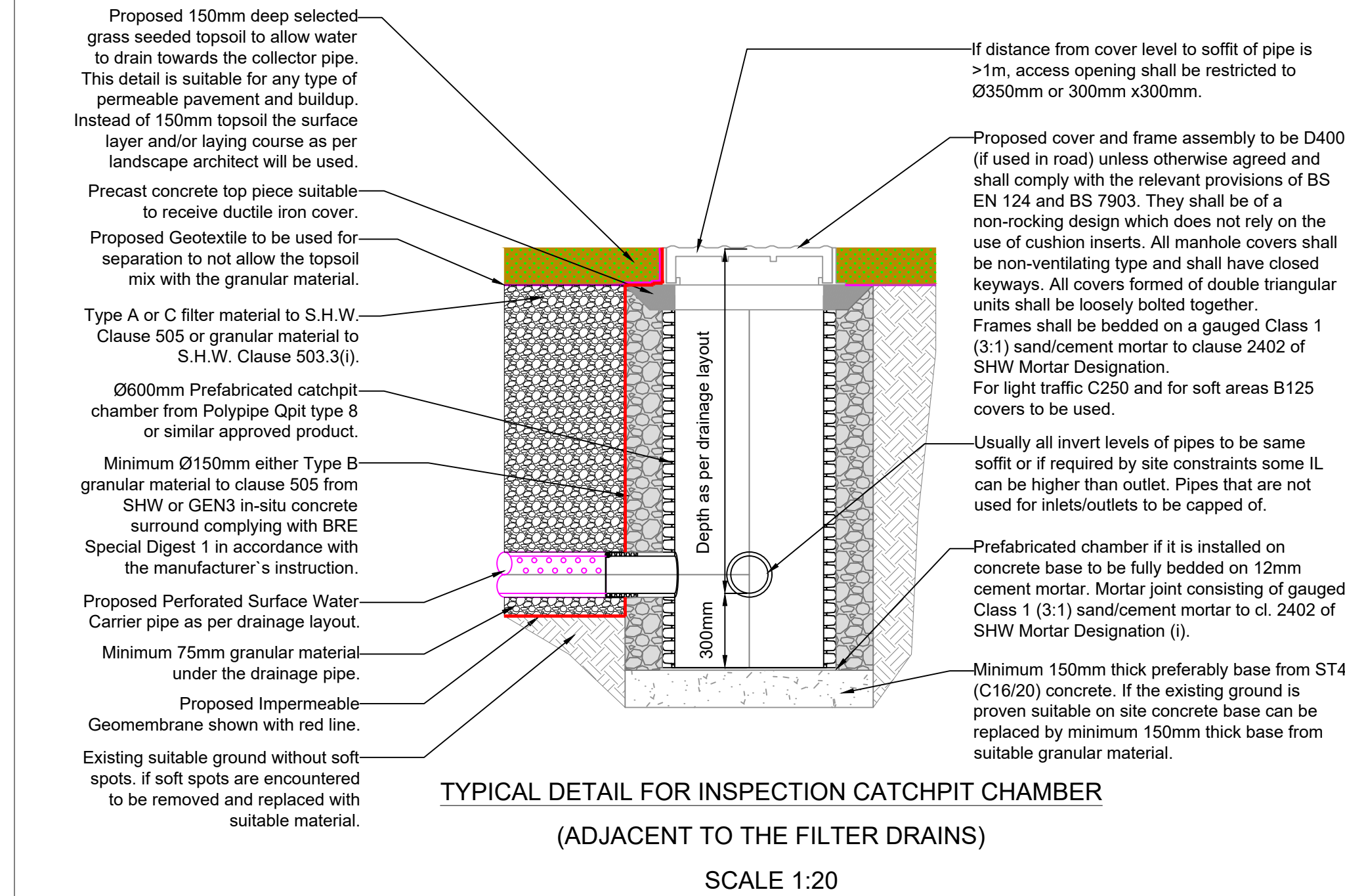


CLASS Z BEDDING FOR DRAINAGE PIPES
NOT TO SCALE

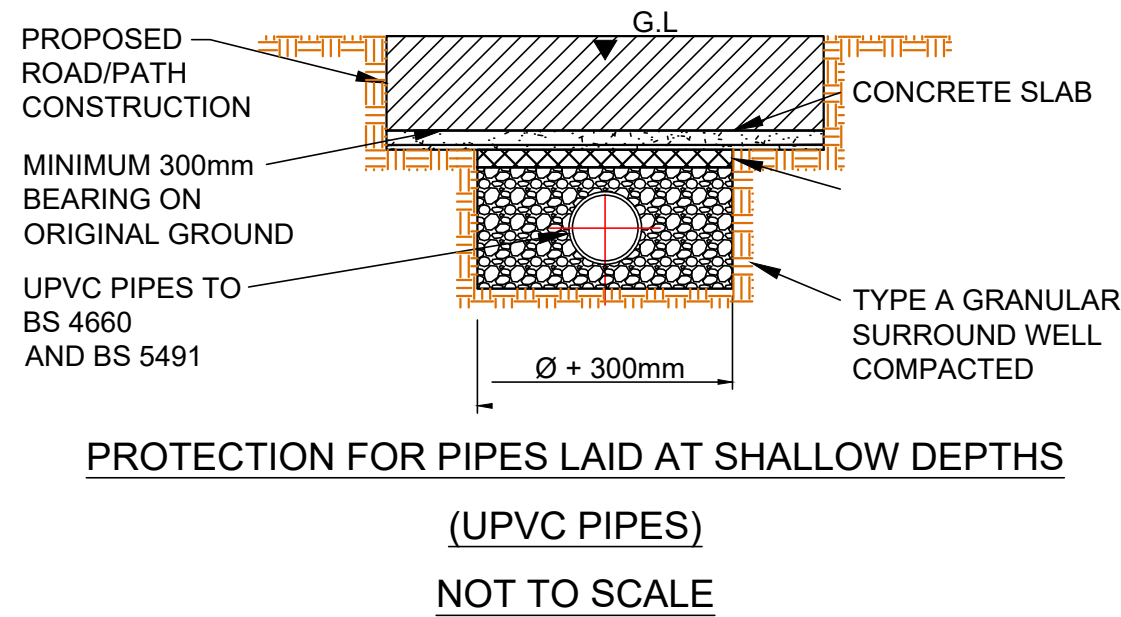
CLASS S BEDDING FOR DRAINAGE PIPES
NOT TO SCALE



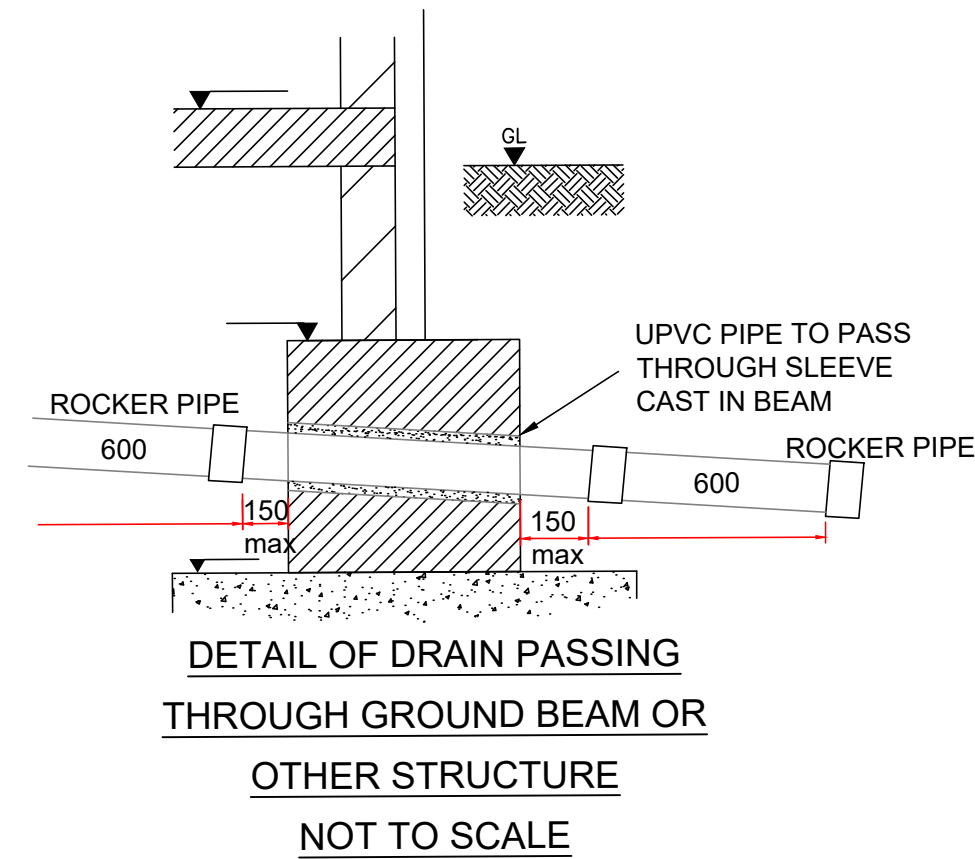
CATCHPIT CHAMBER
ELEVATION
NOT TO SCALE



TYPICAL DETAIL FOR INSPECTION CATCHPIT CHAMBER
(ADJACENT TO THE FILTER DRAINS)
SCALE 1:20



PROTECTION FOR PIPES LAID AT SHALLOW DEPTHS
(UPVC PIPES)
NOT TO SCALE



DETAIL OF DRAIN PASSING
THROUGH GROUND BEAM OR
OTHER STRUCTURE
NOT TO SCALE

NOT FOR CONSTRUCTION

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REV	DATE	DRAWN	DESCRIPTION	CHECK	APPR.
A	24-02-26	M.HAM	For Information.	SL	SL

PROJECT:
Warren Creek, The Warren, Caversham, RG4 7TQ

TITLE:
Standard Drainage Details - Sheet 03 of 03

CLIENT:
Mr Rob Arnold

Nimbus
ENGINEERING CONSULTANTS
www.nimbusengineering.co.uk
info@nimbusengineering.co.uk

CHECKED BY: S.L	DATE: 24-02-26	APPROVED BY: S.L	DATE: 24-02-26
DRN BY: M.HAM	SCALE: 1:200	DRAWING NUMBER: C3710-05	REV: A
DATE: 24-02-26	SIZE: A1		

APPENDIX B – HYDRAULIC MODELLING RESULTS

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SWC-01	Manhole	469569.402	175134.993	37.420	0.500	36.920	Circular	0.450
SWC-02	Manhole	469566.656	175124.947	37.350	0.800	36.550	Circular	0.450
SWC-03-CP	Manhole	469570.541	175116.873	37.330	0.930	36.400	Circular	0.600
SWC-04	Manhole	469584.335	175131.217	37.380	0.500	36.880	Circular	0.450
SWC-05	Manhole	469581.729	175121.304	37.360	0.800	36.560	Circular	0.450
SWC-06-CP	Manhole	469576.242	175117.172	37.280	0.887	36.393	Circular	0.600
SWC-07-FCC	Manhole	469577.167	175116.935	37.280	0.909	36.371	Circular	0.600
SWC-08	Manhole	469582.455	175121.098	37.360	1.034	36.326	Circular	0.450
SWC-09	Manhole	469585.221	175131.001	37.380	1.123	36.257	Circular	0.450
Creek Outlet	Manhole	469589.780	175139.788	37.360	1.169	36.191	Circular	0.450

Name	Lock
SWC-01	None
SWC-02	None
SWC-03-CP	None
SWC-04	None
SWC-05	None
SWC-06-CP	None
SWC-07-FCC	None
SWC-08	None
SWC-09	None
Creek Outlet	None

Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
SWC-01	Outlet	SWP-01	Free Discharge
SWC-02	Outlet	SWP-02	Free Discharge
SWC-03-CP	Outlet	SWP-03	Free Discharge
SWC-04	Outlet	SWP-04	Free Discharge
SWC-05	Outlet	SWP-05	Free Discharge
SWC-06-CP	Outlet	SWP-06	Free Discharge
SWC-07-FCC	Outlet	SWP-08	Orifice
	Diameter (m)	0.026	
	Coefficient of Discharge	0.600	
	Invert Level (m)	36.371	
SWC-08	Outlet	SWP-09	Free Discharge
SWC-09	Outlet	SWP-10	Free Discharge

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	37.280
Depth (m)	0.400
Base Level (m)	36.380
Number of Crates Long	5
Number of Crates Wide	5
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	5.250

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-01	37.420 36.920	Diameter / Length: 0.450					Manhole
E:469569.402 N:175134.993	0.500						
			{a} SWP-01	Pipe	36.920	Diam/Width:150	Not Applicable
SWC-02	37.350 36.550	Diameter / Length: 0.450	{1} SWP-01	Pipe	36.550	Diam/Width:150	Manhole
E:469566.656 N:175124.947	0.800						
			{a} SWP-02	Pipe	36.550	Diam/Width:150	Not Applicable
SWC-03-CP	37.330 36.400	Diameter / Length: 0.600	{1} SWP-02	Pipe	36.400	Diam/Width:150	Manhole
E:469570.541 N:175116.873	0.930						
			{a} SWP-03	Pipe	36.400	Diam/Width:150	Not Applicable
SWC-04	37.380 36.880	Diameter / Length: 0.450					Manhole
E:469584.335 N:175131.217	0.500						
			{a} SWP-04	Pipe	36.880	Diam/Width:150	Not Applicable
SWC-05	37.360 36.560	Diameter / Length: 0.450	{1} SWP-04	Pipe	36.560	Diam/Width:150	Manhole
E:469581.729 N:175121.304	0.800						
			{a} SWP-05	Pipe	36.560	Diam/Width:150	Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		 Nimbus ENGINEERING CONSULTANTS
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House:: 124 City Road London EC1V 2NX		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-06-CP	37.280 36.393	Diameter / Length: 0.600	{1} SWP-05	Pipe	36.393	Diam/Width:150	Manhole
E:469576.242 N:175117.172	0.887		{a} SWP-06	Pipe	36.393	Diam/Width:150	Not Applicable
SWC-07-FCC	37.280 36.371	Diameter / Length: 0.600	{1} SWP-07	Pipe	36.371	Diam/Width:150	Manhole
E:469577.167 N:175116.935	0.909		{a} SWP-08	Pipe	36.371	Diam/Width:150	Not Applicable
SWC-08	37.360 36.326	Diameter / Length: 0.450	{1} SWP-08	Pipe	36.326	Diam/Width:150	Manhole
E:469582.455 N:175121.098	1.034		{a} SWP-09	Pipe	36.326	Diam/Width:150	Not Applicable
SWC-09	37.380 36.257	Diameter / Length: 0.450	{1} SWP-09	Pipe	36.257	Diam/Width:150	Manhole
E:469585.221 N:175131.001	1.123		{a} SWP-10	Pipe	36.257	Diam/Width:150	Not Applicable
Creek Outlet	37.360 36.191	Diameter / Length: 0.450	{1} SWP-10	Pipe	36.191	Diam/Width:150	Manhole
E:469589.780 N:175139.788	1.169						Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L		
		Approved By: S.L			
		Kemp House:: 124 City Road London EC1V 2NX			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area (1)	SWC-04		Time of Concentration	0.001	100	10	110	0.001
Catchment Area (2)	Cellular Storage		Time of Concentration	0.004	100	10	110	0.004
Catchment Area (3)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (4)	SWC-01		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (5)	SWC-04		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (6)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (7)	SWC-05		Time of Concentration	0.003	100	10	110	0.003
TOTAL		0.0		0.019				0.021

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Title: Rainfall Analysis Criteria	Kemp House: 124 City Road London EC1V 2NX		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	19.3
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		



Critical Storm Per Item: Rank By: Max. Flooded Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWC-01	FSR: 100 years: +45 %: 15 mins: Summer	37.42 0	36.92 0	36.944	0.024	1.9	0.004	0.000	1.8	0.816	OK
SWC-02	FSR: 100 years: +45 %: 15 mins: Summer	37.35 0	36.55 0	36.685	0.135	5.3	0.021	0.000	5.3	2.202	OK
SWC-03-CP	FSR: 100 years: +45 %: 15 mins: Summer	37.33 0	36.40 0	36.685	0.285	5.3	0.081	0.000	4.3	1.903	Surcharged
SWC-04	FSR: 100 years: +45 %: 15 mins: Summer	37.38 0	36.88 0	36.910	0.030	2.7	0.005	0.000	2.7	1.192	OK
SWC-05	FSR: 100 years: +45 %: 15 mins: Summer	37.36 0	36.56 0	36.685	0.125	4.6	0.020	0.000	4.5	1.914	OK
SWC-06-CP	FSR: 100 years: +45 %: 15 mins: Summer	37.28 0	36.39 3	36.685	0.292	4.5	0.083	0.000	3.7	1.580	Surcharged
SWC-07-FCC	FSR: 100 years: +45 %: 15 mins: Summer	37.28 0	36.37 1	36.685	0.314	1.4	0.089	0.000	0.8	0.982	Surcharged
SWC-08	FSR: 100 years: +45 %: 15 mins: Summer	37.36 0	36.32 6	36.350	0.024	0.8	0.004	0.000	0.8	0.927	OK
SWC-09	FSR: 100 years: +45 %: 15 mins: Summer	37.38 0	36.25 7	36.281	0.024	0.8	0.004	0.000	0.8	0.899	OK
Creek Outlet	FSR: 100 years: +45 %: 15 mins: Summer	37.36 0	36.19 1	36.214	0.023	0.8	0.000	0.000	0.8	0.899	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
		Designed by: M.HAM	Checked by: S.L		Approved By: S.L
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Kemp House:: 124 City Road London EC1V 2NX			



Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 100 years: +45 %: 120 mins: Summer	36.851	36.851	0.471	0.471	4.0	4.822	0.000	0.000	3.6	9.028	22	8.155

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			 Nimbus ENGINEERING CONSULTANTS

Status

OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SWC-01	Manhole	469569.402	175134.993	37.420	0.500	36.920	Circular	0.450
SWC-02	Manhole	469566.656	175124.947	37.350	0.800	36.550	Circular	0.450
SWC-03-CP	Manhole	469570.541	175116.873	37.330	0.930	36.400	Circular	0.600
SWC-04	Manhole	469584.335	175131.217	37.380	0.500	36.880	Circular	0.450
SWC-05	Manhole	469581.729	175121.304	37.360	0.800	36.560	Circular	0.450
SWC-06-CP	Manhole	469576.242	175117.172	37.280	0.887	36.393	Circular	0.600
SWC-07-FCC	Manhole	469577.167	175116.935	37.280	0.909	36.371	Circular	0.600
SWC-08	Manhole	469582.455	175121.098	37.360	1.034	36.326	Circular	0.450
SWC-09	Manhole	469585.221	175131.001	37.380	1.123	36.257	Circular	0.450
Creek Outlet	Manhole	469589.780	175139.788	37.360	1.169	36.191	Circular	0.450

Name	Lock
SWC-01	None
SWC-02	None
SWC-03-CP	None
SWC-04	None
SWC-05	None
SWC-06-CP	None
SWC-07-FCC	None
SWC-08	None
SWC-09	None
Creek Outlet	None

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SWC-01	Outlet	SWP-01	Free Discharge
SWC-02	Outlet	SWP-02	Free Discharge
SWC-03-CP	Outlet	SWP-03	Free Discharge
SWC-04	Outlet	SWP-04	Free Discharge
SWC-05	Outlet	SWP-05	Free Discharge
SWC-06-CP	Outlet	SWP-06	Free Discharge
SWC-07-FCC	Outlet	SWP-08	Orifice
	Diameter (m)	0.026	
	Coefficient of Discharge	0.600	
	Invert Level (m)	36.371	
SWC-08	Outlet	SWP-09	Free Discharge
SWC-09	Outlet	SWP-10	Free Discharge

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	37.280
Depth (m)	0.400
Base Level (m)	36.380
Number of Crates Long	5
Number of Crates Wide	5
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	5.250

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		 Nimbus ENGINEERING CONSULTANTS
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-01	37.420 36.920	Diameter / Length: 0.450					Manhole
E:469569.402 N:175134.993	0.500						
			{a} SWP-01	Pipe	36.920	Diam/Width:150	Not Applicable
SWC-02	37.350 36.550	Diameter / Length: 0.450	{1} SWP-01	Pipe	36.550	Diam/Width:150	Manhole
E:469566.656 N:175124.947	0.800						
			{a} SWP-02	Pipe	36.550	Diam/Width:150	Not Applicable
SWC-03-CP	37.330 36.400	Diameter / Length: 0.600	{1} SWP-02	Pipe	36.400	Diam/Width:150	Manhole
E:469570.541 N:175116.873	0.930						
			{a} SWP-03	Pipe	36.400	Diam/Width:150	Not Applicable
SWC-04	37.380 36.880	Diameter / Length: 0.450					Manhole
E:469584.335 N:175131.217	0.500						
			{a} SWP-04	Pipe	36.880	Diam/Width:150	Not Applicable
SWC-05	37.360 36.560	Diameter / Length: 0.450	{1} SWP-04	Pipe	36.560	Diam/Width:150	Manhole
E:469581.729 N:175121.304	0.800						
			{a} SWP-05	Pipe	36.560	Diam/Width:150	Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		 Nimbus ENGINEERING CONSULTANTS
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House:: 124 City Road London EC1V 2NX		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-06-CP	37.280 36.393	Diameter / Length: 0.600	{1} SWP-05	Pipe	36.393	Diam/Width:150	Manhole
E:469576.242 N:175117.172	0.887		{a} SWP-06	Pipe	36.393	Diam/Width:150	Not Applicable
SWC-07-FCC	37.280 36.371	Diameter / Length: 0.600	{1} SWP-07	Pipe	36.371	Diam/Width:150	Manhole
E:469577.167 N:175116.935	0.909		{a} SWP-08	Pipe	36.371	Diam/Width:150	Not Applicable
SWC-08	37.360 36.326	Diameter / Length: 0.450	{1} SWP-08	Pipe	36.326	Diam/Width:150	Manhole
E:469582.455 N:175121.098	1.034		{a} SWP-09	Pipe	36.326	Diam/Width:150	Not Applicable
SWC-09	37.380 36.257	Diameter / Length: 0.450	{1} SWP-09	Pipe	36.257	Diam/Width:150	Manhole
E:469585.221 N:175131.001	1.123		{a} SWP-10	Pipe	36.257	Diam/Width:150	Not Applicable
Creek Outlet	37.360 36.191	Diameter / Length: 0.450	{1} SWP-10	Pipe	36.191	Diam/Width:150	Manhole
E:469589.780 N:175139.788	1.169						Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L		
		Approved By: S.L			
		Kemp House:: 124 City Road London EC1V 2NX			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area (1)	SWC-04		Time of Concentration	0.001	100	10	110	0.001
Catchment Area (2)	Cellular Storage		Time of Concentration	0.004	100	10	110	0.004
Catchment Area (3)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (4)	SWC-01		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (5)	SWC-04		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (6)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (7)	SWC-05		Time of Concentration	0.003	100	10	110	0.003
TOTAL		0.0		0.019				0.021

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Title: Rainfall Analysis Criteria	Kemp House: 124 City Road London EC1V 2NX		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	19.3
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		





Summary Results for SWC-01: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s				Date: 23/02/2026						
Report Details: Type: Junctions Summary Storm Phase: Phase				Designed by:	Checked by:	Approved By:				
				M.HAM	S.L	S.L				
				Kemp House:: 124 City Road London EC1V 2NX						

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.42 0	36.92 0	36.944	0.024	1.9	0.004	0.000	1.8	0.816	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.42 0	36.92 0	36.943	0.023	1.8	0.004	0.000	1.7	0.810	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.42 0	36.92 0	36.940	0.020	1.2	0.003	0.000	1.2	1.068	OK
FSR: 100 years: +45 %: 30 mins: Winter	37.42 0	36.92 0	36.939	0.019	1.2	0.003	0.000	1.2	1.068	OK
FSR: 100 years: +45 %: 60 mins: Summer	37.42 0	36.92 0	36.938	0.018	1.1	0.003	0.000	1.1	1.338	OK
FSR: 100 years: +45 %: 60 mins: Winter	37.42 0	36.92 0	36.937	0.017	0.9	0.003	0.000	0.9	1.338	OK
FSR: 100 years: +45 %: 120 mins: Summer	37.42 0	36.92 0	36.935	0.015	0.8	0.002	0.000	0.8	1.620	OK
FSR: 100 years: +45 %: 120 mins: Winter	37.42 0	36.92 0	36.933	0.013	0.6	0.002	0.000	0.6	1.620	OK
FSR: 100 years: +45 %: 180 mins: Summer	37.42 0	36.92 0	36.933	0.013	0.6	0.002	0.000	0.6	1.776	OK
FSR: 100 years: +45 %: 180 mins: Winter	37.42 0	36.92 0	36.931	0.011	0.4	0.002	0.000	0.4	1.788	OK
FSR: 100 years: +45 %: 240 mins: Summer	37.42 0	36.92 0	36.932	0.012	0.5	0.002	0.000	0.5	1.902	OK
FSR: 100 years: +45 %: 240 mins: Winter	37.42 0	36.92 0	36.930	0.010	0.3	0.002	0.000	0.3	1.914	OK
FSR: 100 years: +45 %: 360 mins: Summer	37.42 0	36.92 0	36.930	0.010	0.4	0.002	0.000	0.4	2.076	OK
FSR: 100 years: +45 %: 360 mins: Winter	37.42 0	36.92 0	36.929	0.009	0.2	0.001	0.000	0.2	2.082	OK
FSR: 100 years: +45 %: 480 mins: Summer	37.42 0	36.92 0	36.930	0.010	0.3	0.002	0.000	0.3	2.220	OK
FSR: 100 years: +45 %: 480 mins: Winter	37.42 0	36.92 0	36.928	0.008	0.2	0.001	0.000	0.2	2.190	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.42 0	36.92 0	36.929	0.009	0.3	0.001	0.000	0.3	2.298	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.42 0	36.92 0	36.928	0.008	0.2	0.001	0.000	0.2	2.316	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.42 0	36.92 0	36.929	0.009	0.2	0.001	0.000	0.2	2.400	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.42 0	36.92 0	36.927	0.007	0.1	0.001	0.000	0.1	2.376	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		





Summary Results for SWC-02: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.35 0	36.55 0	36.685	0.135	5.3	0.021	0.000	5.3	2.202	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.35 0	36.55 0	36.684	0.134	5.0	0.021	0.000	4.9	2.199	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.35 0	36.55 0	36.752	0.202	3.6	0.032	0.000	3.5	2.912	Surcharged
FSR: 100 years: +45 %: 30 mins: Winter	37.35 0	36.55 0	36.752	0.202	3.3	0.032	0.000	3.2	2.906	Surcharged
FSR: 100 years: +45 %: 60 mins: Summer	37.35 0	36.55 0	36.823	0.273	3.1	0.043	0.000	3.0	3.735	Surcharged
FSR: 100 years: +45 %: 60 mins: Winter	37.35 0	36.55 0	36.822	0.272	2.5	0.043	0.000	2.1	3.733	Surcharged
FSR: 100 years: +45 %: 120 mins: Summer	37.35 0	36.55 0	36.856	0.306	2.2	0.049	0.000	1.9	4.705	Surcharged
FSR: 100 years: +45 %: 120 mins: Winter	37.35 0	36.55 0	36.845	0.295	1.6	0.047	0.000	1.4	4.668	Surcharged
FSR: 100 years: +45 %: 180 mins: Summer	37.35 0	36.55 0	36.830	0.280	1.7	0.044	0.000	1.5	5.135	Surcharged
FSR: 100 years: +45 %: 180 mins: Winter	37.35 0	36.55 0	36.803	0.253	1.2	0.040	0.000	1.0	5.151	Surcharged
FSR: 100 years: +45 %: 240 mins: Summer	37.35 0	36.55 0	36.795	0.245	1.4	0.039	0.000	1.2	5.478	Surcharged
FSR: 100 years: +45 %: 240 mins: Winter	37.35 0	36.55 0	36.765	0.215	0.9	0.034	0.000	0.8	5.473	Surcharged
FSR: 100 years: +45 %: 360 mins: Summer	37.35 0	36.55 0	36.745	0.195	1.1	0.031	0.000	0.9	5.948	Surcharged
FSR: 100 years: +45 %: 360 mins: Winter	37.35 0	36.55 0	36.716	0.166	0.7	0.026	0.000	0.6	5.964	Surcharged
FSR: 100 years: +45 %: 480 mins: Summer	37.35 0	36.55 0	36.713	0.163	0.9	0.026	0.000	0.8	6.368	Surcharged
FSR: 100 years: +45 %: 480 mins: Winter	37.35 0	36.55 0	36.675	0.125	0.6	0.020	0.000	0.5	6.296	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.35 0	36.55 0	36.685	0.135	0.7	0.022	0.000	0.6	6.590	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.35 0	36.55 0	36.642	0.092	0.5	0.015	0.000	0.4	6.701	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.35 0	36.55 0	36.664	0.114	0.6	0.018	0.000	0.6	6.921	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.35 0	36.55 0	36.616	0.066	0.4	0.010	0.000	0.4	6.827	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		



Summary Results for SWC-03-CP: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.33 0	36.40 0	36.685	0.285	5.3	0.081	0.000	4.3	1.903	Surcharged
FSR: 100 years: +45 %: 15 mins: Winter	37.33 0	36.40 0	36.684	0.284	4.9	0.081	0.000	4.0	1.900	Surcharged
FSR: 100 years: +45 %: 30 mins: Summer	37.33 0	36.40 0	36.752	0.352	3.5	0.100	0.000	2.9	2.587	Surcharged
FSR: 100 years: +45 %: 30 mins: Winter	37.33 0	36.40 0	36.752	0.352	3.2	0.100	0.000	2.7	2.582	Surcharged
FSR: 100 years: +45 %: 60 mins: Summer	37.33 0	36.40 0	36.823	0.423	3.0	0.120	0.000	2.5	3.415	Surcharged
FSR: 100 years: +45 %: 60 mins: Winter	37.33 0	36.40 0	36.823	0.423	2.1	0.120	0.000	1.8	3.425	Surcharged
FSR: 100 years: +45 %: 120 mins: Summer	37.33 0	36.40 0	36.857	0.457	1.9	0.129	0.000	1.6	4.433	Surcharged
FSR: 100 years: +45 %: 120 mins: Winter	37.33 0	36.40 0	36.846	0.446	1.4	0.126	0.000	1.2	4.445	Surcharged
FSR: 100 years: +45 %: 180 mins: Summer	37.33 0	36.40 0	36.829	0.429	1.5	0.121	0.000	1.3	5.080	Surcharged
FSR: 100 years: +45 %: 180 mins: Winter	37.33 0	36.40 0	36.804	0.404	1.0	0.114	0.000	1.6	5.132	Surcharged
FSR: 100 years: +45 %: 240 mins: Summer	37.33 0	36.40 0	36.794	0.394	1.2	0.111	0.000	1.1	5.514	Surcharged
FSR: 100 years: +45 %: 240 mins: Winter	37.33 0	36.40 0	36.765	0.365	0.8	0.103	0.000	0.7	5.527	Surcharged
FSR: 100 years: +45 %: 360 mins: Summer	37.33 0	36.40 0	36.745	0.345	0.9	0.098	0.000	0.8	6.027	Surcharged
FSR: 100 years: +45 %: 360 mins: Winter	37.33 0	36.40 0	36.716	0.316	0.6	0.089	0.000	0.6	6.051	Surcharged
FSR: 100 years: +45 %: 480 mins: Summer	37.33 0	36.40 0	36.713	0.313	0.8	0.089	0.000	0.7	6.448	Surcharged
FSR: 100 years: +45 %: 480 mins: Winter	37.33 0	36.40 0	36.675	0.275	0.5	0.078	0.000	0.5	6.376	Surcharged
FSR: 100 years: +45 %: 600 mins: Summer	37.33 0	36.40 0	36.685	0.285	0.6	0.081	0.000	0.6	6.666	Surcharged
FSR: 100 years: +45 %: 600 mins: Winter	37.33 0	36.40 0	36.642	0.242	0.4	0.069	0.000	0.4	6.767	Surcharged
FSR: 100 years: +45 %: 720 mins: Summer	37.33 0	36.40 0	36.664	0.264	0.6	0.075	0.000	0.5	6.993	Surcharged
FSR: 100 years: +45 %: 720 mins: Winter	37.33 0	36.40 0	36.615	0.215	0.4	0.061	0.000	0.4	6.827	Surcharged

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		





Summary Results for SWC-04: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.38 0	36.88 0	36.910	0.030	2.7	0.005	0.000	2.7	1.192	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.38 0	36.88 0	36.909	0.029	2.6	0.005	0.000	2.5	1.195	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.38 0	36.88 0	36.904	0.024	1.8	0.004	0.000	1.8	1.567	OK
FSR: 100 years: +45 %: 30 mins: Winter	37.38 0	36.88 0	36.904	0.024	1.7	0.004	0.000	1.7	1.573	OK
FSR: 100 years: +45 %: 60 mins: Summer	37.38 0	36.88 0	36.903	0.023	1.6	0.004	0.000	1.6	1.963	OK
FSR: 100 years: +45 %: 60 mins: Winter	37.38 0	36.88 0	36.900	0.020	1.3	0.003	0.000	1.3	1.962	OK
FSR: 100 years: +45 %: 120 mins: Summer	37.38 0	36.88 0	36.899	0.019	1.1	0.003	0.000	1.1	2.376	OK
FSR: 100 years: +45 %: 120 mins: Winter	37.38 0	36.88 0	36.896	0.016	0.8	0.003	0.000	0.8	2.376	OK
FSR: 100 years: +45 %: 180 mins: Summer	37.38 0	36.88 0	36.896	0.016	0.9	0.003	0.000	0.9	2.616	OK
FSR: 100 years: +45 %: 180 mins: Winter	37.38 0	36.88 0	36.894	0.014	0.6	0.002	0.000	0.6	2.622	OK
FSR: 100 years: +45 %: 240 mins: Summer	37.38 0	36.88 0	36.895	0.015	0.7	0.002	0.000	0.7	2.832	OK
FSR: 100 years: +45 %: 240 mins: Winter	37.38 0	36.88 0	36.893	0.013	0.5	0.002	0.000	0.5	2.772	OK
FSR: 100 years: +45 %: 360 mins: Summer	37.38 0	36.88 0	36.893	0.013	0.5	0.002	0.000	0.5	3.042	OK
FSR: 100 years: +45 %: 360 mins: Winter	37.38 0	36.88 0	36.891	0.011	0.3	0.002	0.000	0.4	3.096	OK
FSR: 100 years: +45 %: 480 mins: Summer	37.38 0	36.88 0	36.892	0.012	0.4	0.002	0.000	0.4	3.240	OK
FSR: 100 years: +45 %: 480 mins: Winter	37.38 0	36.88 0	36.890	0.010	0.3	0.002	0.000	0.3	3.216	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.38 0	36.88 0	36.891	0.011	0.4	0.002	0.000	0.4	3.396	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.38 0	36.88 0	36.890	0.010	0.2	0.002	0.000	0.2	3.384	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.38 0	36.88 0	36.891	0.011	0.3	0.002	0.000	0.3	3.546	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.38 0	36.88 0	36.889	0.009	0.2	0.001	0.000	0.2	3.552	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Kemp House:: 124 City Road London EC1V 2NX		 Nimbus ENGINEERING CONSULTANTS	



Summary Results for SWC-05: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.36 0	36.56 0	36.685	0.125	4.6	0.020	0.000	4.5	1.914	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.36 0	36.56 0	36.684	0.124	4.3	0.020	0.000	4.3	1.916	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.36 0	36.56 0	36.752	0.192	3.1	0.031	0.000	3.0	2.522	Surcharged
FSR: 100 years: +45 %: 30 mins: Winter	37.36 0	36.56 0	36.752	0.192	2.9	0.031	0.000	2.8	2.528	Surcharged
FSR: 100 years: +45 %: 60 mins: Summer	37.36 0	36.56 0	36.823	0.263	2.7	0.042	0.000	2.6	3.267	Surcharged
FSR: 100 years: +45 %: 60 mins: Winter	37.36 0	36.56 0	36.822	0.262	2.2	0.042	0.000	2.1	3.262	Surcharged
FSR: 100 years: +45 %: 120 mins: Summer	37.36 0	36.56 0	36.856	0.296	1.9	0.047	0.000	1.6	4.103	Surcharged
FSR: 100 years: +45 %: 120 mins: Winter	37.36 0	36.56 0	36.845	0.285	1.4	0.045	0.000	1.2	4.097	Surcharged
FSR: 100 years: +45 %: 180 mins: Summer	37.36 0	36.56 0	36.829	0.269	1.5	0.043	0.000	1.3	4.520	Surcharged
FSR: 100 years: +45 %: 180 mins: Winter	37.36 0	36.56 0	36.803	0.243	1.0	0.039	0.000	0.9	4.532	Surcharged
FSR: 100 years: +45 %: 240 mins: Summer	37.36 0	36.56 0	36.795	0.235	1.2	0.037	0.000	1.1	4.879	Surcharged
FSR: 100 years: +45 %: 240 mins: Winter	37.36 0	36.56 0	36.765	0.205	0.8	0.033	0.000	0.8	4.831	Surcharged
FSR: 100 years: +45 %: 360 mins: Summer	37.36 0	36.56 0	36.745	0.185	0.9	0.029	0.000	0.8	5.343	Surcharged
FSR: 100 years: +45 %: 360 mins: Winter	37.36 0	36.56 0	36.716	0.156	0.6	0.025	0.000	0.6	5.402	Surcharged
FSR: 100 years: +45 %: 480 mins: Summer	37.36 0	36.56 0	36.713	0.153	0.8	0.024	0.000	0.7	5.663	Surcharged
FSR: 100 years: +45 %: 480 mins: Winter	37.36 0	36.56 0	36.675	0.115	0.5	0.018	0.000	0.5	5.620	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.36 0	36.56 0	36.685	0.125	0.6	0.020	0.000	0.6	5.889	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.36 0	36.56 0	36.642	0.082	0.4	0.013	0.000	0.4	5.883	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.36 0	36.56 0	36.664	0.104	0.5	0.017	0.000	0.5	6.145	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.36 0	36.56 0	36.616	0.056	0.3	0.009	0.000	0.3	6.035	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Kemp House:: 124 City Road London EC1V 2NX		 Nimbus ENGINEERING CONSULTANTS	



Summary Results for SWC-06-CP: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L		Approved By: S.L
		Kemp House: 124 City Road London EC1V 2NX			

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.28 0	36.39 3	36.685	0.292	4.5	0.083	0.000	3.7	1.580	Surcharged
FSR: 100 years: +45 %: 15 mins: Winter	37.28 0	36.39 3	36.685	0.292	4.3	0.083	0.000	3.4	1.584	Surcharged
FSR: 100 years: +45 %: 30 mins: Summer	37.28 0	36.39 3	36.752	0.359	3.0	0.102	0.000	2.4	2.141	Surcharged
FSR: 100 years: +45 %: 30 mins: Winter	37.28 0	36.39 3	36.752	0.359	2.8	0.102	0.000	2.3	2.147	Surcharged
FSR: 100 years: +45 %: 60 mins: Summer	37.28 0	36.39 3	36.823	0.430	2.6	0.122	0.000	2.1	2.841	Surcharged
FSR: 100 years: +45 %: 60 mins: Winter	37.28 0	36.39 3	36.823	0.430	2.1	0.122	0.000	1.8	2.836	Surcharged
FSR: 100 years: +45 %: 120 mins: Summer	37.28 0	36.39 3	36.857	0.464	1.6	0.131	0.000	1.3	3.638	Surcharged
FSR: 100 years: +45 %: 120 mins: Winter	37.28 0	36.39 3	36.846	0.453	1.2	0.128	0.000	1.0	3.689	Surcharged
FSR: 100 years: +45 %: 180 mins: Summer	37.28 0	36.39 3	36.828	0.435	1.3	0.123	0.000	1.1	4.083	Surcharged
FSR: 100 years: +45 %: 180 mins: Winter	37.28 0	36.39 3	36.804	0.411	0.9	0.116	0.000	0.8	4.078	Surcharged
FSR: 100 years: +45 %: 240 mins: Summer	37.28 0	36.39 3	36.794	0.401	1.1	0.114	0.000	0.9	4.371	Surcharged
FSR: 100 years: +45 %: 240 mins: Winter	37.28 0	36.39 3	36.765	0.372	0.8	0.105	0.000	0.8	4.166	Surcharged
FSR: 100 years: +45 %: 360 mins: Summer	37.28 0	36.39 3	36.745	0.352	0.8	0.100	0.000	0.7	4.264	Surcharged
FSR: 100 years: +45 %: 360 mins: Winter	37.28 0	36.39 3	36.716	0.323	0.6	0.091	0.000	0.6	4.281	Surcharged
FSR: 100 years: +45 %: 480 mins: Summer	37.28 0	36.39 3	36.713	0.320	0.7	0.091	0.000	0.8	4.649	Surcharged
FSR: 100 years: +45 %: 480 mins: Winter	37.28 0	36.39 3	36.675	0.282	0.5	0.080	0.000	0.4	4.652	Surcharged
FSR: 100 years: +45 %: 600 mins: Summer	37.28 0	36.39 3	36.686	0.293	0.6	0.083	0.000	0.5	4.953	Surcharged
FSR: 100 years: +45 %: 600 mins: Winter	37.28 0	36.39 3	36.643	0.250	0.4	0.071	0.000	0.5	5.139	Surcharged
FSR: 100 years: +45 %: 720 mins: Summer	37.28 0	36.39 3	36.664	0.271	0.5	0.077	0.000	0.5	5.297	Surcharged
FSR: 100 years: +45 %: 720 mins: Winter	37.28 0	36.39 3	36.615	0.222	0.3	0.063	0.000	0.3	6.030	Surcharged

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Kemp House: 124 City Road London EC1V 2NX			



Summary Results for SWC-07-FCC: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.28 0	36.37 1	36.685	0.314	1.4	0.089	0.000	0.8	0.982	Surcharged
FSR: 100 years: +45 %: 15 mins: Winter	37.28 0	36.37 1	36.684	0.313	1.4	0.089	0.000	0.8	0.985	Surcharged
FSR: 100 years: +45 %: 30 mins: Summer	37.28 0	36.37 1	36.752	0.381	1.2	0.108	0.000	0.8	2.282	Surcharged
FSR: 100 years: +45 %: 30 mins: Winter	37.28 0	36.37 1	36.752	0.381	1.2	0.108	0.000	0.8	2.284	Surcharged
FSR: 100 years: +45 %: 60 mins: Summer	37.28 0	36.37 1	36.821	0.450	1.2	0.127	0.000	0.9	4.858	Surcharged
FSR: 100 years: +45 %: 60 mins: Winter	37.28 0	36.37 1	36.822	0.451	1.6	0.128	0.000	0.9	4.849	Surcharged
FSR: 100 years: +45 %: 120 mins: Summer	37.28 0	36.37 1	36.857	0.486	3.6	0.138	0.000	1.0	9.135	Surcharged
FSR: 100 years: +45 %: 120 mins: Winter	37.28 0	36.37 1	36.843	0.472	1.4	0.134	0.000	0.9	9.119	Surcharged
FSR: 100 years: +45 %: 180 mins: Summer	37.28 0	36.37 1	36.828	0.457	1.2	0.129	0.000	0.9	11.726	Surcharged
FSR: 100 years: +45 %: 180 mins: Winter	37.28 0	36.37 1	36.802	0.431	1.3	0.122	0.000	0.9	11.733	Surcharged
FSR: 100 years: +45 %: 240 mins: Summer	37.28 0	36.37 1	36.794	0.423	1.0	0.120	0.000	0.9	12.830	Surcharged
FSR: 100 years: +45 %: 240 mins: Winter	37.28 0	36.37 1	36.764	0.393	0.9	0.111	0.000	0.9	12.701	Surcharged
FSR: 100 years: +45 %: 360 mins: Summer	37.28 0	36.37 1	36.745	0.374	0.9	0.106	0.000	0.8	13.795	Surcharged
FSR: 100 years: +45 %: 360 mins: Winter	37.28 0	36.37 1	36.715	0.344	0.8	0.097	0.000	0.8	13.866	Surcharged
FSR: 100 years: +45 %: 480 mins: Summer	37.28 0	36.37 1	36.713	0.342	0.9	0.097	0.000	0.8	14.755	Surcharged
FSR: 100 years: +45 %: 480 mins: Winter	37.28 0	36.37 1	36.675	0.304	0.7	0.086	0.000	0.7	14.648	Surcharged
FSR: 100 years: +45 %: 600 mins: Summer	37.28 0	36.37 1	36.685	0.314	0.8	0.089	0.000	0.8	15.349	Surcharged
FSR: 100 years: +45 %: 600 mins: Winter	37.28 0	36.37 1	36.642	0.271	0.7	0.077	0.000	0.7	15.541	Surcharged
FSR: 100 years: +45 %: 720 mins: Summer	37.28 0	36.37 1	36.664	0.293	0.7	0.083	0.000	0.7	16.126	Surcharged
FSR: 100 years: +45 %: 720 mins: Winter	37.28 0	36.37 1	36.615	0.244	0.7	0.069	0.000	0.7	16.138	Surcharged

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		





Summary Results for SWC-08: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s				Date: 23/02/2026			 Nimbus ENGINEERING CONSULTANTS	
Report Details: Type: Junctions Summary Storm Phase: Phase				Designed by: M.HAM	Checked by: S.L	Approved By: S.L		
				Kemp House: 124 City Road London EC1V 2NX				

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.36 0	36.32 6	36.350	0.024	0.8	0.004	0.000	0.8	0.927	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.36 0	36.32 6	36.350	0.024	0.8	0.004	0.000	0.8	0.930	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.36 0	36.32 6	36.351	0.025	0.8	0.004	0.000	0.8	2.226	OK
FSR: 100 years: +45 %: 30 mins: Winter	37.36 0	36.32 6	36.351	0.025	0.8	0.004	0.000	0.8	2.228	OK
FSR: 100 years: +45 %: 60 mins: Summer	37.36 0	36.32 6	36.352	0.026	0.9	0.004	0.000	0.9	4.799	OK
FSR: 100 years: +45 %: 60 mins: Winter	37.36 0	36.32 6	36.352	0.026	0.9	0.004	0.000	0.9	4.792	OK
FSR: 100 years: +45 %: 120 mins: Summer	37.36 0	36.32 6	36.353	0.027	1.0	0.004	0.000	1.0	9.060	OK
FSR: 100 years: +45 %: 120 mins: Winter	37.36 0	36.32 6	36.353	0.027	0.9	0.004	0.000	0.9	9.050	OK
FSR: 100 years: +45 %: 180 mins: Summer	37.36 0	36.32 6	36.352	0.026	0.9	0.004	0.000	0.9	11.690	OK
FSR: 100 years: +45 %: 180 mins: Winter	37.36 0	36.32 6	36.352	0.026	0.9	0.004	0.000	0.9	11.698	OK
FSR: 100 years: +45 %: 240 mins: Summer	37.36 0	36.32 6	36.352	0.026	0.9	0.004	0.000	0.9	12.819	OK
FSR: 100 years: +45 %: 240 mins: Winter	37.36 0	36.32 6	36.351	0.025	0.9	0.004	0.000	0.9	12.695	OK
FSR: 100 years: +45 %: 360 mins: Summer	37.36 0	36.32 6	36.351	0.025	0.8	0.004	0.000	0.8	13.792	OK
FSR: 100 years: +45 %: 360 mins: Winter	37.36 0	36.32 6	36.350	0.024	0.8	0.004	0.000	0.8	13.862	OK
FSR: 100 years: +45 %: 480 mins: Summer	37.36 0	36.32 6	36.350	0.024	0.8	0.004	0.000	0.8	14.753	OK
FSR: 100 years: +45 %: 480 mins: Winter	37.36 0	36.32 6	36.350	0.024	0.7	0.004	0.000	0.7	14.645	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.36 0	36.32 6	36.350	0.024	0.8	0.004	0.000	0.8	15.346	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.36 0	36.32 6	36.349	0.023	0.7	0.004	0.000	0.7	15.539	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.36 0	36.32 6	36.349	0.023	0.7	0.004	0.000	0.7	16.124	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.36 0	36.32 6	36.348	0.022	0.7	0.004	0.000	0.7	16.137	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		





Summary Results for SWC-09: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ:				Date: 23/02/2026				
Erection of 4-bed detached dwelling				Designed by:	Checked by:	Approved By:		
1:100 Years Storm Event + 45% Climate Change				M.HAM	S.L	S.L		
Flow Restricted to 1.0l/s								
Report Details:				Kemp House::				
Type: Junctions Summary				124 City Road				
Storm Phase: Phase				London				
				EC1V 2NX				

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.380	36.257	36.281	0.024	0.8	0.004	0.000	0.8	0.899	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.380	36.257	36.281	0.024	0.8	0.004	0.000	0.8	0.903	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.380	36.257	36.282	0.025	0.8	0.004	0.000	0.8	2.198	OK
FSR: 100 years: +45 %: 30 mins: Winter	37.380	36.257	36.282	0.025	0.8	0.004	0.000	0.8	2.200	OK
FSR: 100 years: +45 %: 60 mins: Summer	37.380	36.257	36.283	0.026	0.9	0.004	0.000	0.9	4.772	OK
FSR: 100 years: +45 %: 60 mins: Winter	37.380	36.257	36.283	0.026	0.9	0.004	0.000	0.9	4.765	OK
FSR: 100 years: +45 %: 120 mins: Summer	37.380	36.257	36.284	0.027	1.0	0.004	0.000	1.0	9.037	OK
FSR: 100 years: +45 %: 120 mins: Winter	37.380	36.257	36.284	0.027	0.9	0.004	0.000	0.9	9.028	OK
FSR: 100 years: +45 %: 180 mins: Summer	37.380	36.257	36.283	0.026	0.9	0.004	0.000	0.9	11.675	OK
FSR: 100 years: +45 %: 180 mins: Winter	37.380	36.257	36.283	0.026	0.9	0.004	0.000	0.9	11.684	OK
FSR: 100 years: +45 %: 240 mins: Summer	37.380	36.257	36.283	0.026	0.9	0.004	0.000	0.9	12.815	OK
FSR: 100 years: +45 %: 240 mins: Winter	37.380	36.257	36.282	0.025	0.9	0.004	0.000	0.9	12.692	OK
FSR: 100 years: +45 %: 360 mins: Summer	37.380	36.257	36.282	0.025	0.8	0.004	0.000	0.8	13.790	OK
FSR: 100 years: +45 %: 360 mins: Winter	37.380	36.257	36.282	0.025	0.8	0.004	0.000	0.8	13.860	OK
FSR: 100 years: +45 %: 480 mins: Summer	37.380	36.257	36.281	0.024	0.8	0.004	0.000	0.8	14.751	OK
FSR: 100 years: +45 %: 480 mins: Winter	37.380	36.257	36.281	0.024	0.7	0.004	0.000	0.7	14.643	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.380	36.257	36.281	0.024	0.8	0.004	0.000	0.8	15.345	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.380	36.257	36.280	0.023	0.7	0.004	0.000	0.7	15.538	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.380	36.257	36.281	0.024	0.7	0.004	0.000	0.7	16.123	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.380	36.257	36.279	0.022	0.7	0.004	0.000	0.7	16.136	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Junctions Summary Storm Phase: Phase	Kemp House:: 124 City Road London EC1V 2NX		





Summary Results for Creek Outlet: Rank By: Max. Flooded Volume

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
FSR: 100 years: +45 %: 15 mins: Summer	37.36 0	36.19 1	36.214	0.023	0.8	0.000	0.000	0.8	0.899	OK
FSR: 100 years: +45 %: 15 mins: Winter	37.36 0	36.19 1	36.214	0.023	0.8	0.000	0.000	0.8	0.903	OK
FSR: 100 years: +45 %: 30 mins: Summer	37.36 0	36.19 1	36.215	0.024	0.8	0.000	0.000	0.8	2.198	OK
FSR: 100 years: +45 %: 30 mins: Winter	37.36 0	36.19 1	36.215	0.024	0.8	0.000	0.000	0.8	2.200	OK
FSR: 100 years: +45 %: 60 mins: Summer	37.36 0	36.19 1	36.216	0.025	0.9	0.000	0.000	0.9	4.772	OK
FSR: 100 years: +45 %: 60 mins: Winter	37.36 0	36.19 1	36.216	0.025	0.9	0.000	0.000	0.9	4.765	OK
FSR: 100 years: +45 %: 120 mins: Summer	37.36 0	36.19 1	36.217	0.026	1.0	0.000	0.000	1.0	9.037	OK
FSR: 100 years: +45 %: 120 mins: Winter	37.36 0	36.19 1	36.217	0.026	0.9	0.000	0.000	0.9	9.028	OK
FSR: 100 years: +45 %: 180 mins: Summer	37.36 0	36.19 1	36.216	0.025	0.9	0.000	0.000	0.9	11.675	OK
FSR: 100 years: +45 %: 180 mins: Winter	37.36 0	36.19 1	36.216	0.025	0.9	0.000	0.000	0.9	11.684	OK
FSR: 100 years: +45 %: 240 mins: Summer	37.36 0	36.19 1	36.216	0.025	0.9	0.000	0.000	0.9	12.815	OK
FSR: 100 years: +45 %: 240 mins: Winter	37.36 0	36.19 1	36.216	0.025	0.9	0.000	0.000	0.9	12.692	OK
FSR: 100 years: +45 %: 360 mins: Summer	37.36 0	36.19 1	36.215	0.024	0.8	0.000	0.000	0.8	13.790	OK
FSR: 100 years: +45 %: 360 mins: Winter	37.36 0	36.19 1	36.215	0.024	0.8	0.000	0.000	0.8	13.860	OK
FSR: 100 years: +45 %: 480 mins: Summer	37.36 0	36.19 1	36.215	0.024	0.8	0.000	0.000	0.8	14.751	OK
FSR: 100 years: +45 %: 480 mins: Winter	37.36 0	36.19 1	36.214	0.023	0.7	0.000	0.000	0.7	14.643	OK
FSR: 100 years: +45 %: 600 mins: Summer	37.36 0	36.19 1	36.214	0.023	0.8	0.000	0.000	0.8	15.345	OK
FSR: 100 years: +45 %: 600 mins: Winter	37.36 0	36.19 1	36.213	0.022	0.7	0.000	0.000	0.7	15.538	OK
FSR: 100 years: +45 %: 720 mins: Summer	37.36 0	36.19 1	36.214	0.023	0.7	0.000	0.000	0.7	16.123	OK
FSR: 100 years: +45 %: 720 mins: Winter	37.36 0	36.19 1	36.213	0.022	0.7	0.000	0.000	0.7	16.136	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Kemp House: 124 City Road London EC1V 2NX		



Summary Results for Cellular Storage: Rank By: Max. Avg. Depth

Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)	Status
FSR: 100 years: +45 %: 15 mins: Summer	36.685	36.685	0.305	0.305	10.6	3.624	0.000	0.000	1.4	1.310	57	30.966	OK
FSR: 100 years: +45 %: 15 mins: Winter	36.685	36.685	0.305	0.305	9.9	3.619	0.000	0.000	1.4	1.313	55	31.073	OK
FSR: 100 years: +45 %: 30 mins: Summer	36.752	36.752	0.372	0.372	7.0	4.412	0.000	0.000	1.2	2.630	40	15.954	OK
FSR: 100 years: +45 %: 30 mins: Winter	36.752	36.752	0.372	0.372	6.6	4.412	0.000	0.000	1.2	2.632	41	15.958	OK
FSR: 100 years: +45 %: 60 mins: Summer	36.823	36.823	0.443	0.443	6.1	4.796	0.000	0.000	1.2	5.038	37	8.653	OK
FSR: 100 years: +45 %: 60 mins: Winter	36.822	36.822	0.442	0.442	4.6	4.794	0.000	0.000	1.6	5.036	31	8.693	OK
FSR: 100 years: +45 %: 120 mins: Summer	36.851	36.851	0.471	0.471	4.0	4.822	0.000	0.000	3.6	9.028	22	8.155	OK
FSR: 100 years: +45 %: 120 mins: Winter	36.844	36.844	0.464	0.464	2.9	4.816	0.000	0.000	1.4	9.077	38	8.272	OK
FSR: 100 years: +45 %: 180 mins: Summer	36.829	36.829	0.449	0.449	3.2	4.801	0.000	0.000	1.2	11.493	42	8.548	OK
FSR: 100 years: +45 %: 180 mins: Winter	36.803	36.803	0.423	0.423	2.2	4.777	0.000	0.000	1.3	11.540	44	9.013	OK
FSR: 100 years: +45 %: 240 mins: Summer	36.794	36.794	0.414	0.414	2.7	4.768	0.000	0.000	1.0	12.685	55	9.184	OK
FSR: 100 years: +45 %: 240 mins: Winter	36.765	36.765	0.385	0.385	1.8	4.566	0.000	0.000	0.9	12.553	54	13.024	OK
FSR: 100 years: +45 %: 360 mins: Summer	36.745	36.745	0.365	0.365	2.0	4.334	0.000	0.000	0.9	13.566	48	17.438	OK
FSR: 100 years: +45 %: 360 mins: Winter	36.716	36.716	0.336	0.336	1.4	3.986	0.000	0.000	0.8	13.617	46	24.078	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:100 Years Storm Event + 45% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		
		Kemp House:: 124 City Road London EC1V 2NX	



FSR: 100 years: +45 %: 480 mins: Summer	36.713	36.713	0.333	0.333	1.7	3.954	0.000	0.000	0.9	14.512	46	24.685	OK
FSR: 100 years: +45 %: 480 mins: Winter	36.675	36.675	0.295	0.295	1.1	3.502	0.000	0.000	0.7	14.407	47	33.298	OK
FSR: 100 years: +45 %: 600 mins: Summer	36.685	36.685	0.305	0.305	1.4	3.626	0.000	0.000	0.8	15.117	46	30.937	OK
FSR: 100 years: +45 %: 600 mins: Winter	36.642	36.642	0.262	0.262	1.0	3.115	0.000	0.000	0.7	15.336	43	40.665	OK
FSR: 100 years: +45 %: 720 mins: Summer	36.664	36.664	0.284	0.284	1.2	3.370	0.000	0.000	0.7	15.905	46	35.812	OK
FSR: 100 years: +45 %: 720 mins: Winter	36.615	36.615	0.235	0.235	0.9	2.796	0.000	0.000	0.7	16.133	40	46.736	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
		Designed by: M.HAM	Checked by: S.L		Approved By: S.L
Report Details: Type: Junctions Storm Phase: Phase		Kemp House: 124 City Road London EC1V 2NX			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SWC-01	Manhole	469569.402	175134.993	37.420	0.500	36.920	Circular	0.450
SWC-02	Manhole	469566.656	175124.947	37.350	0.800	36.550	Circular	0.450
SWC-03-CP	Manhole	469570.541	175116.873	37.330	0.930	36.400	Circular	0.600
SWC-04	Manhole	469584.335	175131.217	37.380	0.500	36.880	Circular	0.450
SWC-05	Manhole	469581.729	175121.304	37.360	0.800	36.560	Circular	0.450
SWC-06-CP	Manhole	469576.242	175117.172	37.280	0.887	36.393	Circular	0.600
SWC-07-FCC	Manhole	469577.167	175116.935	37.280	0.909	36.371	Circular	0.600
SWC-08	Manhole	469582.455	175121.098	37.360	1.034	36.326	Circular	0.450
SWC-09	Manhole	469585.221	175131.001	37.380	1.123	36.257	Circular	0.450
Creek Outlet	Manhole	469589.780	175139.788	37.360	1.169	36.191	Circular	0.450

Name	Lock
SWC-01	None
SWC-02	None
SWC-03-CP	None
SWC-04	None
SWC-05	None
SWC-06-CP	None
SWC-07-FCC	None
SWC-08	None
SWC-09	None
Creek Outlet	None

Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
SWC-01	Outlet	SWP-01	Free Discharge
SWC-02	Outlet	SWP-02	Free Discharge
SWC-03-CP	Outlet	SWP-03	Free Discharge
SWC-04	Outlet	SWP-04	Free Discharge
SWC-05	Outlet	SWP-05	Free Discharge
SWC-06-CP	Outlet	SWP-06	Free Discharge
SWC-07-FCC	Outlet	SWP-08	Orifice
	Diameter (m)	0.026	
	Coefficient of Discharge	0.600	
	Invert Level (m)	36.371	
SWC-08	Outlet	SWP-09	Free Discharge
SWC-09	Outlet	SWP-10	Free Discharge

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Storm Phase: Phase	Kemp House: 124 City Road London EC1V 2NX		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	37.280
Depth (m)	0.400
Base Level (m)	36.380
Number of Crates Long	5
Number of Crates Wide	5
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	5.250

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		 Nimbus ENGINEERING CONSULTANTS
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House:: 124 City Road London EC1V 2NX		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-01	37.420 36.920	Diameter / Length: 0.450					Manhole
E:469569.402 N:175134.993	0.500						
			{a} SWP-01	Pipe	36.920	Diam/Width:150	Not Applicable
SWC-02	37.350 36.550	Diameter / Length: 0.450	{1} SWP-01	Pipe	36.550	Diam/Width:150	Manhole
E:469566.656 N:175124.947	0.800						
			{a} SWP-02	Pipe	36.550	Diam/Width:150	Not Applicable
SWC-03-CP	37.330 36.400	Diameter / Length: 0.600	{1} SWP-02	Pipe	36.400	Diam/Width:150	Manhole
E:469570.541 N:175116.873	0.930						
			{a} SWP-03	Pipe	36.400	Diam/Width:150	Not Applicable
SWC-04	37.380 36.880	Diameter / Length: 0.450					Manhole
E:469584.335 N:175131.217	0.500						
			{a} SWP-04	Pipe	36.880	Diam/Width:150	Not Applicable
SWC-05	37.360 36.560	Diameter / Length: 0.450	{1} SWP-04	Pipe	36.560	Diam/Width:150	Manhole
E:469581.729 N:175121.304	0.800						
			{a} SWP-05	Pipe	36.560	Diam/Width:150	Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		 Nimbus ENGINEERING CONSULTANTS
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House:: 124 City Road London EC1V 2NX		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-06-CP	37.280 36.393	Diameter / Length: 0.600	{1} SWP-05	Pipe	36.393	Diam/Width:150	Manhole
E:469576.242 N:175117.172	0.887		{a} SWP-06	Pipe	36.393	Diam/Width:150	Not Applicable
SWC-07-FCC	37.280 36.371	Diameter / Length: 0.600	{1} SWP-07	Pipe	36.371	Diam/Width:150	Manhole
E:469577.167 N:175116.935	0.909		{a} SWP-08	Pipe	36.371	Diam/Width:150	Not Applicable
SWC-08	37.360 36.326	Diameter / Length: 0.450	{1} SWP-08	Pipe	36.326	Diam/Width:150	Manhole
E:469582.455 N:175121.098	1.034		{a} SWP-09	Pipe	36.326	Diam/Width:150	Not Applicable
SWC-09	37.380 36.257	Diameter / Length: 0.450	{1} SWP-09	Pipe	36.257	Diam/Width:150	Manhole
E:469585.221 N:175131.001	1.123		{a} SWP-10	Pipe	36.257	Diam/Width:150	Not Applicable
Creek Outlet	37.360 36.191	Diameter / Length: 0.450	{1} SWP-10	Pipe	36.191	Diam/Width:150	Manhole
E:469589.780 N:175139.788	1.169						Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L		
		Approved By: S.L			
		Kemp House:: 124 City Road London EC1V 2NX			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area (1)	SWC-04		Time of Concentration	0.001	100	10	110	0.001
Catchment Area (2)	Cellular Storage		Time of Concentration	0.004	100	10	110	0.004
Catchment Area (3)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (4)	SWC-01		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (5)	SWC-04		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (6)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (7)	SWC-05		Time of Concentration	0.003	100	10	110	0.003
TOTAL		0.0		0.019				0.021

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Title: Rainfall Analysis Criteria	Kemp House: 124 City Road London EC1V 2NX		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	19.3
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
30.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		



Critical Storm Per Item: Rank By: Max. Flooded Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWC-01	FSR: 30 years: +40 %: 15 mins: Summer	37.42 0	36.92 0	36.941	0.021	1.4	0.003	0.000	1.4	0.605	OK
SWC-02	FSR: 30 years: +40 %: 15 mins: Summer	37.35 0	36.55 0	36.609	0.059	4.0	0.009	0.000	3.9	1.695	OK
SWC-03-CP	FSR: 30 years: +40 %: 15 mins: Summer	37.33 0	36.40 0	36.610	0.210	3.9	0.059	0.000	3.3	1.477	Surcharged
SWC-04	FSR: 30 years: +40 %: 15 mins: Summer	37.38 0	36.88 0	36.906	0.026	2.0	0.004	0.000	2.0	0.890	OK
SWC-05	FSR: 30 years: +40 %: 15 mins: Summer	37.36 0	36.56 0	36.610	0.050	3.4	0.008	0.000	3.4	1.479	OK
SWC-06-CP	FSR: 30 years: +40 %: 15 mins: Summer	37.28 0	36.39 3	36.610	0.217	3.4	0.061	0.000	2.7	1.240	Surcharged
SWC-07-FCC	FSR: 30 years: +40 %: 15 mins: Summer	37.28 0	36.37 1	36.610	0.239	1.1	0.068	0.000	0.7	0.839	Surcharged
SWC-08	FSR: 30 years: +40 %: 15 mins: Summer	37.36 0	36.32 6	36.348	0.022	0.7	0.004	0.000	0.7	0.788	OK
SWC-09	FSR: 30 years: +40 %: 15 mins: Summer	37.38 0	36.25 7	36.279	0.022	0.7	0.004	0.000	0.7	0.763	OK
Creek Outlet	FSR: 30 years: +40 %: 15 mins: Summer	37.36 0	36.19 1	36.213	0.022	0.7	0.000	0.000	0.7	0.763	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
		Designed by: M.HAM	Checked by: S.L		Approved By: S.L
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Kemp House:: 124 City Road London EC1V 2NX			



Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 30 years: +40 %: 120 mins: Summer	36.687	36.687	0.307	0.307	3.3	3.642	0.000	0.000	1.0	7.159	48	30.634

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 40% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			 Nimbus ENGINEERING CONSULTANTS

Status

OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SWC-01	Manhole	469569.402	175134.993	37.420	0.500	36.920	Circular	0.450
SWC-02	Manhole	469566.656	175124.947	37.350	0.800	36.550	Circular	0.450
SWC-03-CP	Manhole	469570.541	175116.873	37.330	0.930	36.400	Circular	0.600
SWC-04	Manhole	469584.335	175131.217	37.380	0.500	36.880	Circular	0.450
SWC-05	Manhole	469581.729	175121.304	37.360	0.800	36.560	Circular	0.450
SWC-06-CP	Manhole	469576.242	175117.172	37.280	0.887	36.393	Circular	0.600
SWC-07-FCC	Manhole	469577.167	175116.935	37.280	0.909	36.371	Circular	0.600
SWC-08	Manhole	469582.455	175121.098	37.360	1.034	36.326	Circular	0.450
SWC-09	Manhole	469585.221	175131.001	37.380	1.123	36.257	Circular	0.450
Creek Outlet	Manhole	469589.780	175139.788	37.360	1.169	36.191	Circular	0.450

Name	Lock
SWC-01	None
SWC-02	None
SWC-03-CP	None
SWC-04	None
SWC-05	None
SWC-06-CP	None
SWC-07-FCC	None
SWC-08	None
SWC-09	None
Creek Outlet	None

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SWC-01	Outlet	SWP-01	Free Discharge
SWC-02	Outlet	SWP-02	Free Discharge
SWC-03-CP	Outlet	SWP-03	Free Discharge
SWC-04	Outlet	SWP-04	Free Discharge
SWC-05	Outlet	SWP-05	Free Discharge
SWC-06-CP	Outlet	SWP-06	Free Discharge
SWC-07-FCC	Outlet	SWP-08	Orifice
	Diameter (m)	0.026	
	Coefficient of Discharge	0.600	
	Invert Level (m)	36.371	
SWC-08	Outlet	SWP-09	Free Discharge
SWC-09	Outlet	SWP-10	Free Discharge

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Storm Phase: Phase	Kemp House: 124 City Road London EC1V 2NX		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	37.280
Depth (m)	0.400
Base Level (m)	36.380
Number of Crates Long	5
Number of Crates Wide	5
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	5.250

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Manhole Schedule Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			 Nimbus ENGINEERING CONSULTANTS

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-01	37.420 36.920	Diameter / Length: 0.450					Manhole
E:469569.402 N:175134.993	0.500						
			{a} SWP-01	Pipe	36.920	Diam/Width:150	Not Applicable
SWC-02	37.350 36.550	Diameter / Length: 0.450	{1} SWP-01	Pipe	36.550	Diam/Width:150	Manhole
E:469566.656 N:175124.947	0.800						
			{a} SWP-02	Pipe	36.550	Diam/Width:150	Not Applicable
SWC-03-CP	37.330 36.400	Diameter / Length: 0.600	{1} SWP-02	Pipe	36.400	Diam/Width:150	Manhole
E:469570.541 N:175116.873	0.930						
			{a} SWP-03	Pipe	36.400	Diam/Width:150	Not Applicable
SWC-04	37.380 36.880	Diameter / Length: 0.450					Manhole
E:469584.335 N:175131.217	0.500						
			{a} SWP-04	Pipe	36.880	Diam/Width:150	Not Applicable
SWC-05	37.360 36.560	Diameter / Length: 0.450	{1} SWP-04	Pipe	36.560	Diam/Width:150	Manhole
E:469581.729 N:175121.304	0.800						
			{a} SWP-05	Pipe	36.560	Diam/Width:150	Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Manhole Schedule Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-06-CP	37.280 36.393	Diameter / Length: 0.600	{1} SWP-05	Pipe	36.393	Diam/Width:150	Manhole
E:469576.242 N:175117.172	0.887		{a} SWP-06	Pipe	36.393	Diam/Width:150	Not Applicable
SWC-07-FCC	37.280 36.371	Diameter / Length: 0.600	{1} SWP-07	Pipe	36.371	Diam/Width:150	Manhole
E:469577.167 N:175116.935	0.909		{a} SWP-08	Pipe	36.371	Diam/Width:150	Not Applicable
SWC-08	37.360 36.326	Diameter / Length: 0.450	{1} SWP-08	Pipe	36.326	Diam/Width:150	Manhole
E:469582.455 N:175121.098	1.034		{a} SWP-09	Pipe	36.326	Diam/Width:150	Not Applicable
SWC-09	37.380 36.257	Diameter / Length: 0.450	{1} SWP-09	Pipe	36.257	Diam/Width:150	Manhole
E:469585.221 N:175131.001	1.123		{a} SWP-10	Pipe	36.257	Diam/Width:150	Not Applicable
Creek Outlet	37.360 36.191	Diameter / Length: 0.450	{1} SWP-10	Pipe	36.191	Diam/Width:150	Manhole
E:469589.780 N:175139.788	1.169						Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L		
		Approved By: S.L			
		Kemp House:: 124 City Road London EC1V 2NX			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area (1)	SWC-04		Time of Concentration	0.001	100	10	110	0.001
Catchment Area (2)	Cellular Storage		Time of Concentration	0.004	100	10	110	0.004
Catchment Area (3)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (4)	SWC-01		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (5)	SWC-04		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (6)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (7)	SWC-05		Time of Concentration	0.003	100	10	110	0.003
TOTAL		0.0		0.019				0.021

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Title: Rainfall Analysis Criteria	Kemp House: 124 City Road London EC1V 2NX		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	19.3
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
30.0	0.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House: 124 City Road London EC1V 2NX		



Critical Storm Per Item: Rank By: Max. Flooded Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWC-01	FSR: 30 years: +0 %: 15 mins: Summer	37.42 0	36.92 0	36.938	0.018	1.0	0.003	0.000	1.0	0.431	OK
SWC-02	FSR: 30 years: +0 %: 15 mins: Summer	37.35 0	36.55 0	36.585	0.035	2.8	0.006	0.000	2.8	1.234	OK
SWC-03-CP	FSR: 30 years: +0 %: 15 mins: Summer	37.33 0	36.40 0	36.545	0.145	2.8	0.041	0.000	2.3	1.088	OK
SWC-04	FSR: 30 years: +0 %: 15 mins: Summer	37.38 0	36.88 0	36.902	0.022	1.5	0.003	0.000	1.4	0.628	OK
SWC-05	FSR: 30 years: +0 %: 15 mins: Summer	37.36 0	36.56 0	36.589	0.029	2.4	0.005	0.000	2.4	1.069	OK
SWC-06-CP	FSR: 30 years: +0 %: 15 mins: Summer	37.28 0	36.39 3	36.545	0.152	2.4	0.043	0.000	2.0	0.914	Surcharged
SWC-07-FCC	FSR: 30 years: +0 %: 15 mins: Summer	37.28 0	36.37 1	36.545	0.174	0.9	0.049	0.000	0.6	0.695	Surcharged
SWC-08	FSR: 30 years: +0 %: 15 mins: Summer	37.36 0	36.32 6	36.346	0.020	0.6	0.003	0.000	0.6	0.648	OK
SWC-09	FSR: 30 years: +0 %: 15 mins: Summer	37.38 0	36.25 7	36.278	0.021	0.6	0.003	0.000	0.6	0.625	OK
Creek Outlet	FSR: 30 years: +0 %: 15 mins: Summer	37.36 0	36.19 1	36.211	0.020	0.6	0.000	0.000	0.6	0.625	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
		Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Kemp House:: 124 City Road London EC1V 2NX		





Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 30 years: +0 %: 120 mins: Summer	36.596	36.596	0.216	0.216	2.4	2.566	0.000	0.000	0.7	5.545	45	51.117

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:30 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			 Nimbus ENGINEERING CONSULTANTS

Status

OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Junctions Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			 Nimbus ENGINEERING CONSULTANTS

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SWC-01	Manhole	469569.402	175134.993	37.420	0.500	36.920	Circular	0.450
SWC-02	Manhole	469566.656	175124.947	37.350	0.800	36.550	Circular	0.450
SWC-03-CP	Manhole	469570.541	175116.873	37.330	0.930	36.400	Circular	0.600
SWC-04	Manhole	469584.335	175131.217	37.380	0.500	36.880	Circular	0.450
SWC-05	Manhole	469581.729	175121.304	37.360	0.800	36.560	Circular	0.450
SWC-06-CP	Manhole	469576.242	175117.172	37.280	0.887	36.393	Circular	0.600
SWC-07-FCC	Manhole	469577.167	175116.935	37.280	0.909	36.371	Circular	0.600
SWC-08	Manhole	469582.455	175121.098	37.360	1.034	36.326	Circular	0.450
SWC-09	Manhole	469585.221	175131.001	37.380	1.123	36.257	Circular	0.450
Creek Outlet	Manhole	469589.780	175139.788	37.360	1.169	36.191	Circular	0.450

Name	Lock
SWC-01	None
SWC-02	None
SWC-03-CP	None
SWC-04	None
SWC-05	None
SWC-06-CP	None
SWC-07-FCC	None
SWC-08	None
SWC-09	None
Creek Outlet	None

Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
SWC-01	Outlet	SWP-01	Free Discharge
SWC-02	Outlet	SWP-02	Free Discharge
SWC-03-CP	Outlet	SWP-03	Free Discharge
SWC-04	Outlet	SWP-04	Free Discharge
SWC-05	Outlet	SWP-05	Free Discharge
SWC-06-CP	Outlet	SWP-06	Free Discharge
SWC-07-FCC	Outlet	SWP-08	Orifice
	Diameter (m)	0.026	
	Coefficient of Discharge	0.600	
	Invert Level (m)	36.371	
SWC-08	Outlet	SWP-09	Free Discharge
SWC-09	Outlet	SWP-10	Free Discharge

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Storm Phase: Phase	Kemp House: 124 City Road London EC1V 2NX		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	37.280
Depth (m)	0.400
Base Level (m)	36.380
Number of Crates Long	5
Number of Crates Wide	5
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	5.250

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Manhole Schedule Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-01	37.420 36.920	Diameter / Length: 0.450					Manhole
E:469569.402 N:175134.993	0.500						
			{a} SWP-01	Pipe	36.920	Diam/Width:150	Not Applicable
SWC-02	37.350 36.550	Diameter / Length: 0.450	{1} SWP-01	Pipe	36.550	Diam/Width:150	Manhole
E:469566.656 N:175124.947	0.800						
			{a} SWP-02	Pipe	36.550	Diam/Width:150	Not Applicable
SWC-03-CP	37.330 36.400	Diameter / Length: 0.600	{1} SWP-02	Pipe	36.400	Diam/Width:150	Manhole
E:469570.541 N:175116.873	0.930						
			{a} SWP-03	Pipe	36.400	Diam/Width:150	Not Applicable
SWC-04	37.380 36.880	Diameter / Length: 0.450					Manhole
E:469584.335 N:175131.217	0.500						
			{a} SWP-04	Pipe	36.880	Diam/Width:150	Not Applicable
SWC-05	37.360 36.560	Diameter / Length: 0.450	{1} SWP-04	Pipe	36.560	Diam/Width:150	Manhole
E:469581.729 N:175121.304	0.800						
			{a} SWP-05	Pipe	36.560	Diam/Width:150	Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Manhole Schedule Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWC-06-CP	37.280 36.393	Diameter / Length: 0.600	{1} SWP-05	Pipe	36.393	Diam/Width:150	Manhole
E:469576.242 N:175117.172	0.887		{a} SWP-06	Pipe	36.393	Diam/Width:150	Not Applicable
SWC-07-FCC	37.280 36.371	Diameter / Length: 0.600	{1} SWP-07	Pipe	36.371	Diam/Width:150	Manhole
E:469577.167 N:175116.935	0.909		{a} SWP-08	Pipe	36.371	Diam/Width:150	Not Applicable
SWC-08	37.360 36.326	Diameter / Length: 0.450	{1} SWP-08	Pipe	36.326	Diam/Width:150	Manhole
E:469582.455 N:175121.098	1.034		{a} SWP-09	Pipe	36.326	Diam/Width:150	Not Applicable
SWC-09	37.380 36.257	Diameter / Length: 0.450	{1} SWP-09	Pipe	36.257	Diam/Width:150	Manhole
E:469585.221 N:175131.001	1.123		{a} SWP-10	Pipe	36.257	Diam/Width:150	Not Applicable
Creek Outlet	37.360 36.191	Diameter / Length: 0.450	{1} SWP-10	Pipe	36.191	Diam/Width:150	Manhole
E:469589.780 N:175139.788	1.169						Not Applicable

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L		
		Approved By: S.L			
		Kemp House:: 124 City Road London EC1V 2NX			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area (1)	SWC-04		Time of Concentration	0.001	100	10	110	0.001
Catchment Area (2)	Cellular Storage		Time of Concentration	0.004	100	10	110	0.004
Catchment Area (3)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (4)	SWC-01		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (5)	SWC-04		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (6)	SWC-02		Time of Concentration	0.003	100	10	110	0.003
Catchment Area (7)	SWC-05		Time of Concentration	0.003	100	10	110	0.003
TOTAL		0.0		0.019				0.021

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Title: Rainfall Analysis Criteria	Kemp House: 124 City Road London EC1V 2NX		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR	Type: FSR
-----	-----------

Region	England And Wales
M5-60 (mm)	19.3
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: M.HAM	Checked by: S.L	
		Approved By: S.L		
		Kemp House:: 124 City Road London EC1V 2NX		



Critical Storm Per Item: Rank By: Max. Flooded Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWC-01	FSR: 1 years: +0 %: 15 mins: Summer	37.42 0	36.92 0	36.932	0.012	0.4	0.002	0.000	0.4	0.176	OK
SWC-02	FSR: 1 years: +0 %: 15 mins: Summer	37.35 0	36.55 0	36.573	0.023	1.2	0.004	0.000	1.1	0.506	OK
SWC-03-CP	FSR: 1 years: +0 %: 15 mins: Summer	37.33 0	36.40 0	36.444	0.044	1.1	0.012	0.000	1.1	0.468	OK
SWC-04	FSR: 1 years: +0 %: 15 mins: Summer	37.38 0	36.88 0	36.894	0.014	0.6	0.002	0.000	0.6	0.257	OK
SWC-05	FSR: 1 years: +0 %: 15 mins: Summer	37.36 0	36.56 0	36.579	0.019	1.0	0.003	0.000	1.0	0.434	OK
SWC-06-CP	FSR: 1 years: +0 %: 15 mins: Summer	37.28 0	36.39 3	36.444	0.051	1.0	0.014	0.000	0.9	0.388	OK
SWC-07-FCC	FSR: 1 years: +0 %: 15 mins: Summer	37.28 0	36.37 1	36.444	0.073	0.4	0.021	0.000	0.3	0.402	OK
SWC-08	FSR: 1 years: +0 %: 15 mins: Summer	37.36 0	36.32 6	36.342	0.016	0.3	0.003	0.000	0.3	0.366	OK
SWC-09	FSR: 1 years: +0 %: 15 mins: Summer	37.38 0	36.25 7	36.273	0.016	0.3	0.003	0.000	0.3	0.348	OK
Creek Outlet	FSR: 1 years: +0 %: 15 mins: Summer	37.36 0	36.19 1	36.207	0.016	0.3	0.000	0.000	0.3	0.348	OK

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s		Date: 23/02/2026		
		Designed by: M.HAM	Checked by: S.L	Approved By: S.L
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Kemp House:: 124 City Road London EC1V 2NX		





Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 1 years: +0 %: 60 mins: Summer	36.462	36.462	0.082	0.082	1.4	0.978	0.000	0.000	0.4	1.747	22	81.367

Warren Creek, The Warren, Caversham, Reading, RG4 7TQ: Erection of 4-bed detached dwelling 1:1 Years Storm Event + 0% Climate Change Flow Restricted to 1.0l/s	Date: 23/02/2026		
	Designed by: M.HAM	Checked by: S.L	Approved By: S.L
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		
Kemp House:: 124 City Road London EC1V 2NX			 Nimbus ENGINEERING CONSULTANTS

Status

OK